

Special scoop:

The world in 2050

The idea of

IMMORTALITY

in Netflix's

ALTERED CARBON

Distance

is no longer

a barrier

to your love with

KISSENGER!

WHAT A TREND!

"VR girlfriend"

now available in Japan

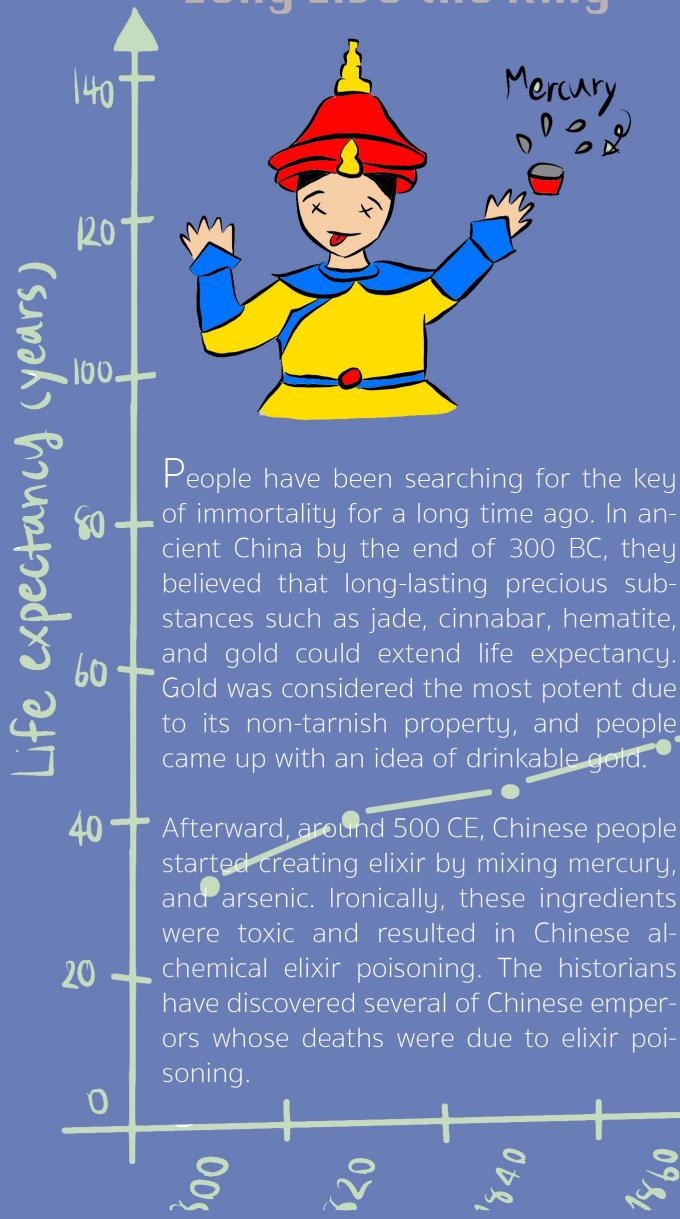


The
World
to Come

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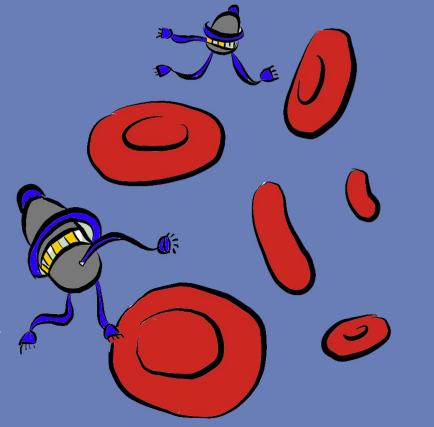
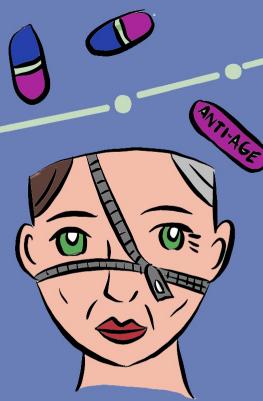
To those who
are looking
forward
to the future

Elixir of Life : Long Live the King



After several failed attempts to find such an elixir, people have moved towards medical development. The drug Novartis is claimed to be an effective anti-aging pill. It is a derivative of Rapamycin which is a compound first discovered oozing from a bacterium native to Easter Island. Rapamycin is well-known for the most consistent way to postpone death. It lengthens the lives of flies, worms, and rodents. The mice fed with the compound can live 25 percent longer. However, what we don't have yet are formal studies of whether rapamycin can lengthen people's life spans.

Anti-Aging pills



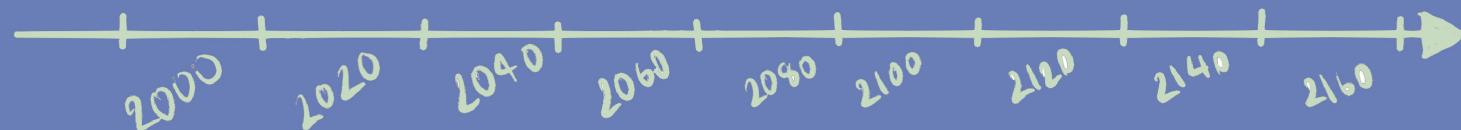
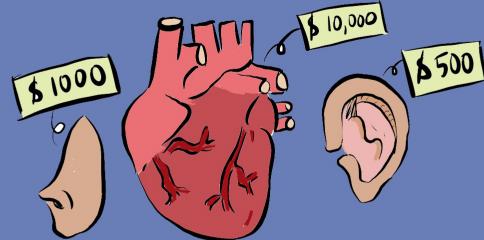
Nanobots

On the other hand, another key to living longer is to cure the fatal diseases. Researchers at Harvard's Wyss Institute have developed nanobots that can eliminate early cancer cells. These nanobots will swim in our bloodstream, seek out and destroy cancerous cells. The studies in cell cultures and animals have been promising, but it still requires more work before human trials begin.

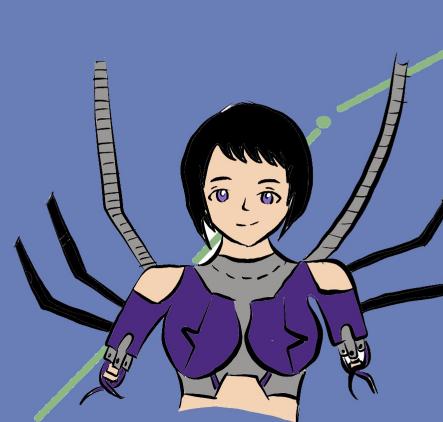
IMMORTALITY

The ability to print living tissue that is suitable for implant into live humans is not merely a dream. The Wake Forest Institute for Regenerative Medicine has built a device called the Integrated Tissue and Organ Printing System. From the early tests, the printed structures have the right size, strength, and function for use in humans. The experiments also proved the feasibility of printing living tissue structures to replace injured or diseased tissue in patients. With this technology, humans can live exceeding the limitation of their organs' lifespan.

3D printed organs



Human lifespan has been increasing over time. The average lifespan of Neanderthal is merely 30 years, while for people nowadays, it is approximately 80 years. How have we come this far? And what can we do better?



Altered Carbon

Still, the desire for immortality has not entirely gone. The desire reflects in Netflix's show *Altered Carbon*. In the story, humans can store their personalities digitally and download into new bodies, called sleeves. The cortical stacks in their spinal columns store their consciousness. With this technology, people can theoretically live forever. However, to reincarnate, people need new sleeves that do not come for free. The bodies are costly and have their own shelf lives due to the natural aging process. Ordinary people may not be affordable for resleeving more than once or twice, while the rich can resleeve indefinitely.

How can we go beyond?

From the idea of resleeving in *Altered Carbon*, what if we do not use corpses, but artificial bodies as sleeves? Without the aging issue, humanity would last forever. This promising yet thrilling idea makes us uncomfortable. Will we still be humans? What does life mean and what is the point of living forever?





Ancient Systems

The ancient systems include smoke signals, talking drums, pigeon post or those you have seen in period movies.



The smoke signal is one of the oldest forms of telecommunication. It could not transmit much information; black smoke, white smoke, and some other patterns are the only options. The talking drum is an hour-glass-shaped drum whose pitch can be controlled to mimic the tone and prosody of human speech. Homing pigeons had Persian roots, but have prevalently been used by different cultures to aid their military. These forms of telecommunication work only in a limited distance. The smoke can't resist the mighty wind; the talking drum is not loud enough to signal a whole country; and, the pigeon can't fly across the continent.

long time ago

Telegraph & Telephone

Later on, in the 1830s, the idea of the electric signal was introduced to humanity; we could transmit the signal as long as a wire is. Morse, Gale, and Vail use this idea to produce a single-circuit telegraph. It works by pushing the operator key down to complete the circuit. Then, the electric signal will travel to a receiver at the other end of a wire. Then in the 1870s, the electric telephone was invented. It was based on earlier work with harmonic telegraphs,



1830s

1870s



Computer Networks & the Internet

However, the length of wires is still an issue, so the idea of wireless network arose. The Internet is the interconnected computer networks linked by a broad array of electronic, wireless, and optical networking technologies. The Internet provides us a wide range of information resources and services, such as the World Wide Web (WWW), electronic mail, telephony, and file sharing.

Video call is also the benefit of the internet. Nowadays, we can not only hear but also "see" what the receiver reacts. Being able to send our expression can reduce a lot of misunderstanding and make the world a lot smaller.

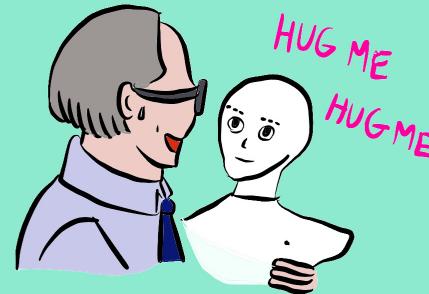
1940s

TELECOMMUNICATIONS

Nowadays, we can communicate with people wherever we are and whenever we want. We can send messages, voices, and pictures, but what else we haven't tried?

Kiss transmitter

When sound and sight seem not satisfy humans enough, researchers then came up with "Kissinger!" It is the two-way device, which allows users to send and receive the sensation of a kiss simultaneously. The way it works is simple. The two users insert their phones into their plastic Kissenger devices and place a video call. Whenever users want to kiss, just press their lips against silicone pads. The force sensor in the pads will transmit the pressure pattern in real time to other user's unit. Then, the actuators underneath the rubber will reproduce the pattern.



Huggable robot

What if Kissenger is not the only option? Ishiguro Hiroshi has developed the latest teleoperated android robot Telenoid R1. The robot is in a size that people can hug and hold, and its shell is made to replicate human skin.

The software on a laptop controls the robot by sending signals to the android. The signals then will control simple movements of the robot's head and body. Cameras near the robot send a video feed to the operator allowing them both to see the android and a receiver. This creepy robot is claimed to complement the lives of elderly who live far away from their grandchildren. I'm not quite sure about this.

How can we go beyond?

We have seen several attempts on sending touch. What if we can transmit something more than that? What about smell, taste, and emotion? In the future, there might be a device that can sense and create an odor and taste, so that our grandma can give us a cooking recipe without traveling from China to the US.

Moreover, imagine that Emotion buttons replace Emoji ones. Then, we can send the warm-hearted feeling by click "love" button, or give big applause and I'm-proud-of-you feeling by clicking "like?" What an awesome technology!



2010s

Future



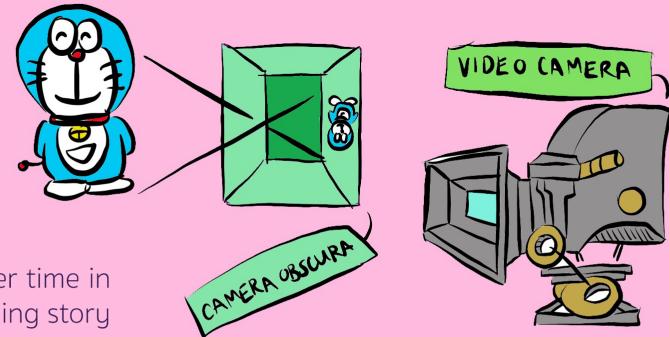
Painting and Drawing

Since ancient time, humans have tried to capture their experiences and their environments into some forms so that they can revisit and get the feeling they once experienced.

Painting and drawing are the first form humans created to hold their experience. Prehistoric people produced the cave art as a hold of their memory, knowledge, and pride. The 30,000-year-old painting in the Chauvet-Pont-d'Arc cave in France is the oldest one. The painting expresses the artists' animals observation experiences and shows us "the reality of prehistoric humans."

The painting has developed over time in diverse types and styles. By adding story and emotion in it, the painting became more realistic. Handscroll painting Emaki is one of the famous Japanese arts that employs the use of storytelling to illustrated their reality. It requires the viewer to scrolls through a narrative from right to left. Emaki often picture landscape view, folktales, battles, or religion-related story.

Handscroll paintings



Camera & Video Camera

However, human hands and eyes cannot transfer all details that we saw into a painting. With this limitation, the camera had invented to help us store all the details. The first camera called the camera obscura can be dated back in the fifth century B.C, but the first photograph was taken in 1827 by Nicéphore Niépce. He set up a camera obscura and cast the scene of the view outside his studio on a treated pewter plate. After several hours, it retained a crude copy of the buildings and outside on the plate.

Then, the need to record the movement experience urges us to invent the video camera. The early video recording contains only motion picture. Later, video cameras were developed to record sounds as well.

30,000 years ago

1100s - 1600s

1827

VIRTUAL REALITY

What if the environment we are experiencing is not from nature, but our creation to be as we desire?

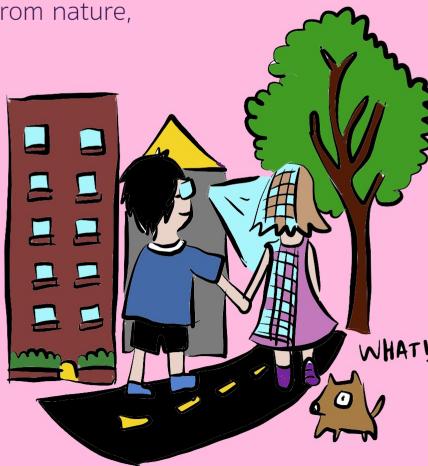
Virtual Reality Age

However, photograph and video are still not enough for us. We want to be more engaged and feel more realistic as if we are in that world. Virtual reality has developed to respond to this need. Virtual reality is a three-dimensional, computer-generated environment which can be explored and interacted with by a person. The most common form of VR device is VR headset. It looks like ski goggle and its use focus mainly on entertainment.



VR girlfriend: VR Kanojo

Want to have a romantic experience but have no lover? Don't worry meet your VR girlfriend from Japan. VR Kanojo is a game of a hangout session with "the lovely girl-next-door, Sakura Yuuhi," where you can watch her sleep, talking with her, help her with her homework, and other things that lovers do together. Come to think of it; It worked the same way as an imaginary friend that you have when you were young. The company even plan to bring Sakura into the real world where you can see the actual world and still can interact with her. What do you think?



2016

2017

Future

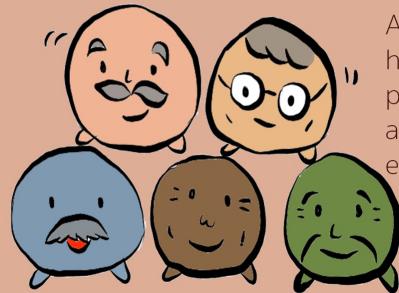
How can we go beyond?

Present VR focuses on entertainment and separates from the actual reality, but, in the future, we might be able to integrate the VR to the real world. VR might give us an adventure without leaving our house, so that we can explore the world in our room. Physicians might use VR in a medical practice training which allows them to experience what might happen in the complicated surgery.

Furthermore, since VR headset is a little bit too unwieldy, we might reform it as contact lens. To improve the realness, we might also create VR device that has the signal transferring machine connect to our brain so that it can create a tactile experience. The questions are: will it be the point in the future where we cannot distinguish between the actual reality or the virtual reality that we created? Then, how would that impact us as a human?



Aging Society



By 2050, the U.N. predicts that number may be closer to 9.6 billion, with one in every six people will be over 65. The governments will have a difficult time to figure it out how to distribute the tax revenue to those old people. Also, living longer might not mean having a good life. Most researchers predict that we will spend time more on a hospital bed, curing age-related diseases.

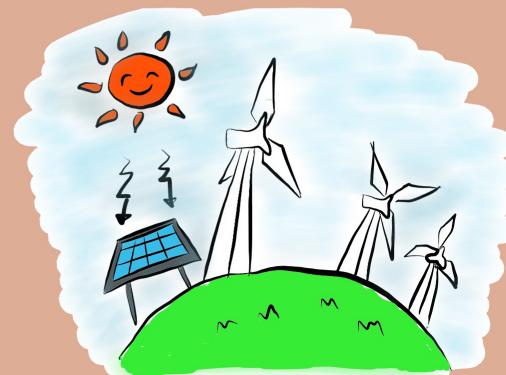


Artificial intelligence will be insanely good

By 2050, robots that outperform humans both physically and intellectually will run entire businesses by themselves. With AI, robots may also discover things the scientist have not yet know. Scientists even predicted that by 2050 there would be human-like robots with their own emotions and the capability to hold intelligent conversations and relationships with people.

THE WORLD

clean energy Solar Power Might Be the World's Biggest Energy Source



Fossil fuel will extinct in a couple of decades, clean energy such as wind and solar power will take over market share. Solar energy has been introduced to humanity since 1972 with the price \$75 per watt. Today, it's just \$1 and continuing to fall. By 2050, scientists predict that solar energy will contribute as much as 27% of the world energy, and the price will be meager.

We are standing in the middle of the era of rapid advancements in computing. 25 years ago, scientists developed the world first computer ENIAC which weighed 30 tonnes and could store an only limited amount of information. Now, we have the book-size computer with 512GB or even 1TB of storage which is 1000 times better. So, if nothing interrupts this trend, by 2050 the machine is going to be 1000 times better than now.



We are only halfway through the era of computer

By 2050, according to the World Health Organization, the number of people around the world living with dementia will be rising from 36 million to 115 million people. Since the various disease can cause dementia, there is no universal test to determine if someone has the symptom. The diagnosis is not affordable for many low-income countries. Even in wealthy nations, only one-fifth of patients can recognize the signs in time for adequate treatment.



**Over 100 million
people will be living
with dementia**

IN 2050

Hurricanes and floods

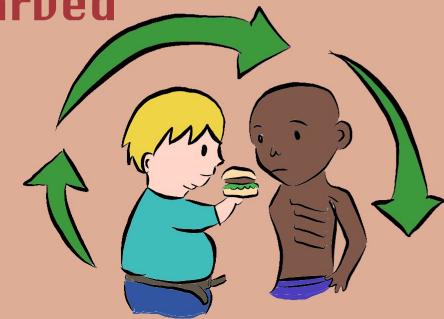
Climate change will exacerbate several natural disasters in the future. Hurricanes will become more frequent and more severe. In our grandchildren generation, they can expect to see at least 20 intense storms during their lifetime.

What's more, rising water levels will flood major cities across the globe. The cities along the coastline of the US will face almost 30 days of flooding each year. Also, the most visited place Venice will be in trouble. The town and surrounding land could sink by about 3.2 inches relative to the sea in the next 20 years.



On a planet with 9.6 billion people, resources will run out. The recycling technology must be improved so that the quality of the product never diminishes even after recycling, which is a significant problem for recycling now. Some people expect that we may be able to design the products that are recyclable while retaining 100 percent of their original integrity.

Resource-Starved Planet



2050 is not far away from now. Several scholars have chosen this lovely round number as the year to look forward. If you google "2050," you will be surprised by thousands of articles, documentary movies or even simulation of the world in 2050.

**WHY
2050?**

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“The future is in your hands”

