

THE HUMAN MIRACLE

**O man! What has deluded you in respect of your Noble Lord?
He Who created you and formed you and proportioned
you and assembled you in whatever way He willed.
(Surat al-Infitar:6-8)**

HARUN YAHYA

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About the Author

Now writing under the pen-name of HARUN YAHYA, Adnan Oktar was born in Ankara in 1956. Having completed his primary and secondary education in Ankara, he studied arts at Istanbul Mimar Sinan University and philosophy at Istanbul University. Since the 1980s, he has published many books on political, scientific, and faith-related issues. Harun Yahya is well-known as the author of important works disclosing the imposture of evolutionists, their invalid claims, and the dark liaisons between Darwinism and such bloody ideologies as fascism and communism.

Harun Yahya's works, translated into 57 different languages, constitute a collection for a total of more than 45,000 pages with 30,000 illustrations.

His pen-name is a composite of the names Harun (Aaron) and Yahya (John), in memory of the two esteemed prophets who fought against their peoples' lack of faith. The Prophet's (may Allah bless him and grant him peace) seal on his books' covers is symbolic and is linked to their contents. It represents the Qur'an (the Final Scripture) and Prophet Muhammad (may Allah bless him and grant him peace), last of the prophets. Under the guidance of the Qur'an and the Sunnah (teachings of the Prophet), the author makes it his purpose to disprove each fundamental tenet of irreligious ideologies and to have the "last word," so as to completely silence the objections raised against religion. He uses the seal of the final Prophet (may Allah bless him and grant him peace), who attained ultimate wisdom and moral perfection, as a sign of his intention to offer the last word.

All of Harun Yahya's works share one single goal: to convey the Qur'an's message, encourage readers to consider basic faith-related issues such as Allah's existence and unity and the Hereafter; and to expose irreligious systems' feeble foundations and perverted ideologies.

Harun Yahya enjoys a wide readership in many countries, from India to America, England to Indonesia, Poland to Bosnia, Spain to Brazil, Malaysia to Italy, France to Bulgaria and Russia. Some of his books are available in English, French, German, Spanish, Italian, Portuguese, Urdu, Arabic, Albanian, Chinese, Swahili, Hausa, Dhivehi (spoken in Mauritius), Russian, Serbo-Croat (Bosnian), Polish, Malay, Uygur Turkish, Indonesian, Bengali, Danish and Swedish.

Greatly appreciated all around the world, these works have been instrumental in many people recovering faith in Allah and gaining deeper insights into their faith. His books' wisdom and sincerity, together with a distinct style that's easy to understand, directly affect anyone who reads them. Those who seriously consider these books, can no longer advocate atheism or any other perverted ideology or materialistic philosophy, since these books are characterized by rapid effectiveness, definite results, and irrefutability. Even if they continue to do so, it will be only a sentimental insistence, since these books

refute such ideologies from their very foundations. All contemporary movements of denial are now ideologically defeated, thanks to the books written by Harun Yahya.

This is no doubt a result of the Qur'an's wisdom and lucidity. The author modestly intends to serve as a means in humanity's search for Allah's right path. No material gain is sought in the publication of these works.

Those who encourage others to read these books, to open their minds and hearts and guide them to become more devoted servants of Allah, render an invaluable service.

Meanwhile, it would only be a waste of time and energy to propagate other books that create confusion in people's minds, lead them into ideological chaos, and that clearly have no strong and precise effects in removing the doubts in people's hearts, as also verified from previous experience. It is impossible for books devised to emphasize the author's literary power rather than the noble goal of saving people from loss of faith, to have such a great effect. Those who doubt this can readily see that the sole aim of Harun Yahya's books is to overcome disbelief and to disseminate the Qur'an's moral values. The success and impact of this service are manifested in the readers' conviction.

One point should be kept in mind: The main reason for the continuing cruelty, conflict, and other ordeals endured by the vast majority of people is the ideological prevalence of disbelief. This can be ended only with the ideological defeat of disbelief and by conveying the wonders of creation and Qur'anic morality so that people can live by it. Considering the state of the world today, leading into a downward spiral of violence, corruption and conflict, clearly this service must be provided speedily and effectively, or it may be too late.

In this effort, the books of Harun Yahya assume a leading role. By the will of Allah, these books will be a means through which people in the twenty-first century will attain the peace, justice, and happiness promised in the Qur'an.

To the Reader

A special chapter is assigned to the collapse of the theory of evolution because this theory constitutes the basis of all anti-spiritual philosophies. Since Darwinism rejects the fact of creation –and therefore, Allah's existence– over the last 140 years it has caused many people to abandon their faith or fall into doubt. It is therefore an imperative service, a very important duty to show everyone that this theory is a deception. Since some readers may find the opportunity to read only one of our books, we think it appropriate to devote a chapter to summarize this subject.

All the author's books explain faith-related issues in light of Qur'anic verses, and invite readers to learn Allah's words and to live by them. All the subjects concerning Allah's verses are explained so as to leave no doubt or room for questions in the reader's mind. The books' sincere, plain, and fluent style ensures that everyone of every age and from every social group can easily understand them. Thanks to their effective, lucid narrative, they can be read at one sitting. Even those who rigorously reject spirituality are influenced by the facts these books document and cannot refute the truthfulness of their contents.

This and all the other books by the author can be read individually, or discussed in a group. Readers eager to profit from the books will find discussion very useful, letting them relate their reflections and experiences to one another.

In addition, it will be a great service to Islam to contribute to the publication and reading of these books, written solely for the pleasure of Allah. The author's books are all extremely convincing. For this reason, to communicate true religion to others, one of the most effective methods is encouraging them to read these books.

We hope the reader will look through the reviews of his other books at the back of this book. His rich source material on faith-related issues is very useful, and a pleasure to read.

In these books, unlike some other books, you will not find the author's personal views, explanations based on dubious sources, styles that are unobservant of the respect and reverence due to sacred subjects, nor hopeless, pessimistic arguments that create doubts in the mind and deviations in the heart.

INTRODUCTION: A SHORT VOYAGE THROUGH THE HUMAN BODY

This book describes how the human body's various systems function, and gives examples of their components. In contrast to many other books about human anatomy, however, we also regularly emphasize a number of points. We examine information in considerable detail, draw attention to the fine characteristic in every square millimeter of the human body, and particularly emphasize the cells, tissues, molecules and glands that perform such miraculous processes within that body's depths.

From time to time, we also provide technical details, to ensure a better understanding of the complex structure within your body, and also to give you a new perspective on events occurring inside your body and to encourage you to consider them more deeply.

In order to achieve this, as you read this book, imagine yourself on a voyage throughout your own body—a voyage on which unbelievable surprises await you. You will discover that there is a generator in your heart, and when that generator cuts out, a spare one steps in to take over the work. You'll witness how cells in your small intestine are able to recognize and trap iron atoms out of the many hundreds of different substances they encounter. You will see how, after a long journey, a molecule of hormone, produced in an endocrine gland located in your head, reaches its far distant objective—your kidney, for example—and how it instructs the cells there what to do.

During the course of this journey you will witness miraculous events that have been taking place throughout what you refer to as “My body” ever since the day you were born, starting right beneath the surface of your skin.

Viewed from that point of view, your body is a whole city, a whole other world, in fact. Inside it are modes of transport, buildings, factories, infrastructure systems, equipment more highly advanced than even the most sophisticated technology in the outside world, specialized elements (such as cells, hormones, glands) that seem to exhibit unexpected awareness, fully equipped defensive troops, and many other marvels.

Moreover, this miniaturized environment is not restricted to your own body alone. Everyone you see around you—your parents, brothers, sisters, friends, colleagues, people walking in the street, the actors you watch on television, and all the billions currently living on this planet—possesses this same miraculous world within the skin. Similarly, people who lived hundreds or even thousands of years ago—indeed all the humans who have ever lived—have possessed this same inner perfection. Just like those alive today, people in the past had the same flawless systems in their bodies: trillions of conscious-

seeming cells, secretory glands with decision-making abilities, and organs equipped with the most sophisticated biotechnology.

Considering and evaluating the events taking place within this miniature environment is of great importance, because anyone who does so has taken the first step towards freedom from a great illusion. Those who realize the perfection of the systems inside their own bodies—in the heart, for example—and who have grasped the creation within that system, can no longer be taken in by evolutionary fables that claim that the heart acquired all these features by chance. You will know that cells formed by the coming together of unconscious molecules could never do these things by themselves, and will seek to question of Whose intellect it actually is that these cells exhibit.

Someone who realizes that the stomach, a mere enclosure of muscle and tissue, possesses a special system that prevents it digesting itself while it secretes the acid strong enough to dissolve meat . . . those who know that when they cut their finger, at least 20 different enzymes go into action in a very special sequence in order for their blood to clot, with never any confusion or deficiency in the various processes while this is carried out . . . will find, by thinking deeply about the details of matter, that none of these systems could have developed in stages, as evolutionists would have us all believe.

Those who understand these details will realize that the tiny worlds of their bodies, has a Creator, and will regard the information they read here as a guide to becoming acquainted with that Creator. Everyone who sees the order in the systems within the human body, its superior creation at every point, will also clearly see that an Entity possessed of a superior power and a superior intellect must have created that body. In the Qur'an it is revealed that:

Everything in the heavens and everything in the earth belongs to Him. Allah is the Rich Beyond Need, the Praiseworthy. Do you not see that Allah has made everything on the earth subservient to you and the ships running upon the sea by His command? He holds back the heaven, preventing it from falling to the earth—except by His permission. Allah is All-Compassionate to humanity, Most Merciful. It is He Who gave you life and then will cause you to die and then will give you life again. Man is truly ungrateful. (Surat al-Hajj: 64-66)

As you will clearly see from the examples given throughout this book, it is Almighty Allah Who created the 100 trillion or so cells, the glands, many organs and tissues in your human body. Allah creates human beings as a whole, together with all their physical components, and reveals evidence of this to allow them to come to know Him. As our Lord has revealed in the Qur'an:

If you tried to number Allah's blessings, you could never count them. Allah is Ever-Forgiving, Most Merciful. (Surat an-Nahl:18)

That being so, those who are aware of all this must also realize the many blessings imparted by Allah. Such people will arrange their lives in such a way as to please only Him, know that their own bodies, and every new day bestowed on them when they rise in the morning are blessings from Allah, and will give due thanks to Him.

Why indeed should I not worship Him Who brought me into being, Him to Whom you will be returned? Am I to take as deities instead of Him those whose intercession, if the All-Merciful desires harm for me, will not help me at all and cannot save me? (Surah Ya Sin:22-23)

INTELLIGENT DESIGN—IN OTHER WORDS, CREATION

In order to create, Allah has no need to design.

It's important to properly understand the word "design." That Allah has created a flawless design does not mean that He first made a plan, and then followed it. Allah needs no "designs" in order to create. Allah, the Lord of the Earth and the heavens, is exalted above all such deficiencies. His planning and creation take place at the same instant.

Whenever Allah wills a thing to come about, it is enough for Him just to say, "Be!" As we are told in verses of the Qur'an:

His command when He desires a thing is just to say to it, "Be!" and it is. (Surah Ya Sin:82)

[Allah is] the Originator of the heavens and Earth. When He decides on something, He just says to it, "Be!" and it is. (Surat al-Baqara: 117)

THE BODY'S TRANSPORT NETWORK: THE CIRCULATORY SYSTEM

A large part of the processes that take place within your body are linked to the circulatory system, thanks to an exceedingly complex structure. A network of arteries and veins nourish the 100 trillion or so cells in your body, visiting every one individually. In this chapter, we shall be closely considering this complex system composed of the heart, veins, blood and a great many more components.

BLOOD: THE RIVER OF LIFE THAT FLOWS THROUGH YOUR BODY

Many needs in all living things—such as carrying nourishment and gasses like oxygen to the cells, and eliminating waste products from the body—are met by substances carried by the circulatory system. In human beings, the liquid that performs all these functions is the blood. Every single cell in your body, from a skin cell on your fingertip to the specialized retinal cells in your eyes, depends on what blood provides.

Blood flows through the arteries and veins that interpenetrate the body like a transport network or river delta, visiting every single corner of the body. During its travels through the arteries, that river carries numerous substances that the cells require. We can think of these as cargo packages carried by the river, containing food, water and various chemical substances. The most urgent package to be delivered is oxygen, because if deprived of oxygen, cells will soon die. Thanks to the specially constructed system in your body, however, the packages are delivered to every cell in time and to the correct “addresses.”

You seldom feel the flowing of this river during the course of your day-to-day life. However, the human body has been created with such a consummate artistry that though everywhere is interpenetrated by blood vessels, they are invisible from the outside. That is because the 2-mm (0.07-inch) layer of skin that covers your body conceals the capillaries in a masterly fashion.¹

That epidermal layer is actually so thin that the slightest scratch will cause some blood to leak through it. Were the vessels not covered by a very fine and attractive skin, there is no doubt that even the most attractive people in the world would appear hideously repellent.

Blood performs a great number of vital functions inside the body, such as carrying waste and toxic substances to the liver, supporting the immune system, regulating body

temperature rather like an air-conditioning unit, and carrying nutriment to the relevant regions. Communication via hormones within the body is also performed almost entirely by the blood.

Blood's Vital and Inimitable Features

1. Responsibility for Transportation

Substances of all kinds that the body requires are carried to the relevant organs by the blood. Nutrients such as glucose, amino acids and minerals—and most importantly, oxygen—are just a few of these. In addition, the blood works like a waste disposal system, collecting unwanted substances from every cell. And each of the 100 trillion or so cells in the body produces waste products as a result of its daily functions. These waste products, including such potentially toxic compounds as carbon dioxide and urea, are removed from the cells by means of the bloodstream. The blood carries the non-gaseous wastes to the kidneys, where they are distilled. The carbon dioxide produced in the cells is carried to the lungs, from where it is expelled from the body.

It is unconscious blood cells that do all this. However, these cells can, in a very conscious manner, distinguish between waste and useful substances carried in the blood, and know which are to be deposited where. For example, they never carry toxic gasses to the kidneys, nor metabolic by-products to the lungs. Neither do they send waste products to any organ in need of nutrients—an error that would lead to the death of the entire body. The blood cells perform their functions with no confusion, error, misunderstanding or deficiency, in a most conscious manner, indicating the existence of a Mind and Consciousness that controls, regulates and organizes them. That cannot be the human being in question, because people live their entire lives quite unaware of these processes. Yet the circulation system continues to function, and flawlessly.

To claim that the blood cells acquired their ability to distinguish, select and decide by chance, and that they do these things of their own will, would be totally illogical and irrational. It is Allah, the Almighty, Who gave the blood these features and created this flawless system.

2. Troop Carrying

Another of the blood's duties is to carry the cells of the immune system that fight disease. Any foreign bodies like viruses and bacteria that enter the body are neutralized by the antibodies and leucocytes in the blood. In addition, immune system cells patrol the bloodstream and so monitor the entire body. (For more details, see *The Miracle of the Immune System* by Harun Yahya.)

3. Communications

The blood also constitutes one of the body's main avenues of communication. There is a magnificent communications system among the cells in the human body. They exchange information with one another, just as if each one were truly conscious. The cells send to one another chemical messages in the form of hormones, carried by the blood. (For details, see the chapter on "Splendid Communication within the Body: The Hormonal System.")

4. Wound Healing

One of the blood's most miraculous features is its clotting mechanism. Thanks to this clotting, or coagulation, blood loss from a damaged vessel is reduced to the minimum possible. During the clotting process, dozens of proteins, enzymes and vitamins serve in regimented order. Because of this feature, scientists have shown the clotting mechanism as an example of flawless planning. (For details, see pp. 41-47)

5. The Regulation of Balances Within the Body

One of the vital cargo packages carried by the blood is heat. Arteries filled with blood spread heat through the body, just like the piping that carries hot water throughout a building. But unlike the pipes in a building, the body's heat source is not a single boiler, but all the many cells in the body. Thanks to the blood, heat produced by each cell is distributed equally to all the others.

Were there no heat distribution system in your body, you would experience grave problems. As the result of any muscular activity you perform—running for instance, or carrying a heavy load—your legs or arms would overheat, and other regions of your body would remain close to room temperature—an imbalance that would inflict serious damage on your metabolism. For that reason, the equal distribution of heat is of the greatest importance.

In the same way, the blood again goes into action along with the sweat glands in order to reduce excessive heat. Blood vessels under the skin dilate, making it easier for heat carried in the blood to be released to the air. When we engage in strenuous physical activity, therefore, your face grows flushed because of blood vessel dilation. Blood also plays an important role in keeping your body temperature from cooling off. When you feel cold, your skin turns paler, because blood vessels under the skin contract according to the chill in the air. The quantity of blood in those regions close to the air is therefore reduced, and heat loss from within the body is reduced to a minimum.

A Tissue Consisting of Floating Cells

Structurally, the blood is very different to the other fluids in the body. In one sense, blood is actually a tissue, just like bone or muscle. However, while the cells that comprise these other tissues are bound tightly together, cells composing the blood are not attached

to one another. Individual blood cells—known as erythrocytes, leucocytes and thrombocytes—move freely distributed within the blood plasma.

Blood consists of 55% plasma and 45% blood cells. Water comprises from 90 to 92% of the plasma, the rest consisting of plasma proteins, amino acids, carbohydrates, fats, hormones, urea, uric acid, lactic acid, enzymes, alcohol, antibodies, and elements such as sodium, potassium, iodine, iron and bicarbonate. The blood cells float in this complex fluid.

The Components of Blood

Erythrocytes: Small Red Cells

The 25 trillion or so small red cells in the human body never cease carrying their loads. These cells, known as erythrocytes, travel all through the body inside the veins and arteries, carrying oxygen or carbon dioxide. However, these cells need a special structure in order to be able to carry a substance. For example, for a cell to carry oxygen, the most ideal shape for it is to be flat. This increases the cell's surface area and facilitates contact with the oxygen molecules.

Indeed, the shape of the erythrocyte is reminiscent of a round, flat cushion, whose shape permits the greatest possible surface contact with the oxygen atom.

Under normal circumstances, some 2.5 million erythrocytes are produced in the body every second.² It's vitally important that the number of erythrocytes be regulated. A rise in their number for whatever reason—a reduction in body temperature, for instance—can lead to serious problems. When there is an excessive drop in body temperature the number of erythrocytes remains the same, although the blood fluid decreases. The viscosity of the blood is reduced, as the number of erythrocytes increases in terms of units per volume. This can lead to congestion in the veins, obliging the heart to work harder. It's therefore of vital importance for the number of erythrocytes to be regulated.

It is not enough for the body's transportation system for red blood cells to be flat. Erythrocytes that carry oxygen would be pointless if they could not offer it to the cells in a usable manner. The cells of the body require molecules to bind oxygen to them—molecules that must combine with the oxygen in the ideal manner, in a three-dimensional form, and carry the oxygen safely. However, they must not bind too tightly to the oxygen, and when they arrive at the cell to which they will release the oxygen, they must separate from it with no difficulty. In short, in order for the oxygen to be transported and used where necessary, a very special molecule with a most particular creation is needed. That molecule is hemoglobin, which gives the erythrocyte—and thus, the blood itself—its red color.

Since hemoglobin performs two entirely separate functions, it has been described as an extraordinary molecule.

As hemoglobin deposits carbon dioxide in the lungs, it takes up oxygen and moves from there to the muscles, which oxidize nutrients and produce carbon dioxide. When the hemoglobin reaches the muscles, it carries out a reverse procedure, depositing oxygen and taking up carbon dioxide—all in a seemingly conscious and disciplined manner.

In 1996, scientists discovered that in addition to carrying oxygen, the hemoglobin molecules in the erythrocyte structure also carried another molecule of vital importance: nitrogen monoxide (NO). There is a very important reason why hemoglobin carries this gas. With the assistance of NO, hemoglobin monitors how much oxygen is to be provided to the tissues.³ Therefore, hemoglobin's transportation of nitrogen monoxide is of the very greatest importance to human health.

The flawless molecular structure and functions of hemoglobin attracted the interest of scientists. In his book *The Great Evolution Mystery*, the evolutionist Gordon Rattray Taylor writes the following:

The formation of blood, for instance, is a saga in itself. ... [It contains] at least eighty components, many of them still insufficiently understood. A component of central importance, of course, is the haemoglobin which picks up oxygen in the lungs, while giving up carbon dioxide; and then having travelled to the muscles, gives up oxygen and accepts carbon dioxide, which the muscles produce as a result of burning fuel, much as a car produces carbon monoxide. It is a remarkable molecule indeed which at one moment has an affinity for oxygen and a few seconds later loses that affinity; that it simultaneously changes its preferences with respect to carbon dioxide makes it even more remarkable. There could be no more amazing example of adaptation to a task.⁴

As summarized by Taylor, the hemoglobin molecule is able to make decisions when and where required, just like a conscious entity. Hemoglobin does not only carry oxygen; when it passes by a muscle in urgent need of oxygen, it also immediately realizes that it must deliver that oxygen, and acts in the knowledge that it needs to collect the carbon dioxide being released, and heads directly for the lungs to deposit its new load. The hemoglobin never confuses oxygen and carbon dioxide, and always moves to the correct destination.

It is most thought-provoking that a molecule should behave in a way that requires thought, decision-making, selection and preference.

Thanks to the extraordinary consciousness exhibited by this molecule, human beings are easily able to survive. An average of 900 million erythrocytes are produced in the human body every hour, and each erythrocyte cell contains some 300 million hemoglobin molecules. These molecules possess the ability to perform all of these processes without the slightest confusion. Bearing in mind the number of hemoglobin molecules in the human body and the way that all of them, without exception, possess the same abilities, you can see even more clearly the importance of this subject.

It is obvious to every rational person that such selectivity could never come about by chance, and that random events could never provide these features to all the billions of

hemoglobin molecules in the human body. It is Allah Who created the hemoglobin molecule and placed it, with all its characteristics, inside the human body.

That is Allah, your Lord. There is no deity but Him, the Creator of everything. So worship Him. He is responsible for everything. (Surat al-An‘am: 102)

The Wisdom in the Erythrocyte’s Shape

As already stated, the erythrocyte cell is shaped like a flat, round cushion. That ideal shape increases the cell’s surface area and facilitates contact with oxygen. In the event that this shape is deformed, exceedingly serious diseases result. In sickle cell anemia, the erythrocytes contain an abnormal form of hemoglobin known as hemoglobin S. When deprived of oxygen, this hemoglobin breaks down into elongated crystals within the erythrocyte, which crystals lengthen the cell, giving it a sickle-like shape. Since the erythrocytes have assumed a crescent-like form, the passage of oxygen from the blood to the tissues is made more difficult. This leads to an oxygen deficiency and increased production of sickle-shaped red cells. The condition can reach fatal proportions within a few hours.⁵

Apart from such diseases, the shape of the erythrocyte is the same in everyone. Thanks to that shape, they can easily carry oxygen to wherever it’s needed. The fact that the erythrocytes are round and flat in everyone who has ever lived, or will live in future, can never be explained in terms of coincidences. Allah has perfect knowledge of all, and sets out and arranges everything down to the very finest detail. Great is the glory of Allah, the Lord of the worlds.

Erythrocytes’ Ability to Change Shape

Erythrocytes are so small that a single drop of blood can contain 250 million of them. This gives them an advantage in being able to move with ease in the veins. However, the human body contains blood vessels with a diameter even smaller than the erythrocytes’. At first glance, this might seem to represent a problem, because the erythrocyte must squeeze through blood vessels that are even narrower than itself. How does this difficult process take place?

At this point, the erythrocytes’ flexible structure goes into operation. Thanks to their flat, exceedingly flexible structure, they are able to travel through even the narrowest blood vessels. This flexibility is another example of these cells’ creation. If erythrocytes lose just a little of that flexibility, serious consequences arise. In some diabetes patients, for example, sensitive tissues in the eyes become congested by erythrocytes that have lost their flexibility, which can lead to blindness in extreme cases.⁶ As just one example shows, every part of the human body is created with an exceedingly sensitive, flawless equilibrium.

The Economy Provided by the Body's Recycling System

The recycling system in the human body has a flawless structure. In your body, a great many processes are carried out every single moment. Harmful wastes, dead cells, and foreign bodies that enter the body are destroyed by the immune system. A great many other unnecessary substances are constantly moving about, yet none of these inflict any harm, because there are systems in the body to expel these substances or to reuse them in the processes within the body.

Take constantly renewed erythrocyte cells, for example. These cells' lifespan is approximately 120 to 130 days. Old cells die in the liver, the spleen and the bone marrow, and new erythrocytes are constantly produced to replace them. Ten million erythrocytes die every second, and 200 billion new ones are produced every day to replace those, so that all the erythrocytes in the human body are replaced every four months or so.⁷ The iron molecule inside dying erythrocytes is stored with the recycling system for use in the production of new ones. This is an example of magnificent industrial planning.⁸ Clearly, such planning could not have come about by itself. It is Allah Who created the erythrocyte together with these features.

Leucocytes: Micro-Troopers

In a single drop of blood, there are some 400,000 miniature soldiers known as leucocytes. Under normal conditions, the number of leucocytes in a cubic inch of blood is between 7 and 10 million, although if a powerful defense is required, this figure can suddenly leap to as high as 30,000.⁹ The duty of these troops is to defend the body from micro-enemies. The leucocytes are programmed to destroy everything, living or inanimate that does not belong in the body. They therefore seek out, locate, follow and, at the right moment, destroy bacteria, viruses and harmful substances of all kinds that enter the body.

In structural terms, leucocytes are different from the other cells in the blood. For example, erythrocytes have no nucleus, but leucocytes do possess a nucleus as well as all the organelles. But leucocytes live for only a few days, or in the event of an infection, only a few hours. Contrary to what you might assume, such a brief life span is very important from the point of view of protecting the body. Because leucocytes engaged in defense, that is the worn-out ones die. But at that very moment, new healthy ones with a far greater defensive capacity are produced.¹⁰ In fact, leucocytes do not consist of only one type of cell, but rather of different kinds of troops, and "leucocyte" is a general term for cells that fight on the body's behalf.

These are classified under two main groups. The first consists of granulocytes that initially encounter and combat the enemy. The second group is made up of lymphocytes that produce special weapons to wield against the enemy, in the form of antibodies.

Lymphocytes have different properties from those of the other cells in the blood. A much larger number of lymphocytes live in tissues than in the blood. These cells in the

tissues, in the body's depths, construct the equivalent of military bases and defend the tissues from germs. That being so, therefore, what is the reason for the presence of lymphocytes in the blood?

In fact, lymphocytes use the bloodstream as their transportation system. Just like a police patrol, they travel around the body by means of the blood and quickly reinforce tissues containing old and weak leucocytes. It is impossible for such a rational, rapid system to have come about by chance, as evolutionists would have us believe. Clearly, cells consisting of unconscious atoms could not have acquired their selective ability and responsiveness, or the features that allow them to protect the body, all by themselves. The way that this minute entity fights to protect other cells is therefore a very important clue. The way that a cell too small for you to see with your naked eye sacrifices itself on your behalf, and the fact that in your body there are billions of cells possessed of just the same self-sacrificing properties, are just some of the millions of miracles before your eyes.

The perfection in the structure of the leucocytes, their self-sacrifice, martial knowledge and abilities are not the result of their own preferences, but of their creation by Allah. So far, those who seek to prove otherwise have been unable to do so, nor will they have any more success in the future. In Surat an-Nur, Allah has compared those who deny Him to mirage:

But the actions of those who disbelieve are like a mirage in the desert. A thirsty man thinks it is water but when he reaches it, he finds it to be nothing at all, but he finds Allah there. He will pay him his account in full. Allah is swift at reckoning. (Surat an-Nur:39)

Evolutionists' Distorted Logic on This Subject

A huge number of germs enter the human body every day. The immune system seeks to neutralize them in the first stage. However, some germs and foreign bodies manage to enter the circulatory system and represent a threat to life. Such bodies are known as *antigens*. The body seeks to destroy antigens, or to prevent them multiplying, by producing the substances known as antibodies. Antibodies neutralize antigens by locking onto their three-dimensional structure, just like keys fitting a lock. To help understand this system, lock-and-key analogy between antibodies and antigens requires careful consideration.

Immune cells are capable of producing antibodies for each of the hundreds of thousands of different antigens that occur in nature. That enables the body's cells to instantly produce keys adapted to these hundreds of thousands of locks.

But what's really interesting is that the human body can produce antibodies even against artificial antigens manufactured in the laboratory. In the same way that the cells

can produce suitable keys for locks in nature, they can also produce keys for locks that do not exist in nature.

How can a mechanism within the body possess such astonishing information about the outside world? Of course, that cannot be explained in terms of random coincidences. How does a cell come to acquire knowledge of hundreds of thousands of foreign bodies, even of a very different antigen produced in the laboratory? Even if you accept that defensive cells in some way recognize antigens in the body, it's still quite astonishing that they can recognize one they've never encountered before. Moreover, in the same way that the defensive cells immediately identify this foreign substance entering the body, they also possess the ability necessary to immediately identify and produce the weapons (or antibodies) effective against it. To say that these cells, equipped with abilities like identification, and taking appropriate measures that require intellect and consciousness, came into being by chance is illogical. In the same way that evolutionists cannot explain, in terms of their own theory, the way these cells identify all forms of foreign bodies, so they seek to gloss over the issue with exceedingly illogical, unscientific explanations.

Ali Demirsoy, a Turkish evolutionist and scientist, says the following about the defense cells' recognition of artificial antigens: "However, a cell that has previously developed a mechanism for producing antibodies against a chemical substance artificially synthesized in the 20th century is clairvoyant."¹¹

In the same book, Professor Demirsoy admits that there has so far been no explanation of this: "How and in what form do plasma cells acquire this knowledge, and how do they produce specially formed antibodies accordingly? No definitive explanation has so far been forthcoming."¹²

In these words, Demirsoy is admitting that the cell possesses a number of extraordinary properties. That is because the word "clairvoyant" is used to describe someone who possesses certain information before the fact. Possession of knowledge by a cell—especially about entities far from its own environment—is something extraordinary. One cannot, of course, expect a cell that comes into being by means of a combination of inanimate atoms to possess powerful instincts or advanced knowledge by chance. Such a claim would exceed the bounds of reason and logic.

However, since evolutionists are in a hopeless state, they must accept the miraculous properties possessed by living things since their creation. Yet they try to account for the source of this perfection in other terms, in order to deny that these characteristics were specially created—in other words, to deny the existence of Allah. After passing that point, evolutionists offer explanations that have nothing whatsoever to do with science, merely engaging in propaganda that seeks to gloss over their despairing state. They attempt to hypnotize listeners by saying "This is a miracle of evolution" or "this cell is apparently clairvoyant," as if they were an evolutionary talisman.

The fact is, however, that cells too small to be seen with the naked eye and constantly being renewed, possess the extraordinary ability and equipment to identify and

destroy all enemies that threaten the human body before they have even seen them. To ascribe such a situation to chance underscores the intellectual weakness of those who aim to deny the existence of Allah.

Evolutionists suggest that mutations have given the cells such perfect functioning and characteristics. In his book *Inheritance and Evolution*, Demirsoy goes on to say that, “It is maintained that this mechanism [the antibody’s recognition of antigens] came about in the form of mutations that developed by chance.”

Detailed examination of the above quotation helps understand the stratagems that evolutionist scientists resort to. The author states that some circles maintain that this mechanism came into being as the result of mutations. A reader lacking a detailed knowledge of biology might well think that this sentence represented a scientific explanation and a proven truth. The fact is, however, that the claim that the antibody’s recognition of antigens came about by chance mutations is completely hollow, of no scientific value, and has been written with the sole aim of distracting and influencing the reader.

This method of deceiving people resembles hoodwinking by means of word games those ignorant of the outside world, or who has completely lost his memory. If such people are shown a skyscraper equipped with the most advanced technology and told that that building “formed as the result of an earthquake,” even if they believed that such a thing was logically impossible, they would have no means of disproving it. Nonetheless, someone who uses his reason and conscience will still appreciate that such an event could never have taken place.

To say that a complex cell came into existence through mutations is hardly different. First of all, any tiny cell possesses a technology far superior to that of any huge skyscraper. Indeed, many scientists say that the cell is the most superior and complex structure they have yet encountered. Secondly, the effect on the cell of mutation—which is claimed to have endowed the cell with its characteristics—is generally even more destructive than the effects of an earthquake on a skyscraper.

It is absolutely impossible for such a destructive factor to produce, by chance, a cell able to produce individual antibodies for hundreds of thousands of antigens, and displays a memory and intelligence far greater than those of human beings.

According to the theory of evolution, the cell acquired these features as the result of many consecutive mutations. That’s analogous to a city’s being erected as the result of many consecutive earthquakes!

Let us accept for a moment, albeit in defiance of scientific facts and no matter how impossible such a thing may be—that each mutation did give the cell some beneficial feature. Yet even that is not sufficient, because the immune cell could not have waited for millions of years to acquire all its characteristics. If the cell is unable to fulfill its function, that spells death for the organism in question. Defensive cells, together with all their

properties, must therefore have been present in the living thing right from the very first moment.

In addition, immune cells do not just possess a very superior reproductive capacity. There are many classes of cells in the immune system, each with very different properties and functions. Bearing in mind the properties of such cells, and their varying abilities, it can once again be seen how the theory of evolution's "chance" account collapses in the face of the facts.

Immune cells' ability to estimate the physical structures of other living cells and their ability to produce tactics in accordance with this, right down to the finest detail, were created by Allah, the Almighty.

Your deity is Allah alone, there is no deity but Him. He encompasses all things in His knowledge. (Surah Ta Ha: 98)

Plasma: The Vital Component of Blood

The fluid in which the blood cells (erythrocytes, lymphocytes) swim is known as plasma. This is no simple liquid, but a special compound containing a great many special substances. Plasma consists of 92% water, 6% to 8% protein, and quantities of dissolved salts, glucose, fat and amino acids, carbon dioxide, nitrogenous wastes and hormones.

Plasma distributes the nutrients you obtain from the food you eat throughout your body. It also carries waste products that cells produce to the relevant organs in order to expel them from the body. . . If plasma did not have this responsibility of transport and delivery, then the food you eat would serve no purpose, nutrients would not reach your tissues, and your body would swiftly become poisoned because the waste products it produces could not be expelled.

Among the plasma's other tasks include:

Ensuring blood pressure is kept at a specific level,

Assisting in the equal distribution of heat in the body,

Maintaining the acidity of the blood and other tissues at a specific level.

Plasma proteins each have very different functions. They come in three main forms: albumin, fibrinogen and globulins.

Albumin is the most numerous plasma protein. It performs a sort of carrying service in the body. Albumin's most important function is to prevent excessive liquid passing from the capillaries to the surrounding structures.¹³ In order to understand the importance of this, look at the path traced by nutrients in the body. In order for them to reach the requisite tissues from the arteries, nutrients must cross the tissue wall, which possesses very small pores.

Nevertheless, no substance can cross that wall by itself. What matters here is blood pressure. Just as in a sieve, the liquid plasma component of the blood and the smallest

molecules cross the wall under pressure. If there were no such barrier and these substances were able to reach the tissues in excessive quantities, then edema would form in the tissues. Albumin absorbs the water just like a sponge, and due to its high density in the blood, it thus forestalls that danger.

Water and most dissolved substances are able to cross the capillary wall with ease. But this is not possible for proteins. For that reason, such proteins as albumin remain inside the vessel at the point of transition and prevent liquid from seeping out. Albumin binds to itself fats such as cholesterol, hormones and yellow bilirubin, a poisonous bile-duct product. In addition, it binds onto penicillin and some other drugs, refusing to let them to pass. It deposits toxins in the liver, and carries nutrients and hormones to the places in the body where they are needed.¹⁴

Fibrinogen, another protein in plasma, plays an important role in blood clotting. Yet another protein in blood, the gamma globulins, transmit protective substances such as antibodies that form in response to the body's being stimulated by a particular infection.

These are just a few of the proteins in the blood. In addition, gasses such as oxygen, nitrogen and carbon dioxide are also present in dissolved form in plasma. Glucose, one of the solid substances in the blood, is also very important, being used as fuel for the brain and muscles. For that reason, its level in the blood is regulated by hormones. If the glucose falls below a specific level, trembling and fainting ensue, followed shortly afterwards by coma, and often death.

Each of these substances, of such exceeding importance to human life, is the product of a very special creation, as becomes clear when one considers their functions and characteristics.

As you have seen, there are close interrelations between the substances in the blood. The absence of just one of these substances of vital importance to all human beings, or its presence in the wrong amount or with different properties, leads to serious problems in the body. This shows that all the properties of blood were created together by Allah.

Blood Clotting

Every part of the body is equipped with a system consisting of millions of vessels, through which blood constantly flows. As the result of the small scratches or cuts that the body is occasionally subject to, the liquid flowing through these tubes leaks to the surface. Under normal conditions, one might expect all the blood in the body to flow through this hole, so that even the tiniest cut leads to the death of the individual. Yet that is not what happens. The blood begins to clot around the wound, and the coagulated blood then blocks the gap, just like hardened putty. This situation resembles a hole in the bottom of a bucket being repaired by being blocked up in order to prevent water leaking out of it.

This, there can be no doubt, is a great miracle. This property of blood saves the life of every human on Earth. Were it not for that coagulating ability, then even the tiniest

scratch would end in death. However, people never think about this miracle that lies right before their very eyes and so preserves their lives.

So, how does this miracle come about? How does blood coagulate? As the answer to this question is pursued, a very clear miracle of creation emerges.

Coagulation is reminiscent of the first aid provided by ambulances called to the scene after an auto accident.

When bleeding takes place anywhere in the body, blood platelets known as thrombocytes hasten to the site. Thrombocytes are distributed throughout the bloodstream, so wherever bleeding occurs there will inevitably be thrombocytes somewhere near.

A substance known as the von Willebrand protein acts rather like the traffic police, indicating the site of the accident and requesting first aid. It halts the thrombocytes when it detects them and causes them to halt at the scene.

The first thrombocyte to arrive on the scene emits a special substance, just as if it were calling for back-up, and calls other teams to the site. A microscopically small cell realizes that there is a problem and is able to communicate with others, which understand the message being sent out and do what is requested of them. Tiny entities invisible to the naked eye thus communicate with one another and organize themselves.

At this point, some 20 enzymes in the body combine and together, begin producing a protein called thrombin over the wound. The absence of just one of these enzymes would mean that the system would not function, and death would be the result. However, everything has been planned, and the system has been constructed in a flawless manner.

Thrombin is produced only at the site of an open wound. This resembles the first-aid team providing the necessary medicine for the patient at the scene. In addition, that production of this protein must be in just the right quantity, and moreover, it must start and end at exactly the right time. The enzymes responsible for manufacturing the protein issue among themselves the commands to start and stop.

Once a sufficient quantity of this protein has been produced, tiny fibers known as fibrinogen form, serving a very important purpose: They form a web over the wound, to which arriving thrombocytes adhere and accumulate. As more and more thrombocytes accumulate, the bleeding slows. Afterward, once the wound is completely healed, the scab dissolves by means of similar processes.¹⁵

Consider that these enzymes and proteins consist of strings of inanimate, blind, unconscious atoms. Yet each one of these assumes a function right from the outset once an injury has occurred. They swiftly hasten to the scene, organize themselves to halt the bleeding, produce the requisite proteins as if filling an order, communicate with others to call for assistance, understand the messages received from one another, and fulfill their functions.

The system functions flawlessly, right down to the finest detail. Now, consider what would happen were there to be any flaw in this vital system: If blood began to coagulate in the absence of any wound, or if the scab that formed over the wound peeled away from it,

or if the proteins that play a role in coagulation had trouble communicating—if any one of these occurred, then we would face clotting in the vessels leading to such vital organs as the heart, lungs or brain, and death would ensue due to loss of blood.

Your body does not need coagulation to take place only around visible wounds. We also need a clotting system to repair the breaks in capillaries, which happen very frequently but of which, of course, you are generally unaware. When you bang your knee against a table or chair, a large number of these capillary vessels rupture, leading to internal bleeding. But thanks to the clotting system, the bleeding immediately stops, to be followed by the healing process begins.

If no clotting occurred, the result would be the disorder known as hemophilia. Hemophiliacs need to be protected from even the slightest blow, because particularly in the advanced stages of the disease in even the smallest bleeding cannot be stopped, and that leads to the patient's death from blood loss.

It is essential that the clotting property in our blood exist, but it also needs to be subject to strict supervision. As you can clearly see from the information provided, such a system can definitely not form in the living body by chance. This system, whose every detail is the product of planning and calculation, is an indication of the Allah's infinite knowledge, intellect and power. To maintain that this system came about by chance in fact expresses the logical collapse of Darwinism.

Is He Who creates like him who does not create? So will you not pay heed?
(Surat an-Nahl:17)

THE BODY'S ENGINE: THE HEART

As you have seen from this account so far, blood is a miraculous solution that could not have come into being by chance, and is one of the manifest proofs of creation. Here it will be useful to recall that though blood is a miracle, its existence by itself is of little significance, because in order for it to provide any benefits to a living organism, it also needs a transport system. That is provided by the circulatory network in the human body.

Blood also needs to be propelled through the veins and arteries to reach every cell of the body. The engine that provides that service is, of course, the heart.

The Most Perfect Pump

The world's most perfect pump is at this very moment right in your chest. With its unbelievable creation and incessant beating, the heart sends all your blood around your body some 1,000 times during the course of a single day.

The human heart is approximately the size of a fist, and is a pump made of muscle. Considered in terms of capacity, however, it is the most powerful, longest lived and most productive machine in the world. First off, its strength is quite magnificent: The heart can squirt blood to a distance of up to 3 meters (10 feet), and in the space of one hour, can expend enough force to raise a medium-sized car three feet off the ground.¹⁶

However, the heart's most important feature is being able to work without stopping, contracting some 70 times a minute, and 37 million times a year. It beats some 2.5 billion times during the average human lifespan and pumps approximately 300 million liters (or 80 million gallons) of blood.¹⁷ That is the equivalent of the amount of liquid it would take to fill 10,000 oil tankers. Even while you sleep, your heart pumps some 340 liters (90 gallons) of blood. To put it another way, your heart could fill a car's gas tank 9 times over every hour. During physical activity—while running, for example—its work rate increases and it pumps some 2,273 liters (0.6 gallons) of blood.¹⁸

Every time it beats, the heart sends blood into the depths of the body with great force. To get a better idea of this muscle's strength, see how often you can fully clench your fist at a rate of once every a second. You will soon become tired and be unable to continue. After a few minutes, the muscles that move your fingers and hand will begin to ache. Yet your heart continues to expand and contract for your entire lifetime, and never rests for even a minute.

Another feature of the heart is how it pumps the required amount of blood according to prevailing conditions. Under normal circumstances—at rest—it beats some 70 times a minute. During exercise, however, the muscles need increased quantities of oxygen. The heart then increases the amount of blood it pumps, by beating up to 180 times a minute. It can increase the volume of blood it pumps by up to 5 times. A machine that works non-stop at that rate will soon break down, but the heart continues working this way for decades, never losing its rhythm.

Flawless Creation

To better understand the work performed by the heart, compare it to an artificial pump.

But the heart is not a simple pump that sends one liquid from one site to another. Its very special creation allows it to pump two different liquids in two different directions. Unlike most normal pumps, it has more than one speed and by itself, regulates the speed at which it needs to work in the light of prevailing conditions. Bearing these features in mind, we can compare the heart to a specially created pump controlled by a highly advanced computer.

A pump consists of an engine that provides power and the mechanical parts that the engine causes to function. The heart, on the other hand, is both a motor and a pump.

Man-made pumps last no longer than 10 to 15 years. During that span of time, the pump does work constantly, but only at specific intervals. Pumps that work all the time

wear out after very short periods. In either case, the pumps sometimes develop faults and need maintenance or to have parts replaced. In contrast, the heart works 24 hours a day for as much as 70 or 80 years, or even longer. A healthy heart never requires any maintenance during that entire time. Unlike man-made pumps, it never needs to be repaired nor to have parts replaced.

The heart starts beating while a human is still a fetus in the womb, and continues beating for a whole lifetime. The heart pumps blood at every moment of your life, without our being constantly aware of it and quite beyond your control. This pump was working while you were still a baby, and while you were at school, and continues working while you sleep. It is even working now, pumping blood even as you read these words.

When the general structure of the heart is examined in greater detail, you can immediately see its exceptional creation.

The Heart's Original Pumps

The heart is actually a combination consisting of two separate pumps. The one on the left pumps oxygenated blood to the organs and tissues in the body, while the one on the right pumps CO₂-laden blood to the lungs.

Each pump also consist of two separate upper and lower pumps. The smaller is known as the *atrium*, and the larger as the *ventricle*. When clean blood reaches the left part of the heart, for example, it flows into the upper small atrium. From there, it is expelled in to the larger ventricle below. The ventricle, or large pump, then sends the blood to the organs. The same process is also performed by the pumps on the right side of the heart, in sending blood to the lungs.

One-Way Safety Valves

Between these pumps are valves that open only in the direction of the flow of the blood. When the atria contract, these valves are opened and the blood fills the large ventricles. When the large ventricles contract, the valves between close and the blood is prevented from flowing back to the atria from whence it came.

There are similar valves in the discharge part of the large pump. When the large pump contracts, these valves open, and the blood is allowed to flow out to the body. When the beat is finished, however, the valves close to prevent the pumped blood from flowing back to the heart. This is a simple but most reliable precaution, and modern artificial pumps use similar systems.

The existence of just one of these valves is proof that the heart has been specially, consciously created. Leaving aside the heart's hundreds of miraculous features, and considering only how its valves came into existence reveals to us Allah's flawless creation. No series of random events could ever create one of the valves in the chambers of the heart, let alone the flawless structure of the heart itself. Every detail of this perfect engine in the human body is proof of the might, power and existence of Allah.

They do not measure Allah with His true measure. Allah is All-Strong, Almighty. (Surat al-Hajj:74)

Oiling the Pump

Consider the machines you are familiar with. Any machine, even a very simple mechanism, produces friction caused by the rubbing together of its components. Unless that friction is eliminated, the parts will soon wear out and the machine will be damaged enough to become inoperable. That means that its working parts need to be lubricated regularly.

The heart, which expands and contracts constantly for your whole lifetime, faces exactly the same risk. It needs a lubrication system in order to maintain its ceaseless functioning. On the outer layer of the heart lies a layer consisting of a two-layered membrane known as the pericardium. The space between these two membranes is filled with a special lubricating fluid—just one of the heart's perfectly created details.

The Heart's Armor

The body's vitally important organs are protected in very different ways. The heart is one of the organs most in need of protection, since any blow to it could lead to lethal consequences. For that reason, your heart is located in the safest place—in your chest, inside the ribcage. The ribs protect the heart from blows from outside, just like the ribs of a ship's hull.

How Is the Heart Nourished?

The tissues of the heart muscle are too thick and tight for nutrients and oxygen to pass through them, and are therefore unable to benefit from the blood pumping through it. However, like all other organs, the heart's cells need blood. In fact, since it is a constantly functioning muscle, the heart needs even more oxygen than any other organ.

This need has, once again, been resolved thanks to a most incomparable creation. The blood arriving from the lungs to the left part of the heart is the cleanest, most oxygen-rich in the body. Two specialized arteries, known as the coronary arteries, emerge from the aortic arteries by which the blood is pumped out to the body. These arteries do not lead to the body, as do all the other arteries, but return to the heart. In this way, the most oxygen-rich blood is thus forwarded directly to the heart, without going anywhere else first.

Another feature can be perceived in the way the coronary arteries are laid out. As these arteries head towards the heart they make intermediate connections with one another, which connections serve as insurance against any one of the arteries becoming blocked. If one of the arteries does suffer an occlusion, the blood courses on through the other artery, by-passes the blocked area and reaches the heart muscle. This same feature is employed by urban planners when laying out networks of water distribution. In order that

the city should not be left without water in the event of a fault in one of the existing pipes, this age-old network system of the human heart is copied on a far wider scale.

Even these connections made between the arteries nourishing the heart exhibit such reason and planning as to leave chance as no explanation.

Before moving on to other structural features of the heart, it will be useful to issue a reminder. Just bearing in mind the features described so far, you can see that the heart's features could never have formed one by one, as evolutionists would have us believe—and furthermore, that all these stages could never have come into existence by chance.

In all regards, the heart exhibits a flawless and complete creation. It is impossible for this organ, or even any one of its components, to have come into existence by itself. In addition, even if we were to assume that such a perfect organ did emerge by itself—no matter how impossible that might be—it would still serve no purpose. Whatever ideal properties a heart might possess, in the absence of a circulatory system and blood to pump, it would have no bodily function. Again according to evolutionist logic, an organ with no function is doomed to become “vestigial” and disappear. But as you have seen, just one single example reveals the major contradictions in evolutionists' claims.

Your Heart's Electrical System

If you extract a living heart from the body, it will continue working independently until it has consumed the last of its energy. If provided with the necessary oxygenated blood, the heart will still beat for hours, even if all its nerve connections are severed.

In order to examine this interesting situation, let us briefly review how the muscles work: For a muscle to contract, it first needs a command from the brain or the spinal cord. That command is in reality an electrical signal forwarded by means of the nervous system. Since the heart's structure is composed entirely of muscle tissue, then a heart that beats some 70 times a minute needs to be electrically stimulated that many times.

Then how can a heart still continue to beat for a while even if all its nerve connections are severed and it is removed from the body? This leads us to ask where these commands to contract come from?

When scientists investigated this question, they encountered something most surprising. In the heart, there is a generator that produces its own electricity—a generator made of flesh, itself one of the components of the very heart it supplies.

An artificial generator goes into action in the event of a cut in the external electrical supply, and continues producing electrical current to prevent machinery from shutting down or being damaged. The heart, one of the most crucial organs in the body, is also similarly protected in order to ensure it is never harmed in the event of any interruption to its energy supply. For the heart to stop even for a moment could lead to grave damage to the brain and the rest of the body, and could even have fatal consequences. The electrical system operating the heart must therefore work without ceasing.

Scientists investigating this electrical system made even more astonishing findings. The heart functions not only with a micro-generator, but also thanks to an assembly of interconnected, programmed and systematic electronic circuits. This electrical management system works together with a number of elements, from the kidneys to the brain, and from the arteries to the hormonal glands.

Of course, this flawless creation in the heart, discovered only very recently by scientists, has been working non-stop for millions of years. Without exception, this system has been present in all the many billions of people who have ever lived, and in all those who will ever live in the future. This is Allah's flawless creation.

The Heart's Electronic System

When examined closely, the upper wall of the heart's right atrium can be seen to contain this generator that supplies electricity to the heart. In an adult at rest, this generator, a knot of tissue known as the sinoatrial (SA) node, emits 72 low-frequency electrical impulses a minute.¹⁹ Each of these impulses causes the most perfect pump in the world to contract once.

To better witness the creation in this mechanism, let us now examine one heartbeat, which takes place in less than one second.

The energy wave emitted by the SA node spreads over the tissues that make up the heart's small pumps (valves). Blood passes from the smaller atria to the large ventricles at the bottom of the heart.

Under normal conditions, however, one would expect the situation to be very different. The energy given off by the SA node, or generator will first stimulate the large pumps. Yet since the electrical wave moves very fast, both pumps will contract at almost the same moment and the heart's working mechanism should be impaired. Yet such an electrical circuit must be constructed that the electrical energy must first stimulate the small atria, after which it must pause for an instant before stimulating the large ventricles. After the electrical signal has been emitted, it must pause until the small atria have performed their function. The necessary circuit needs to be a marvel of engineering.

In fact, after stimulating the atria, the electrical wave emitted by the generator moves to another tissue mass known as the atrioventricular (AV) node. This tissue holds onto the electrical signal for a very finely regulated interval of time, as short as 1/14th of a second. At the end of that period, the small atrium has finished its task. The electrical signal then continues on its way and stimulates all the ventricle cells in as little as 1/16th of a second. The larger pump, whose turn it now is, thus contracts and blood is pumped out to the body. All these processes take place in less than one second.²⁰

An Important Security Precaution: The Heart's Spare Generator

The AV node, which halts the electrical waves emitted by the main generator for a short while, has another very important function. In the event of a problem in the main generator, this node steps in and works like a spare generator. It cannot produce signals as strong as those from the main generator (it produces only 40 to 50 signals a second), but they are still sufficient to let the heart keep working. If the main generator is damaged for any reason, the spare AV node undertakes an absolutely vital task. People have been observed to live for up to 20 years, even though their main generator has failed to function for various reasons.²¹

To grasp what we have described so far, the reader needs a certain consciousness and understanding—which you, reading this book, do indeed possess. On close inspection, however, the components constituting the heart must also exhibit consciousness in order to function. For example, the reserve generator needs to be aware of everything that goes on in the human body in order to know when to assume its function, and needs to set the necessary system in motion in the event of any emergency.

Yet how do these components in the various parts of the heart carry out these processes, which we need to have awareness in order to understand? Can the nerve nodes in the heart be considered to have consciousness? Can it be claimed that these nodes calculate the seconds, and perform these calculations non-stop and always totally accurately? On their own, of course, these structures in the heart clearly cannot perform the complex processes necessary for the heart to function. These nodes are merely collections of cells that cannot be regarded as having decision-making mechanisms, will, or calculating ability.

Any cell being able to produce electricity is by itself a great miracle, because such production takes place as a result of thousands of very complex chemical processes. At this point, there are even more questions to be considered:

Why should a cell seek to assume the task of producing electricity? What force obliges it to do this? How does the cell know that the heart needs electrical signals in order to contract, and that the cells that bring about those contractions cannot function without electricity?

In addition, it is not sufficient for just one cell to produce electricity. It needs other cells producing electricity too, and these cells need to combine in the correct order. It is not enough for them to be present together. They must produce electricity together, as if they had signed an agreement to do so. Furthermore, that production needs to take place within a particular rhythm: Each cell has to possess a chronometer, and these cells need to accurately function once every 0.83 of a second. Additionally, the cells must be able to continue with this production tirelessly, for an entire lifetime. They must also know the level of electrical current that causes the heart to function, and must produce just the right amount of electricity—neither too much nor too little.

The untiring muscle cells in the heart must also possess a characteristic allowing them to function when the electrical current arrives. They must respond to every signal reaching them and respond to each one of the signals produced, 72 times every minute.

Since a specific understanding is required in order to grasp the functioning of this miraculous system, it would be irrational and unscientific to claim that it came into being through blind chance. Such a flawless system cannot be explained in terms of coincidences. The fact that such an electrical circuit has been placed inside the human heart is yet another proof that we have been created by Allah.

We created you, so why do you not confirm the truth? Have you thought about the sperm that you ejaculate? Is it you who create it or are We the Creator? We have decreed death for you and We will not be forestalled. (Surat al-Waqi'a:57-60)

The Heart's Accelerator and Brake System

This section shall examine a very special system that regulates the working of the heart. We shall see how a piece of flesh immediately beneath the rib cage receives information, analyzes it and automatically carries out measures that need to be taken.

As a reminder, in examining the structures in the human body or in other living things, the most important thing is to ask whether they could have come into existence by chance. It's of course impossible to pose this question with every description provided herein. But with this or any other book about the body, you should constantly ask yourself this vital question, because the answer will let you better appreciate the infinite might of your Creator.

Now, let's examine the heart's rhythm-controlling system, while keeping the above question.

The heart beats constantly to a regular rhythm. You can compare this to a car on a fixed-speed highway. Under certain conditions, however, the heart's tempo needs to speed up or slow down. This is analogous pressure being applied to a car's throttle or the brake pedal. The brake that decelerates the heart's rhythm is the vagus nerve, and the accelerator that speeds it up is the sympathetic nerves.²² The hormone acetylcholine sets the brake (or vagus nerve) into action.

The sympathetic nerves are components of the autonomous nervous system that work outside your free will and regulate the working of your internal organs. They raise blood pressure by narrowing the arteries and help form the hormones epinephrine and norepinephrine by stimulating the medulla region above the kidney. These hormones increase the heart's work rate. The hormone thyroxin, secreted by the thyroid, also affects the working of the heart by raising the metabolism.²³

So how do these accelerators work? How is the decision to speed up or decelerate taken? Such a regulatory and information exchange system has been constructed within the human body that no artificial information- processing network is nearly as perfect.

That this system functions within your body without your being aware of it, even at this very moment, is evidence that you were created.

Let's now examine how the controls in question are depressed, and how the decision to accelerate or decelerate is taken—while still asking the necessary questions.

When you perform a movement requiring force, the muscles around the veins accelerate the flow of de-oxygenated blood. This means that more blood goes to the heart and the right atrium. The atrium muscles then contract, and nerve signals formed as a result of that contraction are transmitted via the central nervous system to medulla in the spinal cord, which analyzes these data and immediately sends a command to the heart. The heart's rhythm is accelerated. This allows more fresh blood to reach the muscles.

A key question: Is it rational and logical that this system could have come into being by chance? People who make such a claim are definitely unable to answer the following questions:

How are those receptors aware that de-oxygenated blood has increased and of the contraction created have been sited in the correct region of the heart, the right atrium where the dirty blood is found?

How did the network that carries the information from these receptors to the spinal cord and the medulla come into being?

How did the spinal cord and medulla—the data-processing center that analyses this data and is able to take the correct decisions—come into existence?

How does the medulla realize that the message reaching it signifies that oxygenated blood has decreased? With what consciousness does the spinal cord decide that the heart must beat faster in order to send more blood through the lungs?

How did the elements comprising this system come together as one and at the same time, exactly?

Such precise order cannot of course have come into being by chance. Not even a single component of this system—let alone the system itself—could have come into existence by happenstance. In addition to proving the invalidity of the theory of evolution, the above questions also clearly demonstrate Allah's creation.

Let's now examine another safety system created by Allah, and witness another proof of His creative artistry.

In addition, the heart needs a special safety mechanism to keep it from beating too fast and damaging itself. Inside the aortic artery emerging from the left-hand part of the heart are receptors that measure blood pressure. As the heartbeat rises, so does the pressure of blood reaching the aortic wall. When this pressure exceeds a certain level, the safety mechanism goes into operation. The receptors that detect the increasing pressure send warnings via the spinal cord to the medulla. This analyses the situation and sends a new command to the heart. This slows down the heart rate, and blood pressure is lowered. Let us now reconsider the pressure gauges inside the aorta and the heart's braking mechanism.

Is it an unconscious coincidence that the heart is aware that too rapid a heartbeat will damage the body and that it should take measures to counteract this?

Did the receptors that measure blood pressure come into being by chance? And were these then located in the right place—in the aortic wall membrane—by also chance?

Did the nerve link between the receptors and the spinal cord come into existence by chance?

How do the receptor cells recognize that blood pressure has risen, and with what consciousness do they transmit news of this rise to the spinal column?

By what criteria does the medulla analyze the data reaching it? With what consciousness does it realize the importance of the situation?

How did some of the spinal cord's cells come to assume the role of regulating the heartbeat? Why did they assume that responsibility?

How does a spinal cord cell decide to send a command to the heart? How does it know what form the command it sends must take, so that the heart cells can understand it?

Why do the heart cells obey signals from the spinal cord?

These questions are very important for lifting the curtain of familiarity that forms over the course of time and keeps people perceiving the miracles right before their very eyes.

Most people realize that some situations make their hearts beat faster. When you climb quickly up a staircase, run, or become excited, you can feel that your heartbeat has increased, and that later, it returns to normal. No one, however, realizes what a great miracle this truly is. They never understand that the rate of their heartbeat is regulated by a computer-like system inside the heart. Even if they are aware of the existence of a system, still they spend little time thinking about how their bodies' miraculous systems came into existence, and even strongly avoid doing so. Some even believe that thinking too much about such matters is psychologically unhealthy.

The fact is, however, that Allah wishes us to think deeply. He commands people to ponder what He has created and thus, to better understand His might and power and to fear Him more. In one verse of the Qur'an Allah has revealed how believers should behave, how they should think about the entities created by Him—and how their fear of Him should increase as a result:

Those who remember Allah, standing, sitting and lying on their sides, and reflect on the creation of the heavens and the Earth: "Our Lord, You have not created this for nothing. Glory be to You! So safeguard us from the punishment of the Fire." (Surah Al 'Imran: 191)

Preparation for Fight or Flight

At certain times, the human body needs to be stronger and more resistant, and exhibiting higher performance than normal. When danger is encountered, for instance, an individual must immediately fight or flee.

Under such exceptional circumstances, it's of course essential that the heart beat faster and pump more blood for the necessary adjustments to be made within the body.

The requisite measures have indeed been taken for such circumstances. In extraordinary situations, the adrenal glands secrete a hormone called adrenalin. This hormone molecule makes a very long journey, in comparison to the length of its own molecule, to reach the heart cells, commanding them to contract faster. (See the Chapter 4 on the hormonal system.) The glands located atop the kidneys which produce this hormone are acquainted with the heart cells and know what chemical language they will understand. At the same time, they possess the knowledge that the body must become more resistant and that therefore, the heart needs to beat faster. The heart cells obey this command and begin beating more quickly, providing the extra oxygen the body requires in urgent situations.

Indispensable Elements in the Functioning of the Heart

This electronic system located in the heart also needs electrical signals if it is to function properly. In order for electrical signals to be produced, the sodium, potassium and calcium ions need to be present in specific quantities in the blood. Since the blood levels of these substances are regulated by such organs as the kidney, intestines, stomach and lungs, it becomes even more apparent the impossibility of this system having come into being through such a fictitious mechanism as evolution.

Now, bearing in mind the features of the heart examined so far, imagine that someone has succeeded in developing a device resembling the heart—a flawless pump capable of working for 70 years without stopping for even a second, one that creates its own electricity, needs no maintenance or parts replaced, and that automatically adjusts its working speed and power thanks to a built-in electrical system. Such success could be achieved, of course, only as the result of technology, technical experience and long study. Nobody can imagine that such a device could come into being by chance. That would be totally irrational.

Nonetheless, to imagine that the heart came about by chance is even more illogical and irrational than thinking that any other product of technology—a television, for example—could come into existence by chance.

First of all, in the heart there is technology a far superior to any man-made device. Most important of all, however, the chance development of the heart is by itself of no significance. In addition to the heart, thousands of kilometers of blood vessels—as well as the blood inside them, the kidneys that filter that blood, the lungs that provide the blood

with oxygen and remove the carbon dioxide it carries, the digestive system that provides nutrients for the blood, the liver that refines these nutrients, the nervous system that regulates the functioning of the heart, the brain that manages the body as a whole, the bone system that keeps the body together, the hormonal system that assists the functioning of the heart, and thousands of similar elements—would have to have come into being in a single moment, and again by a single random event. Yet each of these possesses a special creation that leaves absolutely no room for chance. It's therefore as impossible for the heart to come into being by chance as for any product of technology to do so.

We are looking at a most evident truth here. The heart was created by Allah, together with all the systems and elements that function along with it.

The Blood Vessels

The body is interpenetrated by millions of tubes, both large and small. If this venous network in a single human were spread out in a straight line, it would stretch more than 60,000 miles.²⁴ The venous system is so perfected that the required connections have been established to everywhere in the body. The tubes never become knotted, never open onto any unnecessary places, possess no dead ends. They extend all over the body and return to their starting point.

For a piping system to be installed in any building, a plan is necessary beforehand. The circulatory system in the human body is of a far greater perfection than any man-made plan.

In addition, the length of the blood vessels in the human body is around 100,000 kilometers (or 60,000 miles), whereas that in an average-size building will be only a few kilometers long. This plumbing, made of special metallic or vinyl compounds, give rise to problems within a few decades. Joints leak, some pipes gradually corrode, and others give rise to leaks inside the walls. All these problems arise even though the building is an immobile structure, and the plumbing never moves.

On the other hand, the capillary network inside a healthy body fulfils its function for an entire lifetime, never requiring maintenance or spare parts. But in addition, the human body is not immobile, but moves, walks, runs, sits and stands. The veins constantly stretch and compress under these actions, but so perfectly created are the veins that no problem ever arises, unless individuals make movements that damage their own health.

The Incomparable Creation in the Human Body

Now consider a human body with no veins, and ask an engineer to draw up plans for placing veins inside that body. That plan must provide all the necessary connections for every cell, from the depths of the liver to the bone marrow, from the eyelids to the kidneys. In addition, depending on the function of every organ, the thickness and properties of every vein must be planned out. Clearly, one engineer could never draft such

a blueprint. Even if everyone in the world were to work on it together, the result would still be the same. Neither their life spans nor their intellects would be sufficient to produce the circulatory network. It's impossible to maintain that a blueprint that billions of people together could not manage to draw up emerged as the result of blind chance. This system leaves no room for chance in even a single stage, clearly revealing that human beings were created by Allah.

The Journey Begins. . .

The chief purpose of the heart-vein system is to transport necessary substances that allow the body's cells to function, and to carry away waste materials. An adult's heart pumps 9,000 liters (or 2,380 gallons) of blood a day through a network that is 100,000 kilometers (60,000 miles) in length.²⁵

Now, imagine that you are the size of a cell and set out on a journey through the circulatory system.

Your starting point is the heart's upper left pump—in other words the left atrium. The area you are in is full of clean, oxygen-rich blood. Around you are millions of oxygen-bearing red blood cells (erythrocytes). Immediately beneath you is a valve leading to the heart's right atrium. It can open in only one direction—down.

With the sudden contraction of the atrium, the valve cover opens. The blood with you in it begins filling the heart's lower left ventricle. You are now in the left ventricle, a very powerful pump. The valve now closes behind you to prevent your returning to the atrium where you came from.

The left ventricle is a powerful pump, capable of sending blood to the furthest point in the body. At the exit of this pump is another one-way valve leading to the aortic artery, and its function is similar: to prevent the blood you are in from returning to the heart.

The left ventricle now contracts strongly. This valve opens outwards. The blood carrying you is sent quickly toward the aorta, the largest artery.

As you approach the aortic artery wall, you encounter a most interesting structure. As if the artery's inner wall has been polished, and its smooth and oiled surface reduces friction and allows the blood to flow more easily.

Take a short break in your journey to examine the aorta and the arteries in greater detail.

The Strongest Vein

As you've seen, the vessels that carry the blood from the heart are called *arteries*, and those that carry blood from the tissues to the heart are known as veins. Arteries are generally buried deep within the tissues. In some places, however—for example, in your wrists, temples, neck and ankles—they run much closer to the surface. In these regions, you can feel the passage of arterial blood with every beat of your heart putting pressure on the artery walls.

The artery's internal surface resembles large numbers of different-shaped paving stones laid out to form a regular surface. However, the "stones" here are cells.

Let us now concentrate. Cells are living things. One group of living cells have been laid out next to one another, exactly as paving slabs are, to create a smooth, regular surface. This surface, curving a full 360 degrees, forms a pipe. The venous system is formed by millions of similar pipes joining together in order.

How did this come about?

First of all the cells, must be flat and of such shapes as to fit tightly against one another. What force, then, created so many billions of cells in this interlocking form?

While the body was still in its mother's womb, these cells must have been laid out just like paving stones, side by side. Who set out these billions of cells, so smoothly and regularly?

If just one cell is missing from the arterial wall, then blood will leak out from that spot. Who is it, then, who builds this wall so accurately?

"Chance" cannot be the answer to these questions.

Furthermore, it's not a metal tube from a factory template, that we're considering here, but rather a living vessel formed by the coming-together of living cells. Why do these tiny living units spend their lives lining a tube? Who set them out in this way and gave them such a responsibility?

Again, the answer to these questions cannot be "Chance"! But evolutionists never think about details of this sort. Rather, they ignore these facts, and are unwilling even to consider them. Evolutionists make speeches and write books about circulatory tissues that include large quantities of Latin terms. Yet they never answer the question of how these cells came together in such supreme order—because the only answer they can supply is "Chance."

Since they know how demeaning such an invalid response will be, they gloss over the issue with illogical statements like, "These cells came together and formed the veins during the evolutionary process."

If a scientist offers such an explanation, then people with no great knowledge of scientific literature may think that he must have some scientific facts behind it—though since the scientist has rather glossed over the subject, people won't be able to understand it.

Nevertheless, evolutionists give no answer as to how the arteries and veins came into existence. There are many thousands of other questions to which they also give no answer. They avoid entering into such discussions and gloss over the subject with unspecific words.

In short, no evolutionist can account for the presence of the circulatory network in the human body, as you can very easily prove for yourself. Tell any evolutionist about the perfection of the veins and arteries, and how the cells are all set out in precise order. Then ask how this structure first came about. The only reply you will receive is, "By chance."

In fact, however, there is only one true answer to this question; it is Allah, the Lord of the Worlds, Who created the veins, the blood in the veins, the heart that pumps this blood, and all the other countless of systems within the human body.

Flexibility in the Veins

The special creation in the structure of the arteries is not seen only in the flawless sequence of the cells. Immediately outside the layer formed by these cells is another layer of muscular cells that are exceedingly flexible. This is another example of creation. Elastic fibers increase the veins' resistance to the blood pressure that rises when the heart beats. In addition, the elasticity imparted to the veins allows extra blood to travel through them.

If the heart pumped blood at high pressure through a venous system that was inelastic, then an extra great burden would be placed on the heart, and blood pressure inside the arteries would be very high. All these details are another indication of the incomparable nature of Allah's creation.

The Journey Continues

As we keep on with our journey, the aortic artery bifurcates and heads in two different directions. The blood flowing upward meets the needs of the brain and arms, and that blood heading downwards fulfills the needs of the rest of the body. Imagine that your journey is proceeding toward the lower part of the body.

On this route, there are a large number of detours leading to the liver, stomach, upper and lower intestines, the kidneys and the legs. As you proceed, you see that the artery enclosing you splits into many separate branches that become increasingly narrow. These countless bifurcations carry blood to the furthest reaches of the body. As you enter one of them, you see the vessel you are in becomes ever narrower. You are now no longer in an artery, but in a capillary vessel, with a diameter of 0.0002 inch.

Soon the vessel becomes so narrow that there is room for only a single erythrocyte to pass through—with difficulty. In this portion of your journey, you realize that there is a rapid exchange in the cells around you. The erythrocyte cells begin delivering the valuable cargoes of oxygen molecules they have carried on their long journeys, releasing them to cells in need of oxygen and taking up the carbon dioxide these cells have produced. In the same way, nutrient molecules carried in the blood are taken up by cells that need them.

The time has now come to head back.

When the erythrocytes give up their oxygen, their bright red color changes to a dark red. As your journey goes on, the veins become increasingly wide again. Other erythrocytes loaded with carbon dioxide from other blood vessels join in, and the blood volume increases. You shall now leave the capillary vessels and proceed on our way in the veins.

Another Marvel of Creation in the Body: The Veins

Blood flows in the arteries thanks to the heart's pumping pressure. The effect of this pressure decreases in the blood vessels, however, and by the time it reaches the veins, the distant heart's pumping power has declined considerably.

So how will the blood complete its return journey?

Imagine that you are in one of these veins, with a long journey back to the heart lying before you. You have to pass the regions of the legs, stomach and chest and climb upward for a long distance, overcoming the force of gravity all the same while. There is a need for a system such that every day, thousands of liters of fluid are able to travel back up from the toes to the heart.

The veins have been located with special planning, and surrounded by skeletal muscles. Every time you take a step, for example, the leg muscles that contract force blood upward at the same time. Thanks to this planning, the veins have their very own pumping system.

Toward the end of the 1.5-meter (4.92-foot) journey between the feet and the heart, another problem is encountered. When the main veins reach the body's central region, they are no longer surrounded by skeletal muscles. Here, the respiratory muscles support the veins. The main vein immediately beneath the lung contracts every time you take a breath. The negative pressure that forms in the expanding chest therefore, helps blood to return to the heart.

One feature in the veins represents one of the finest examples of the flawless features in the body. Within the veins are located a number of valves that open solely in the direction of the heart. In this way, blood never flows back under the effect of gravity, but keeps on toward the heart.

A great many valves have been located within the veins, each of them possessing a very special creation. Each one has hinges, again composed of tissue, so created as to permit the valve to open in one direction only. We are looking at an engineering miracle here when we consider how this perfect system came about. The workers on the world's longest pipeline have assumed three major duties, serving as engineers, as workers, and also the actual construction material.

The blueprints and projects for this construction are found in the data banks in the cell nuclei. Each cell "reads" and interprets the plans for the project just like an engineer—by itself without doubt a great miracle. People feel great admiration and respect for a professor who devotes many years to academic studies, but are unaware that their own cells are able to read, understand and put into operation projects far more complex—or else they simply ignore this fact.

Depending on the plan they interpret, cells know where they have to serve in the pipeline's construction. They also know which of the millions of cells working on this construction project they must combine with. When they find the place where they belong,

they start working like laborers to construct their individual part of the pipeline. Yet for construction material, they use themselves. Every cell working on this project devotes itself to being a tiny part of the pipeline for the rest of its life.

In the walls of the veins so constructed, no protrusions or cavities are to be found. Their inner surfaces are just as smooth as if they had been polished by a marble craftsman—with one small difference, however; these surfaces consist of living cells.

As the construction work proceeds, some cells make a different decision according to the plan they have read and decide to form a valve inside the vein. Thousands of cells combine and cling to the inner wall. Other cells constitute the hinges of these valves—again, by identifying just where they need to be according to the project's requirements. The way that the hinge opens only in one direction is, again, the result of cells being able to interpret the overall plan and of their construction ability. These cells act in the knowledge that a liquid will flow through the vessel they are in, in which direction it needs to flow, and what measures they need to take to ensure that the flow is constant.

A few millimeters on from this valve, the same miracle takes place. Here, other cells with a similar consciousness form another valve. As if in agreement with the cells that constructed the former valve, theirs too opens in the same direction. If the cells which constructed a few of these valves were to make them in such a way as to open in the opposite direction, then blood could not flow through the veins, and life would immediately come to an end. The thousands of valves that exist right throughout the venous system are all constructed to work in harmony with one another.

This system is indisputably the work of a most superior Creator, and the cells can exhibit such consciousness, reason, and self-sacrifice thanks only to the Superior Force that creates them. It is Allah, the Lord of the Worlds, Who locates the projects for the world's longest pipeline and thousands of other systems in the human body within the cell nuclei, and Who gives the cells the ability to read, interpret and act upon these instructions.

O man! What has deluded you in respect of your Noble Lord? He Who created you and formed you and proportioned you and assembled you in whatever way He willed. (Surat al-Infitar: 6-8)

The Return to the Heart

Now let's return to our journey through the human veins. Thanks to the small one-way valves in the arteries which we have just examined in some detail, we can now head directly towards the heart—returning there some 40 seconds after we set out.

The first part of our journey began in the heart's upper left chamber, and ends in the upper right chamber. As that journey began, we set out in bright red blood, and the first part of the sojourn ends in blood that is darker red. It is now time to set out on another

journey, for the blood needs to be cleansed of its carbon dioxide and replenished with carbon dioxide.

You shall be remaining in the right ventricle, but for only a very short time. As the right ventricle contracts, another valve opens and blood is expelled toward the lungs. The valve behind you is the last safety precaution preventing deoxygenated blood from returning back to the heart. You now speed rapidly towards the lungs inside blood loaded with carbon dioxide.

The journey from the heart to the lungs is another brief one, for which reason it is known as the “small circulation.” On arriving in the lung, the red blood cells around you release the carbon dioxide they carry—whose transportation comes about through a great many complex chemical processes—and begin to take up oxygen. This exchange occurs at a breathtaking speed.

Every minute 56,000,000,000,000,000,000—that is, 56×10^{21} (56 septillion) oxygen atoms reach the cells in the lung.²⁶ A great many micro-systems work together to enable just one oxygen atom to pass to the erythrocytes. Each unit works in total harmony with the one before it, allowing the oxygen-carbon dioxide exchange to take place without halting for even an instant.

At the end of this breathtakingly rapid exchange, the erythrocytes around you become loaded with oxygen. Now, together with these cells, inside the veins of the lung, you set out for the heart. Eventually your journey ends back where it started from. The oxygen-rich clean blood is ready for another circuit around the body.

The Computer that Controls the Flow

There is another very interesting and significant feature of the circulatory system. It does not simply forward the blood like an ordinary pipeline system, but also regulates how much blood needs to go to which organ when necessary.

This is most astonishing, for a piping system to determine how much of the liquid it carries needs to go to which organ, and by itself to make the requisite adjustments. Arteries are able to alter the flow of blood by contracting and expanding.

Take the brain’s needs as an example. The brain is an organ that requires a steady, dependable supply of abundant blood, since it controls all the functions inside the body. Blood flow to the brain must continue at any cost. Even if blood flow to all other organs is cut off as the result of hemorrhage, a great many nerves act together so that blood can be kept being sent to the brain, and the diameters of the arteries are adjusted accordingly. Some veins leading to other organs are temporarily short-circuited, and the flow of blood is directed to the veins leading to the brain.

In her book *The Incredible Machine*, the evolutionist Susan Schiefbein compares the venous system to a computer:

The heart and blood vessels do more than speed or slow our blood flow to meet the body’s needs. They carry the scarlet stream to different tissues under differing pressures to

fuel different actions. Blood rushes to the stomach when we eat, to the lungs and muscles when we swim, to the brain when we read. To satisfy these changing metabolic needs, the cardiovascular system integrates information as well as any computer, then responds as no computer can.²⁷

This system, comparable to computer circuitry, without doubt came into being as the result of Allah's creation, rather than by chance, as evolutionists would have us believe.

Inter-Related Miracles

Allah has created humans with such great artistry that every system in your body is connected to others. Any flaw in the functioning of one system causes a fault in the working of another. To understand this more clearly, examine the relationship between the circulatory and other systems.

Nutrients assimilated through digestion are carried to the cells of the body by the circulatory system. Therefore, the digestive and circulatory systems must have been created at the same time.

Chemical signals produced by the hormonal glands are carried to the relevant organs by the circulatory system. Therefore, the circulatory and hormonal systems must have been created at the same time.

Carbon dioxide in the blood is eliminated by the respiratory system. Therefore, the circulatory and respiratory systems must have been created at the same time.

Blood must constantly be cleansed in the kidneys, so the circulatory and excretory systems must have been created at the same time.

Blood cannot move through the veins unless the skeletal muscles contract, and so the circulatory and skeletal systems must have been created at the same time.

Blood cells are created in the bone marrow, so the circulatory and skeletal systems must have been created at the same time.

These examples refer only to the effects of other systems on circulation. A great number of similar examples could be cited. And another point not to be forgotten is that the circulatory system nourishes the organs in all the other systems. The tongue, saliva glands, esophagus, stomach, intestines, liver and other organs, which are all part of the digestive system—all are nourished by blood vessels. To give some further examples:

The hormone glands in the endocrine system.

Organs of the excretory system, the kidneys for example.

Components of the respiratory system, such as the lungs.

The muscles that constitute the smooth and voluntary muscular systems, and the bones constituting the skeletal system.

None of the organs in the body could survive in the absence of the circulatory system. All these connections and inter-connected systems, taken together, are some of the strongest proofs invalidating the theory of evolution. There is flawless harmony and

cooperation among the systems within the human body. In order for them to serve any purpose at all, they all must have been present at the exact same time.

This leads us back to the same truth. All the features of the human body were created by Allah in a single moment.

THE DIGESTIVE SYSTEM

We ourselves provide the substances necessary for the vital functions in our bodies to continue—in other words, for the functioning of our organs and for the renewal of our cells—from what we eat and drink. However, the meat, bread, fruit or vegetables we consume all has to undergo radical changes, in other words to be digested, in order to be broken down into substances in a form that our bodies can use.

It is the digestion of food that allows a newborn baby weighing between 2 and 3 kilograms (4.5 to 6.5 pounds) to grow into a 1.80-meter (5.9-foot) , 75 to -80 kilogram (165-to 175-pound) adult 20 to 25 years later. The source of this impressive difference in volume is the way in which substances in the food eaten by the child gradually become assimilated by the body. Some of these nutrients provide the necessary energy for living, and others are added to the body and in the form of flesh and bone. Those parts that serve no purpose are expelled from the body.

The digestive system contains the best refinery in the world. The substances taken in by this refining system are first broken down into their raw materials, then sent to be used by the necessary regions of the body. Since the materials, once broken down, are very different from one another, the new substances that emerge are also entirely different.

One can compare the workings of the digestive system to that of an oil refinery. The crude oil that enters a refinery as a raw material is subjected to a number of processes and gradually broken down, as a result of which quite different products are obtained. As the outcome of these complex processes in the refinery is produced, the gasoline that fuels your car, the basic material of the asphalt you walk on and the plastic containers you use. Similarly, very different substances emerge as a result of digestion. However, the biochemical events that take place in your stomach and intestines are far more complex than those in an oil refinery, and come about thanks to a far superior working system. In addition, these events take place not in an industrial refinery equipped with all the latest technology, but in your own body. The food you eat at breakfast is subjected to thousands of chemical processes, without you ever being aware of them while you go about your daily life, attend class in school or walk along the street.

For these chemical processes to take place, a long “conveyor belt” is needed. Special refinery systems need to be located at every point in this channel so that the materials in it can be subjected to change. The channel in question needs to be at least 8 to 10 meters (26 to 33 feet) long.

However, the human body is only an average of 1.70 to 1.80 meters (5.5 to 6 feet) in height. That means that a canal 10 meters (32.8 feet) long needs to be squeezed into a body that is five times shorter than it. This requires a very inventive industrial design. Indeed, the human body has been created with just such a characteristic. The alimentary canal in question (mouth, esophagus, stomach, small and large intestines) has been

situated within the human body in line with a very special arrangement, under which a 10 meter (32.8 feet) canal has been carefully packaged into a body only 1.70 meters (5.5 feet) long.

After entering the body, consumed foodstuffs embark on a 10- meter journey through the digestive system, during which these foods are subjected to a series of mechanical and chemical processes. As they pass through the five-part, 10-meter (32.8-foot) canal, they are broken down by means of mechanical processes such as grinding, kneading and rinsing, and to chemical effects performed by liquids secreted into the canal by various glands.

Digestion has begun in the mouth and continues in the stomach and small intestine. In the small intestine, the useful substances in foods are dissolved for transportation in the blood vessels.

The Refinery's Entrance

As soon as you place food in your mouth, the digestive system goes into action. The food is broken down and ground up by the teeth, which have been specially created with this process in mind. They are covered in the hardest known natural material—enamel—and are also very resistant to corrosive chemicals.

Every tooth has a shape appropriate to its function. The front teeth are sharp and can break loose pieces of food. Canine teeth are pointed, and slice up the food. The molars have been created to grind the food down. If the teeth in our mouths were all of the same sort—if we had 32 canine teeth or 32 incisors—we would find it almost impossible to eat.

Another example of the creation in the teeth can be seen in their arrangement. Every tooth is in exactly the right place. Incisors are at the front, where they need to be, and the molars are in the back—again in just the right position. If they were to change places, they would become effectively useless.

There is also complete harmony between the independent upper and lower teeth. The teeth in both regions have been so created as to sit comfortably against one another when your jaw is closed. For example, if just one of your molars were longer than the others or had an excess protrusions, you would be unable to close your mouth. You would then be unable to fulfill such basic actions as eating or speaking.

Newborn babies have no teeth in their mouths. But they have no need of them in their early days since their first food consists of their mother's milk. Gradually, however, as the time comes for them to eat solid foods, various changes take place in babies' soft palates. Some cells here suddenly begin storing calcium, as if they had received a signal. Later, these millions of cells combine together in complete order and set themselves out, one on top of and side by side each other, as if they know what they must do. Cells that have stored excess calcium later die, and these dead cells constitute the body of the teeth.

After the millions of cells have stored their calcium, they clump together, side by side, to form a large block. Again, the cells constituting this block determine its shape. At

this point, another great miracle of creation can be perceived. For example, the cells in the bottom jawbone know what kind of shape the cells far away from them in the upper palate will construct. Both groups of cells construct their overall blocks in such a manner that they will fit together in the most ideal way. Thus when the jaw is closed, the molars on top sit squarely against those on the bottom.

Any disharmony in this form would cause you great discomfort. However, thanks to the unbelievable consciousness exhibited by the cells in the palate, the 32 calcium blocks are constructed in the most ideal forms for one another.

Details such as the resistant structure of teeth, the way they are set out, and how their shapes and functions complement one another shows the evident creation in them. There is only one reason for the conscious actions of these cells. Like all the cells in the body, it is Almighty Allah Who gives to the cells that comprise the teeth their properties.

Special Digestive Fluid

As food is ground up by the teeth, it also undergoes a special chemical attack, carried out by the saliva.

People are seldom much aware of this fluid in their daily lives, and people do not generally consider whether or not it is secreted, nor in what quantities. Saliva is believed to be a very simple fluid, when in fact it is a most special compound, containing specific levels of various chemicals.

First of all, saliva permits you to taste your food. The flavor-giving molecules in food dissolve in saliva and combine with the taste-receptor nerve endings on your tongue. Only in this way can you actually taste what you are eating. That's also the reason why you cannot taste food when your mouth is dry.

Saliva is secreted by three different glands, and makes it easier to swallow food by moistening it, as well as containing chemical substances that dissolve what we eat into particles of benefit to the body. In the saliva itself are two different fluids with very different properties. One thoroughly breaks down carbohydrates and turns them partially into sugar. For example, if you place a piece of bread—a carbohydrate—in your mouth and wait for a minute, you will taste the sugar of the broken-down carbohydrate. The other saliva fluid is very dense. Thanks to this liquid's stickiness, the particles of food that spread around the mouth as we chew are brought together in a kind of paste.

If saliva were not secreted, our food would be too dry for us to swallow, and we could neither swallow it, nor speak properly. We would be unable to consume any solids, and would have to feed ourselves solely on liquids—which would make life rather difficult.

Our mouths work just like chemical laboratories in breaking down the starch in what we eat. The enzyme known as ptyalin in saliva is especially produced for this purpose, to break down the starch and turn it into sugar.

The digestion taking place in the mouth is not only chemical. Mechanical digestion is also performed by the teeth. These two forms of digestion complement each other.

The Role of the Tongue in Digestion

In mechanical digestion, the tongue plays an important role. It possesses a very sensitive sense of taste, and also directs food in the mouth, enabling it to be chewed and swallowed easily.

On the surface and sides of the tongue are some 10,000 or so taste buds, which are sensitive to four different tastes: hot, sweet, salty and bitter.²⁸ These taste buds allow you to distinguish the flavors of the dozens of different foods you consume every day. They work so well that the tongue can also distinguish the tastes of foods it has never encountered before. That is why a watermelon never tastes bitter to us in the way a grapefruit does, and why a piece of cake never tastes salty. In addition, the taste buds in billions of different people perceive the flavors of food in exactly the same way. The concepts of sweet, salty and bitter are the same for everyone. Scientists describe the tongue's ability as "extraordinary chemical technology."

But what would happen if there were fewer taste buds on your tongue?

For one thing, you would be unable to taste what you were eating. You would be oblivious to the taste of puddings, roast meats or bread. Whatever you ate would all taste the same. Dining would cease being a pleasurable blessing and would instead become a chore you had to perform several times every day. Yet that does not happen, and thanks to your taste buds, you can distinguish the flavors of everything you eat, which allows you to enjoy your food.

The Esophagus

In the second stage of the digestive process, food passes through the throat to the stomach, where major digestion will begin. No digestive process takes place during food's passage down the esophagus. After you swallow, the flat muscles behind the neck push the food into the esophagus. Food is passed down by gravity, as well as of the rhythmic contraction of the esophagus, known as peristalsis. These muscular contractions are so powerful that they enable food to be propelled sideways even if you are lying down.²⁹ It takes a mere 12 seconds for food to pass through the 25-centimeter (10-inch) long esophagus.

People can use their mouths both for eating and for breathing, because immediately next to the esophagus, down which the food passes, is another tube through which the lungs inhale air. One vital point to be borne in mind here is that if chewed food entered the windpipe instead of the esophagus, you would choke to death. If a piece of food were mistakenly to enter the windpipe, swift death or serious infection would be the consequence. Nor is it any solution for the windpipe to be constantly kept closed. The most rational and practical solution is for the windpipe to feature a valve that can open

and close. And so, even when not eating, however, people actually swallow hundreds of times every day—when they swallow saliva, for example.

As already stated, the human body's creation is perfect, and the windpipe possesses a most reliable security system. A valve consisting of a small piece of tissue at the top of the windpipe automatically closes as you swallow, preventing any food or drink from entering the windpipe. After an act of swallowing has taken place, the valve opens in its former position, and air can once again be inhaled through the windpipe.

As people eat in their daily lives, nobody is aware of this potential danger. No one ever thinks, "What if what I swallow goes down the wrong way? I wish I had a valve in my windpipe so my food would never get stuck in it." Neither do people often wonder, "Is that valve working and able to stop me from choking?" In all probability, you were unaware of the importance of the valve in your throat until you read these very lines! However, that valve's existence keeps you alive at all times, even as you swallowed unconsciously, just a few seconds ago.

This valve's evident feature contains a great many details. For example, were a normal adult's valve the same as a baby's, that baby would be in serious danger. For that reason, babies' valves function in a very different way. Their little valve is located higher up in the throat than it is in adults, allowing babies to breathe as they drink their mothers' milk. That is also why babies do not cry and choke as they nurse. If the valve system in babies were the same as that in adults, then babies might choke unless they held their breath.

However, this same need has existed in every baby who ever lived, and exists in every baby alive today—and is met in the most ideal manner. Apart from those suffering from a specific disorder, everyone was endowed with just the kind of valve they required in infancy. In the same way, when these people become youngsters, the structure of that valve again changes to respond to their different nutritional needs.

THE DETAILED CREATION IN THE STOMACH

Every phase of the stomach's very detailed creation is directed towards a particular end. Food enters the stomach through a narrow entrance known as the cardia. The muscles in this gap joining the esophagus to the stomach function as a kind of valve, preventing half-digested food from returning to the esophagus. Food then moves to the spherically-shaped top of the stomach and mixes with the stomach acid there, before taking a sudden turn to enter the stomach's widest part, known as the body.

In this area, which is shorter than the upright part above it, the stomach narrows once again and opens onto the 12 finger intestine through a passage known as the pylorus, or stomach gatekeeper. This passage at the bottom of the stomach also serves as a kind of

valve, ensuring that semi-digested food leaves the stomach and moves on to the intestines. The rhythmic wave motion of the powerful stomach muscles, sited in three layers, ensures that food moves correctly from the mouth of the stomach to the pylorus. At the same time, this wave motion helps rinse the food, grinds it into smaller particles and eventually turns it into the semi-liquid mixture known as chyme. The necessity of these detailed processes will become clear in the later stages of the digestive process.

Powerful Stomach Acids Can Digest Even Razor Blades—

How Are They Neutralized?

The digestive system in the stomach is very different from that in the mouth. As soon as food descends from the esophagus, cells on the stomach's inner surface begin secreting a powerful substance known as gastric acid. Together with this substance, fluids known as pepsin and hydrochloric acid (or HCl) are also secreted, powerful enough to be able to dissolve a razor blade. But their presence is essential if such hard-to-digest substances as protein are to be assimilated. But the stomach itself consists of proteins. How is it that this powerful acid does not damage the stomach itself?

This is one of the countless examples of the creation in the human body. The stomach does not actually digest itself, because there are cells within the deep troughs in the stomach's rough wall that possess very different properties. Maintaining a very delicate balance, some cells in the stomach secrete HCl acid, while others next to them give off a sticky fluid known as mucus, which lines the stomach wall and shields it from the acid, preventing acids and enzymes from harming the stomach's cells. Mucus also prevents ingested viruses and other micro-organisms—which cause infections—from entering the cells, and also lubricates the passage of food through the alimentary canal.

But how do all these processes take place? How does this protective environment form within the stomach? Could the stomach cells decide on their own to produce these substances, or discovered or learned the formula for this protective mucus coating?

For cells to be able to do such a thing and for the production of the necessary substances for digestion, a number of cells must first become aware that food needs to be digested. Those same cells must also know that a substance like acid is needed for digestion to occur. Then those cells must discover the formula for HCl, the most suitable acid, and begin producing it. At the same time, for the production of the protective coating, various other cells need to establish that this acid—so powerful that one drop of it can burn a hole in a carpet—could harm them and then analyze the acid and develop a formula to neutralize it. Any error in that formula would doom the stomach to being dissolved by its own acid.

Of course, the emergence of mutually complementary substances in the stomach is by no means as simple as this summary may suggest. The determination of the formulae alone is a major phenomenon, and it's quite impossible for any cell to arrive at a chemical formula and then use it to generate a substance. A cell consisting of unconscious atoms does not possess the necessary intellectual capability.

Even if we transgressed the bounds of logic and assumed that human stomach acid did actually come into existence this way, still we could not expect the complementary protective substance to emerge over the course of time. It is out of the question for acids strong enough to dissolve razor to remain for as long as the 2 to 3 days they would take to destroy the stomach itself, let alone for millions of years.

Bearing all this in mind, we are confronted by one evident truth. The co-existence of hydrochloric acid, together with the mucus that protects the stomach from it, is one of the countless instances of the order in Allah's creation. Allah has created the human body as a whole, using a flawless creation.

The Fluid That Turns into Acid through Digestion

This is by no means the only example of planning in the way the stomach works. As you have seen, the system in the human body is so perfect that precautions have been taken, right from the outset, to meet every possible eventuality. For example, the presence of digestive acids in an empty stomach, no matter how much the mucus protects it, will shortly have a damaging effect. That is why no digestive acid is secreted when the stomach is empty, thus removing any danger. Present in the empty stomach is an enzyme called pepsinogen, which has no digestive properties. When food arrives in the stomach, however, the stomach cells begin secreting their HCl, which immediately alters the structure of the pepsinogen in the empty stomach, turning it into the very powerful fragmentation enzyme pepsin. This immediately breaks down the foods in the stomach.³⁰

A little thought will show that any liquid that is harmless as long as the stomach is empty but turns into a powerful fragmenter when the stomach fills could not have emerged by means of unconscious coincidences. It is absolutely impossible for one substance to turn into another by chance, especially by adopting the correct formula on each occasion—let alone for this process to take place in human beings before every meal. This leaves the possibility of chance entirely out of the question.

Clearly, some force knows when the stomach cells are to secrete which substance, permits the cells to act appropriately, and regulates the timing of HCl acid secretion. This force that reigns in the human body is Allah, the Creator of the entire universe, all the living things in the universe, and human beings.

Your Stomach's Special Suspension System

After eating, you experience a feeling of fullness, even of heaviness. But apart from that, you may well be unaware of the considerable activity that's happening in your stomach. Your stomach constantly twists from right to left and up and down, in the effort to digest food better. Thanks to your stomach's special suspension system, however, you remain unaware of these movements.

The stomach muscles are arranged in three separate directions. This allows the stomach to move easily from right to left, up and down, and diagonally, permitting food to make better contact with the stomach fluids. However, movements of this kind always bring with them a drawback: friction.

The stomach is located next to the intestines. Its constant movement means that it rubs against the intestines, which could give rise to serious health problems.

A precaution against this danger has been taken, of course. The stomach's outermost surface is covered with a membrane called the peritoneum, which secretes a slippery liquid that lubricates the stomach and intestines externally, thus preventing these organs from abrading each other and being damaged by friction.³¹

Blood Formation and the Stomach

One unexpected feature of the stomach mucus is that it contributes to the structure of the blood. Stomach mucus does not itself produce blood, but it does, however, contribute important assistance to bone marrow, which produces red blood cells. It permits Vitamin B12, which is of great importance to the body, to reach the bone marrow. When you examine the journey undertaken by Vitamin B12 en route to the bone marrow, and the role of stomach mucus in that journey, a great miracle appears on the microscopic level.

After entering the human body, Vitamin B12 travels along the digestive system and subsequently passes from the small intestine to the bloodstream, and finally reaches the bone marrow.

The assimilation of Vitamin B12 starts in the small intestine. However, no digestive cell in the small intestine is capable of adhering to Vitamin B12. However, in one small region of the small intestine is a group of cells whose sole function is to do this.³² These cells devote their whole lives, in a miraculous manner, to trapping Vitamin B12. These cells are able to distinguish and seize Vitamin B12 from among trillions of other molecules.

Consider the miracle that is taking place: The cells that trap the Vitamin B12 must know its importance for the human body. They have been specially located in a specific part of the small intestine, in order to fulfill that function. Although they devote their lives to catching Vitamin B12, the vitamin is actually of no benefit to them. Having caught the vitamin, they release it back into the bloodstream and send it somewhere else of which they are unaware.

The motive displayed by these cells as they trap this vitamin cannot, of course, have come into being by chance. Clearly this system has been specially created. When you examine the system in a little more detail, still more astonishing miracles appear.

The cells in the small intestine are unable to recognize Vitamin B12 in its raw state. In order for these cells to identify and trap Vitamin B12 molecules, they need to be indicated by another special molecule. This requirement has of course been considered,

and a system has been installed allowing Vitamin B12 to be “marked” before reaching the small intestine.

While the Vitamin B12 is still in the stomach, the cells produce a special molecule for it in the form of an ID card that the Vitamin B12 molecule will need on the following stages of its journey. This identity card sticks tightly to the Vitamin B12 as it continues on its way, eventually arriving at the small intestine.

As you have seen, a small group of cells in the small intestine, responsible solely for finding Vitamin B12, will allow it to travel through the bloodstream. Yet these cells will be unable to recognize Vitamin B12 in its natural state, which is when the identity card comes to the vitamin’s assistance. Thanks to this ID card, the nerve cells recognize Vitamin B12 from among trillions of molecules. Subsequently, they permit the Vitamin B12 to enter the bloodstream. In this way the B12 reaches the bone marrow through the blood.

As you see, the stomach cells know the importance of Vitamin B12 for the human body. Moreover, these cells know that cells in the intestine will need a special marker to recognize Vitamin B12, and duly produce that identifying molecule. Then the intestine cells—devoid of eyes, hands or brain—recognize this marker and trap the Vitamin B12.

Don’t forget, the Vitamin B12 assimilated as a result of all these events is of no use to cells in either the stomach or the intestine. This vitamin is used far distant, in the bone marrow, thanks to which, red blood cells can be produced in the body, and human life is able to continue.

Just the details of journey undertaken by this vitamin are sufficient to demonstrate the perfection of the systems within the human body.

No doubt, the consciousness and flawless functioning exhibited during these processes cannot be performed by the cells in question. When all is said and done, cells are only structures formed by assemblages of unconscious molecules. It is utterly meaningless to search in the cell for consciousness, free will or power. The evident truth is that the stomach cells, together with the mechanisms that give rise to blood production, were created by the same creator—Allah—and that they fulfill their functions through His inspiration.

Allah, there is no deity but Him, the Living, the Self-Sustaining. He is not subject to drowsiness or sleep. Everything in the heavens and the Earth belongs to Him. Who can intercede with Him except by His permission? He knows what is before them and what is behind them but they cannot grasp any of His knowledge save what He wills. His Footstool encompasses the heavens and the Earth and their preservation does not tire Him. He is the Most High, the Magnificent. (Surat al-Baqara: 255)

Digestion Continues

Food in the stomach, now turned into a gelatinous paste, is forwarded from the duodenum through a one-way valve to the small intestine, an organ only 3 centimeters (1.18 inches) in diameter but more than 7 meters (23 feet) long. This 7-meter (23-foot) tube has been folded, squeezed and packaged into the abdomen of every human being. The miracle is not limited to this packaging, however. Vital phenomena take place inside this narrow enclosure.

Although a large part of the food is broken down in the stomach, some of it remains in the stomach, not broken down into its smallest components. These still-undigested foods that leave the stomach also reach the small intestine shortly afterwards. For example, fats are hard to digest, being very large molecules and indissoluble in water. For that reason, fat digestion occurs not in the stomach, but in the small intestine.

At this point, the pancreas and the liver go into action. These two organs send a special fluid into the small intestine, with the help of a channel or duct.

The liver is apparently aware that the stomach cannot break down fats. At the same time, it possesses the chemical formula for a special compound. As soon as fatty foods reach the small intestine, the liver releases the liquid it has prepared and stored, at exactly the right time and place.

The function of this secretion, known as bile, is not limited to breaking down fats. It also helps with the absorption of fats broken down by the small intestine. In addition, it contains special chemical compounds that permit the intestines to absorb vitamins, and is also an antiseptic that kills harmful bacteria remaining in the intestine.

Gall subjects the fats in foodstuffs reaching the small intestine to a preliminary process that will increase the effect of the pancreatic secretion. The various enzymes contained in pancreatic fluid assist not only in the digestion of fats, but also of starch and proteins. There are also large numbers of glands in the mucosa covering the wall of the small intestine that secrete various enzymes that play an important role in the digestion of foods sufficiently broken down. Most of the food in the small intestine gets broken down some 3 to 5 hours after eating. In this way, carbohydrates are reduced to simple sugars, proteins into amino acids, and fats into glycerol and fatty acids, ready for assimilation. The cells in the small intestine absorb these molecules and then release these nutrients into the bloodstream.

When the foodstuff is ready to leave the small intestine, no nutrients remain apart from water and certain vitamins.

THE LAST STAGE IN DIGESTION: THE INTESTINES

Deadly Acid Waiting in the Intestines

As you have seen, digestion takes place by means of acids in the stomach. As a result, rather powerful acids remain in the paste reaching the intestines from the stomach, and they might represent a grave danger to the duodenum. Unlike the stomach, the duodenum has no special mucus layer to protect it.

Why, therefore, is the duodenum not damaged by this acid?

To find the answer to this question, we encounter astonishing digestive processes taking place within the body.

When the acid reaching the duodenum from the stomach reaches a dangerous level, cells on the duodenum's wall start secreting a hormone called *secretin*. There are several aspects of this process. First, *secretin* exists in the intestinal walls in the form of *pro-secretin*. Under the effect of the digested food, this hormone turns into *secretin*, a separate substance that eliminates the harmful effects of the acidic secretions by stimulating the pancreas.³³

Like most other hormones, secretin reaches the pancreas by way of the bloodstream and calls on the pancreas for help in secreting enzymes. Realizing that the duodenum is endangered, the pancreas sends bicarbonate molecules to that region, neutralizing the stomach acid and protecting the duodenum.

How did these processes, so vital to human life, come about? Intestinal cells know that the substance they need can be found in the pancreas. They know how to eliminate the effects of stomach acid by disrupting its chemical formula. They know the substance's formula by stimulating the pancreas, and the pancreas understands the message from the duodenum and starts enzyme secretion. All these are all matters worth considering.

In reference to the intestinal cells, such terms as "know" and "be aware" are used here to emphasize the miraculous aspect of the processes taking place in the body. Otherwise, as every rational person can realize, a cell can't possibly think, possess free will and take decisions, be aware of another organ's features, and to determine formulae.

The way that cells, with no brain or consciousness labor in the dark innards of the body is the result of Allah's superior creation. It is Allah, with His matchless knowledge, Who creates cells and the characteristics they possess. Such features created by Allah in the human body reveal the limitless nature of His might.

The Final Stage in the Digestive Process

The digestion of food is completed in the small intestine. But the final stage is the absorption of digestion's products so they can be sent to where they're needed in the body. Absorption in the mouth and stomach is minimal; absorption occurs wholly in the intestines, to which the structure of the small intestine is entirely suited.

The interior surface of the small intestine is very rough and wrinkled, with microscopic pumps on these wrinkles and protrusions. These pumps are actually absorber cells that trap nutrients the body needs and pump them out to the blood capillaries to which they are joined. These tiny pumps know exactly what our bodies need: broken-down sugar to be used in our brain cells, and amino acid to be used in our muscles. These minute pumps display reason in finding and trapping the nutrients we need. Even as you read these words, millions of these pumps are sending the necessary nutrients to the relevant locations that enable you to do so.

Thanks to the wrinkles and tiny pumps in the intestines, the small intestine in an adult actually occupies a rather large surface area—around 300 square meters (358 square yards), or the approximate equivalent of two tennis courts.³⁴

In this wide area, the absorption of nutrients takes place. Food is first broken down and turned into a paste, which is then spread out over the interior of the intestine in a thin layer, so that the cells can easily absorb all the nutrients in food.

One of the small intestine's special features is its ability to absorb just enough of certain needed substances. For example, too much iron can harm the body. Iron reaching the intestines above a particular level is excreted without being digested. Were this not to happen, the result would be serious illnesses.

In addition, as mentioned earlier, regions in a very special part of the small intestine are composed of cells prepared to absorb Vitamin B12. People who have this area of their intestines surgically removed must receive additional vitamin supplements, or they will die.

The selectivity of cells in the intestines needs consideration, to better comprehend the greatness of Allah. The intestines are in lightless area of human body, with neither the intelligence nor the information to distinguish between substances. Even so, they can distinguish beneficial substances from harmful ones, and expel unnecessary matter from the body.

It is just about impossible for people to distinguish between chemical substances, mineral salts or powder metals placed before them. Someone without the relevant training cannot tell aluminum from zinc simply by their appearance. It is impossible for that person to determine which substances will be beneficial or harmful, or in what quantities they are currently present in the body. Although a human cannot tell the difference between these substances, the cells in his intestines have no difficulty in doing so.

As you have seen, it is not enough to possess reason and consciousness to be able to identify a particular substance. One also needs detailed information. So how did the intestinal cells come by this knowledge? How do these cells know what the trillions of cells in the body have too much and too little of? And how do they rectify any problems along these lines?

Cells consisting of combinations of atoms cannot possibly be imagined to have any will of their own. Evidently, this information has been placed inside the cells, and clearly,

such a magnificent process cannot occur under the influence of chance or any other such factor. This shows the existence of a mighty Entity Who gives the cells what awareness they possess. That power belongs to Allah, the Creator of all, Who gives all things their form.

He is the Originator of the heavens and the Earth. How could He have a son when He has no wife? He created all things and He has knowledge of all things. That is Allah, your Lord. There is no deity but Him, the Creator of everything. So worship Him. He is responsible for everything. (Surat al-An'am: 101-102)

Bacteria that Work for You

Most nutrients are absorbed in the small intestines before reaching the large intestine. However, some special nutrients are absorbed in the large intestine. One of the most interesting of them is Vitamin K, which plays an important role in blood clotting, and whose deficiency can lead to serious consequences, and even death. However, Vitamin K is not naturally found in the form that the human body requires. Only if it is refined in a certain way can this vitamin assume a form that the body can use.

But human metabolism cannot perform such refining. So how is it that we do not die from a lack of Vitamin K? What mechanism refines the vitamin into a form that our bodies can use?

The answer is quite astonishing. Special bacteria in the intestines subject Vitamin K to a series of processes and turn it into a form capable of being used by human beings. The Vitamin K, once synthesized by these bacteria, is absorbed by the large intestine and then used in the blood-clotting process.³⁵

The presence in the intestine of the bacteria that refine Vitamin K is an important detail. Tiny bacteria are in exactly the right place and possess the genetic code to perform the refinery process, yet people are unaware of the name, and even of the existence, of bacteria so essential to their survival. No coincidences can ever produce a bacterium, install it in the human intestines, or enable this bacterium's genetic code to perform beneficial processes for the body as a whole.

This information is most astonishing—and most important. No doubt, it leads us to a Creator Who plans and regulates all. That creator is Allah, Who has planned everything down to the finest detail. Like all living things on Earth, human beings stand in need of Him; they were brought into being and exist by His will. Allah Himself has no need of anything. In one verse it is revealed that:

Say: "Can any of your partner-deities guide to the truth?" Say: "Allah guides to the truth. Who has more right to be followed—He Who guides to the truth, or he who cannot guide unless he is guided? What is the matter with you? How do you reach your judgment?" (Surah Yunus: 35)

THE INDEPENDENT FACTORY IN OUR BODIES: THE LIVER

In recent years, computer engineers have begun using the liver as a model, mainly because of the way the liver successfully performs many very complex functions at the same time. The liver serves around 500 functions related to the general running of the human body.³⁶

The liver ensures that all the food you eat is brought into a form that your body can use. In doing so, it breaks down the complex molecules arriving in the blood from the digestive system into molecules that can be used or stored. It subsequently sends the useful ones on to other cells, by way of the bloodstream. But harmful ones, those it subjects to a number of processes and sends them to the kidneys, where they are filtered and expelled from the body in the form of urine. The way that a 1.5- to 2-kilogram (3.3- to 4.5-pound) organ can take up all nutrients by way of the blood, process and expose them to various chemical reactions, and turn them into useful building blocks of benefit to other cells, is a miracle all by itself.

Since the liver's fundamental duty is to process the nutrients it receives by way of the blood, its structure must be appropriate to storing blood. Indeed, the liver has a spongy structure. In the human body, a total of 800 to 900 grams (1.7 to 2 pounds) of blood is in a state of absorption by the liver at all times. The special location of such a heavy organ has been determined in such a way as not to damage the other organs and for it to still perform all its functions.

The Control System in the Liver

The liver's operations may be compared to the workings of a port. In the same way that cargoes from different regions are collected at one spot and then forwarded on to other regions, substances necessary for the body are collected in the liver, and forwarded from there according to the body's requirements.

For blood loaded with raw materials to reach the liver depends on the blood vessels passing through the digestive tract and the heart. The veins connect organs together for specific purposes. In other words, it is impossible to find in any organ a vessel whose purpose is uncertain or which has no function. The veins that reach the liver are responsible for carrying blood in the right quantities and in the shortest time possible. Oxygenated blood from the heart's left ventricle reaches the liver through the kidney arteries. Every artery in the body is directed towards the liver, as if they knew that blood had to reach it.

The blood coursing through our bodies that meets the needs of all our cells must be carefully inspected before reaching its destination, and any deficiencies have to be identified and corrected. The liver cells now enter the equation. Blood from the stomach, intestines and spleen is sent directly to the liver, where it will be refined. It's as if these

organs, realizing the importance of the liver, had taken a joint decision to carry out their share of the job, and fulfill their responsibilities to it.

If blood from the stomach, intestines or spleen went directly to the heart to be spread to the body's cells, that would mean that substances that were not yet ready to use—or even harmful and poisonous—, would be distributed. That would constitute a life-threatening danger.

Liver cells do not produce blood, which reaches liver cells from the outside. Despite blood being a foreign substance to them, the liver is well acquainted with its structure. Each liver cell knows just what blood should contain. If any substances are missing from the blood, it supplies them. If there are excess quantities of any substances in the blood, it stores them. In short, the liver cells possess an expertise that lets them fulfill their functions to the letter.

In contrast to other organs, the liver receives blood from two different sources. The first is the connection that carries oxygen-rich blood from the arteries of the heart. The second is the arteries carrying nutrients from the stomach and intestines. These two sources reach the liver tissues separately and divide into sinuses inside it. After processing by the liver cells, the blood comes together and is released in a single vein.

With all processes completed, the blood leaving the liver returns to the right-hand chambers of the heart and is pumped to the lungs, for dissemination to the body. As you've seen, the venous network among the organs and the order in which the blood needs to flow to various organs have been set out according to a specific plan, and the circulatory system has been constructed in light of that.

The Liver's Special Structure

The tiny blood vessels tirelessly carry the blood, of such great importance for our survival, to the very furthest corners of our bodies. The walls of the capillary vessels, which become increasingly thin as they enter the depths of the tissues, are much thinner than those of the arteries and veins. Thanks to their porous structures, there is a constant exchange between the tissues and the blood of respiratory gasses, water, various minerals, salts, nutrients, wastes, hormones and antibodies.

In contrast to other blood vessels, the walls of the capillaries in the liver lack a protective basal layer. Actually, "lack" may not be the right word here, since the absence is deliberate. While there is a basal layer in the other organs, thanks to its absence in the liver's blood vessels, blood coming from the capillary veins is immediately soaked up by the liver cells, processed and sent to the body quickly and effectively. Thanks to this structure so well adapted to its functions, the liver is easily able to take blood into its spongy tissues, process it, release many proteins into the blood plasma, as well as taking in and eliminating old erythrocytes traveling through the bloodstream that have completed their life spans.

As another example to underscore the importance of this basal layer structure in blood vessels: It is easier for water to filter down through soft soil than through hard clay. Farmers frequently hoe their fields in order to increase the porosity of the soil for growing crops. Plants in soil that is not hoed enjoy only a limited benefit from rainwater. For minerals and water to reach their roots, the soil needs to have a porous structure. Thinking of the liver in the same terms, the blood vessels in the liver have no basal layer or “clay” and can thus transmit blood to the cells much faster.

Pools in the Liver: The Sinuses

It is thought that more than 2 million sinuses in the form of fine cracks are found in the liver’s complex vascular structure. Their duty is to host the blood arriving from the outside and to play a role in processing it.

The diameter of a sinus is so minute that erythrocytes can pass through one only by squeezing themselves. Such a delicate and fine structure functions throughout a person’s life, without ever being punctured or damaged. The reason why the sinuses have such a delicate structure is most amazing.

For the liver to successfully synthesize or expel substances reaching it from the bloodstream, it’s essential that these substances reach the hepatocyte liver cells. Sinuses undertake this responsibility, and work expertly in the liver tissue through which they spread like tunnels. The carefully determined diameters of the sinuses, the wall structures and connections with other vessels are ideally suited to the work they perform. The open structures known as fenestrae (the Latin word for “windows”) in the walls of the liver sinuses allow particles in the blood less than 1/10,000 of a millimeter in size to reach the liver cells, while preventing larger ones from doing so. Were the sinuses any wider, then larger molecules could easily reach the liver cells and damage them.

Different Cell Structures in the Liver

There are two kinds of cell in the liver: epithelial cells and connective tissue cells. They fulfill their responsibilities with great discipline, never confusing or shirking their duties, because any problem that might halt this disciplined working system would mean death.

For example, if the liver cells stopped storing glucose, cells would be unable to function through loss of energy even though foodstuffs entered the body, and the brain cells could not work, leading to death or permanent disability.

Yet such a thing never happens. The cells carry out all the needed production, in the exact manner required. Every liver cell has been created in line with a particular purpose.

The liver is covered in a transparent connective tissue or membrane known as Glisson’s capsule, which serves a very important purpose. If we compare the liver’s structure to a sponge full of liquid, this membrane resembles a bag around that sponge,

ensuring that compounds do not leak out from the liquid-filled liver. Thanks to this connective tissue, the liver maintains its structure and keeps its contents, and also keeps separate from other organs.

The connective tissue cells cover and protect the liver, but the liver cells 1 millimeter (0.04 inch) underneath have very different duties. It's astonishing that cells so close to one another should perform such different functions. During embryonic development in the womb, some cells turn into those that will constitute the liver, and other cells immediately nearby turn into transparent cells that subsequently combine together and form a membrane entirely enfolding the liver, preventing any fluid from leaking out. Two different groups of cells have emerged, contiguous but very different in terms of their tasks and appearance. There is a definite borderline between these two cell groups. Each cell was born knowing its duty and responsibility and where it had to be. While the body is still growing in the womb, it is constructed in a precisely ordered form.

The liver cells' physical structures have been separately and specially created according to their location and what function they will undertake. For example, the walls of the cells touching the membrane surrounding the liver are all flat, because there is no exchange of substances between the liver cells and the membrane.

In regions where there is a heavy exchange among cells, the situation is different. On the walls of these cells, minute protrusions called *microvilli* stretch out towards the neighboring cells, permitting greater contact between the cells and the blood fluid, so that substances can be exchanged more easily. Enzymes that speed up and halt chemical reactions have also been located in regions containing these protrusions, and all the means necessary for substance exchange are in place.

That the liver's cells possess the ideal physical and chemical properties for their functions and location shows that every detail in this organ has been set out in line with a specific plan:

**Everyone in the heavens and Earth belongs to Him. All are submissive to Him.
(Surat ar-Rum: 26)**

The Liver's Canal System

The liver possesses a special transportation system containing millions of channels. The two main veins carrying blood to the liver, once inside it, divide into millions of tiny capillaries. Moreover, inside the liver there are also channels that carry gall bladder secretions and are laid out parallel to the blood vessels. What is the significance of these millions of micro-channels in a piece of tissue weighing between 1.5 and 2 kilograms (3 to 4.5 pounds)?

This channel system is a specially built marvel of creation whose importance can be better understood when you recall the functions of the liver cells, the amount of blood reaching the organ and the liver's general function.

The liver refines molecules in the blood, turns them into other substances and when necessary, stores them. All these processes are carried out by millions of tiny chemical laboratories—the liver cells—and a special connection needs to be provided for each cell, and molecules about to be refined need to be carried right up to it by the blood. This channel system possesses the ideal creation for meeting this need. The millions of micro-channels inside the liver have been constructed in such a way as to never conflict with one another or to disrupt each other's functions. The transportation of the raw materials to be processed and of substances in the liver produces takes place along these channels.

To better comprehend the flawless nature of this creation consider the following example:

Imagine you have paid a short visit to one of the most developed and best planned cities in the world, and have investigated that city. Its infrastructure is flawless. With regard to transportation in particular, every possible measure has been taken and a great many facilities have been laid on for its inhabitants. A large metro system is built under the city's surface, connecting all the regions of the city to one another. The metro network is hundreds of kilometers long, with stations all along that length.

Perfect urban planning has also been carried out on the surface. Thanks to the city's large number of rationally planned main roads and highways, traffic never becomes congested, no matter how busy the city, and there is never any transportation delay. At the same time, the roads' superstructure has also been flawlessly planned. Roundabouts and signal lights direct the flow of traffic, and signposts along the roads make things easier for out-of-town drivers.

This advanced city is an important commercial and industrial center. Its roads are used at all hours for the transport of commercial and industrial goods.

How would you react if someone told you that the city had never been planned at all, that it was not deliberately built, and that its roads, and industrial and commercial centers all came into being through chance and by themselves?

Rather than wondering whether that person's words were true, you would wonder whether the individual was sane.

When the urban planning cited in this analogy is compared to the channel system inside the liver, the former is much simpler than the latter. Every pulmonary channel has been opened for a specific purpose, to fulfill a specific function. The molecules produced or processed in the liver move through these channels in breathtakingly busy traffic, yet without any disruption taking place. The channels are surrounded by cells that engage in production, storing and transformation, carrying out processes far more complex than those in any factory or industrial center, and continue production around the clock. A highly efficient transportation network has been provided for an extraordinarily productive industrial and commercial zone. Quite clearly, any such well-planned system must have been created.

Great planning can be seen in every feature of the human body, not solely in the liver. Molecules invisible to the naked eye travel through painstakingly constructed channels to reach their required destinations. The continuity of this transportation is of the greatest importance to human life.

Scientists and doctors have spent years researching and investigating the organ in which these molecules will be stored, the level at which they will be present in the blood, and whether or not they will be expelled from the body. Indeed, the branch of science known as molecular biology makes a special study of the behavior and function of molecules it has identified in the body. The information obtained so far, however, can account for only a small part of the body's functioning. Trained minds are investigating these bodily systems using the very latest technology, but still failing to fully understand them. It's impossible for these systems to have come into being by themselves. Claims that base their coming into being by chance are quite laughable.

Nobody would claim that a road interchange made of asphalt came into being by itself. That being so, it is utterly illogical to believe that a flawless planning system composed of such delicate substances as flesh and blood, thousands of kilometers long, was created by chance.

Allah created all this flawless system. Everything happens as He so wills it.

Special Capabilities of the Liver Cells

The liver is seemingly aware of all the activities taking place in other, different places in the circulation, digestive and respiratory systems. For example, it knows beforehand that the fats entering the digestive system will be unable to be dissolved, and it produces the chemical necessary for those fats to be broken down and digested in its laboratory.

As you already know, that substance is bile, or gall. The liver stores this substance it produces and subsequently, on receipt of a command, sends it to help digest fatty foods at exactly the right moment.

The organ that performs all these functions consists solely of flesh and blood. However, the liver is aware of everything going on in the digestive system and produces bile as a precautionary measure, meaning that it possesses considerable foresight.

The capacities of the liver cells go even further than this. As a result of this organ's constant activity, a number of waste products emerge. It's essential that these be expelled if the liver is to continue functioning. The Kupffer's cells on the sinus surfaces fulfill this role by swallowing and digesting harmful substances in the blood by the method known as *phagocytosis*. Danger is eliminated by these cells carrying out an accurate distinction between useful and harmful substances.³⁷

What if these cells did not identify and eliminate harmful substances in the blood?

Diseases would constantly break out in the body, and the immune system would be in a constant state of mobilization, leading us to feel always ill and fatigued. Yet thanks to

this special system in the liver, the body's enormous army does not proceed to action stations, while the Kupffer's cells—which may be compared to a border police force—eliminate harmful substances.

This precaution for the benefit of human health is part of Allah's affection for the living things He has created. All those who think on this information using their conscience and reason will reach only one conclusion: Allah is the Almighty, the Worthy of All Praise.

Multi-Functional Workers in the Liver

The *hepatocytes*, or the basic liver cells, perform a number of functions, including the secretion of bile, cleansing the toxins from the blood, distinguishing between proteins and carbohydrates and fats, and producing the particles that are stored in the blood and used for coagulation. Each of these functions is very important for us to lead healthy lives. It is thought-provoking, too, that the same liver cells should carry out so many different processes. Each of these chemical reactions combining substances such as carbon, hydrogen, oxygen and nitrogen requires a separate expertise. Their being performed by the same cells, requires a system, order and planning, and the fact that the details are carried out by cells that can be observed only under an electron microscope is one worthy of deep amazement.

Imagine that we try to establish a human community that will perform all the processes our livers carry out for us. We will need to find:

An expert on the subject of chemical reactions,

A staff to work in production,

A space to store the necessary materials,

A way to dispose of the waste products arising during production, in such a way as not to harm those working in the factory or to pollute the environment,

To offer additional services to nearby factories and produce in advance such materials as they may need,

To settle disagreements with nearby factories. . .

And a great deal more.

At the same time, each of these workers—just like the liver cells—must have experience in all these areas. They must work non-stop, never feel tired, and be able to assume single-handed responsibility for everything they do.

As you might expect, it will be quite impossible to find individuals with all these characteristics to undertake such a responsibility. Yet millions of cells, visible only under the microscope, are performing all the tasks just listed and many more, in a perfectly flawless manner, just under your diaphragm. Moreover, they are performing these same tasks and in just the same flawless way in the livers of everyone alive today, and in the livers of everyone who has ever lived.

This magnificent intelligence exhibited by trillions of cells, themselves made up of molecules, is clearly not their own.

Some Functions of the Liver, Which Acts Like a Headquarters

The liver consumes 12 to 20% of the body's total energy in performing its various functions, known to number around 500. Some of the areas in which the liver acts just like a central headquarters are the following:

It Regulates the Nutrients Necessary for the Cells

The liver makes the necessary adjustments for each of the 100 trillion or so cells in our bodies to be able to receive the nutrients they require. In so doing, it must know just what the cells need. Yet where does this organ, itself made up of similar cells, collect the requisite information? How does it interpret it, and how does it arrive at the correct decisions?

It Takes up the Raw Materials Necessary to Produce Nutrients

The raw materials the liver uses to carry out production are carried in the blood. In the same way that a factory receives raw materials from various loading docks and then turns them into very different items, so the liver constantly synthesizes the raw materials that reach it, stores or uses them, or returns them to the body in the bloodstream, ready to be disposed of.

It Stores Materials that the Body Needs

The liver, comparable to a giant laboratory in which chemical reactions take place, also ensures the storage of various substances essential for survival, such as iron, copper, Vitamin A and Vitamin D—and also produces a number of them by itself. In addition, the liver produces proteins such as heparin, fibrinogen and prothrombin, responsible for blood coagulation.

It Produces the Proteins Essential for Life

One of the liver's main functions is to synthesize needed proteins. The liver knows what it has to do without having received any training at all, uses the correct method to distinguish nitrogen molecules belonging to amino acids given off as a result of digestion, and produces new proteins by having these substances react with carbohydrates and fats. It also produces such materials as carbohydrate by using fats and proteins. From carbohydrate and protein, the liver is capable of producing fat which it stores to be easily turned into energy later.

It Supports the Immune System

As already pointed out, the liver is an important component of your body's immune system. It makes no mistakes in finding harmful substances, neutralizing and disposing of them.

Special phagocytes in the liver clean foreign bodies and bacteria from the blood. The liver also neutralizes the toxic effects of drugs, thus preventing any poisonous side effects from the medications you take when you are ill. Working literally like a security system, the liver identifies all the harmful substances that reach it by way of the bloodstream. Were it not for liver cells recognizing and taking appropriate measures to deal with harmful substances that reach the liver through the bloodstream from the stomach or the intestines, then simple bacteria—or the drugs we take for health purposes—would leave us suffering one illness after another.

All these processes, essential to our survival, are carried out non-stop by an organ weighing only 1.5 to 2 kilograms (3 to 4.5 pounds.) All these processes are taking place even as you read these words. Even a momentary pause in this miraculous system would lead you to an incurable illness or even death.

The liver, which performs all these functions, is itself an organ composed of basic building blocks such as protein, fat and water. That it possesses much greater expertise than a human being—who will learn to perform a few chemical reactions only after years of training—and the way that every chemical reaction ends successfully, is quite astonishing. Every liver cell knows which substances will be used in our bodies, as well as the molecular and chemical structures of these substances. They thus turn the nutrients they identify into useful substances, but in so doing, they know that they also need vitamins and enzymes to synthesize protein. They know that iron constitutes the basis of producing erythrocytes, the fundamental building blocks of blood, and that the level of sugar in the blood needs to be kept at an even level!

But liver cells are unable to perform any of these processes of their own accord. They cannot learn one single piece of information about the substances in our bodies. It is our Lord Allah Who inspires the liver cells the knowledge of which substances are to be processed, which are useful or harmful, and which need to be stored for later use.

A Maintenance-Free System

As already described, the renal artery and the hepatic veins carry blood to the liver and bifurcate into small branches inside the organ. Some 1.5 liters (0.4 gallons) of blood per minute passes through the liver by means of them. This means that 90 liters (23.8 gallons) of blood passes through the liver every hour; and the liver processes 2,160 liters (0.6 gallon) of blood a day. Moreover, 1.5 tons (1.6 short tons) of protein and 12.5 tons (13.7 short tons) of carbohydrates enter the liver in an average human lifespan of 70 years.

This system may be thought of as a giant refinery working non-stop, 24 hours a day, and functioning with a computer-controlled command system. Assuming that one

working day began as soon as the previous one came to an end, one might well expect the refinery machinery to require maintenance. Even with a very modern, advanced refinery, we would have to spend at least half a day every week checking its components.

Yet what we are discussing here is an organ in our bodies that works far more intensely than any refinery. The liver takes in tons of substances, processes them without making any concessions, and turns them into forms that the body can use. In addition, despite working non-stop, never tiring or needing a rest, it never requires any maintenance that might slow the system down.

This is the superior and incomparable creation of Allah.

He is the Living—there is no deity but Him—so call on Him, making your religion sincerely His. Praise be to Allah, the Lord of all the worlds. (Surah Ghafir: 65)

The Liver's Ability to Regenerate Itself

The liver is the only organ in the body capable of regenerating itself. Even if up to 70% of the liver is removed, within a week or two it again reaches a size capable of performing all its functions.

The mechanisms responsible for the regeneration of the liver are still being researched. This feature of the liver was first revealed by studies by two surgeons in the Mayo Clinic in 1931. It was realized that the liver regenerated itself in a great many species, and that the cells initiate this process automatically in the wake of any damage. Yet cells in a healthy liver are never observed to multiply of their own accord. That being so, why do they divide and multiply when this organ requires it, and do so until the liver has once again attained its former dimensions? How do the cells know for how long they need to multiply, or when to stop? Where do the commands come from? In the absence of a command to stop, do they decide for themselves not to increase to the extent of putting pressure on other organs?

Whenever liver cells are subjected to any harm or damage, they suddenly begin multiplying by initiating a most unexpected activity. The astonishing thing about this phenomenon is that the cells divide at unbelievable speed, while still performing their normal functions to the letter. It is even more surprising how they take a joint decision on when the process should stop, once the necessary steps have been taken.

It is thought that damage to the liver sets into motion a number of factors that create a multiplication in the cells. These growth factors are perceived by receptors on the liver cells and give rise to complex activities inside them. New programming thus begins at the genetic level, and the requisite activity for multiplication of liver cells is initiated.

The same subject has been investigated by geneticists, who examined the method used by self-regenerating cells in the liver and their levels of activity. These studies investigate what are known as proliferating hepatocytes and the path they follow from

inside the liver. A single hepatocyte can regenerate a rather large part of the liver. During the division and multiplication process, it was observed that new cells in the liver do not move, although old hepatocytes do.

During the regeneration process, cells at the center of the liver and other cells emerge from the portal region and move towards the kidney vein. This mass movement may be compared to a walk. Since the cells move in only one direction, the further a cell is from the center, the older it is. In this way, cells' age can be calculated by means of their distance from the center.

The proliferating-tissue theory proposed with the investigation of the movements of aging liver cells is one that every newborn cell knows very well and immediately puts into practice. Whenever one of the cells divides, one of the newly formed cells has to move. Following the division of the cell into two, in the process known as mitosis, one of the new- formed cells takes the place of the original cell, and that cell proliferates forward to the site of connection.

When a cell divides, the new cell remains in place of the old one, and the original "mother" cell moves forward a little. However, in order for this cell to assume its new place, all the other nearby cells have to slide outwards. But as we've seen, these cells are neither pushed nor pulled, and perform no mechanical activity. The phenomenon that takes place is described as proliferating and takes place very quickly.

It is Allah Who gives the requisite commands and Who regulates and creates this miraculous process from beginning to end. In the verses of the Qur'an, it is revealed that Allah regulates the existence and working of every system on Earth, and that people must study and consider this knowledge:

It is Allah Who created the seven heavens and of the Earth same number, the Command descending down through all of them, so that you might know that Allah has power over all things and that Allah encompasses all things in His knowledge. (Surat at-Talaq: 12)

THE BODY'S SECRET SUPPORTER: THE PANCREAS

Imagine you have a delicious dinner. You may never have wondered how you will digest those various nutrients. You are likely unaware that each of these nutrients need to be processed by different enzymes. Of course, it's perfectly natural for anyone who has not received specialized training to be unaware of this. Yet one organ in your body does possess all this information. It knows which foodstuffs will be digested by which enzyme, and sends the right chemical secretion to these foodstuffs, at the proper time, with no confusion or stoppages ever occurring. That organ is the pancreas.

One of the most important organs in the body, the pancreas decides how many sugar molecules need to be present in the blood flowing through the veins. If there is a reduction in the number of sugar molecules in the bloodstream, the pancreas immediately takes steps to raise that number, and those measures save the life of the individual. If the sugar-molecule concentration rises, then it takes steps to lower their amount in the bloodstream.

With the enzymes it sends to the digestive system, the pancreas plays a major role in human health. The enzyme that prevents the intestines being digested by stomach acid is also produced by the pancreas. If we examine these functions one by one, then we can see how this organ, which may never have drawn your attention, acts in a most planned, conscious manner and possesses a flawless system that keeps you alive.

The pancreas' intervention in the digestive system begins with a special signal. As digestive processes carry on inside the stomach, specific quantities of a special enzyme known as cholecystokinin enters the bloodstream and stimulates the pancreas to secrete breaking-down enzymes into the duodenum.³⁸

The Hidden Chemist

The pancreas not only understands that the digestive process has begun. It can also understand the kind of foods you have eaten, and then produces different digestive enzymes accordingly. For instance, when you eat a lot of carbohydrates, such as pasta or bread, when these foods reach the duodenum, the pancreas secretes the enzyme amylase, which possesses the feature of breaking down carbohydrates.

If you eat meat, fish or chicken, when these high-protein products reach the duodenum, the pancreas produces enzymes such as trypsin, chymotrypsin, carboxypeptidase, ribonuclease and deoxyribonuclease, which then break down the protein molecules. If your meal has a high fat content, then lipase, another enzyme that digests fats, enters the duodenum together with these other enzymes.

This organ realizes the content of the food you eat, then separately produces the chemical fluids necessary to digest these foods, and secretes them only at the right time. The pancreas never secretes enzymes that break down protein for carbohydrates, or fluids that break down carbohydrates for fat molecules. It never forgets the chemical formulae of the complex enzymes it produces, or accidentally leaves out any components. In the healthy individuals bodies, the pancreas serves accurately for a whole lifetime.

For a closer look at the scale of the miracle involved, let's examine this phenomenon at the micro level. As digestion proceeds, the stomach cells do not remain idle. Some of these cells realize that the food being digested will later reach the duodenum. Their sole concern is that this food should be digested as well as possible. By means of the bloodstream, the stomach cells signal to the pancreas cells to assist them by secreting a hormone.

The signal they deposit travels through the bloodstream and when it reaches the pancreas, the cells there immediately recognize it. Although it travels through just about the whole body, the signal is not opened and in particular, not read, by the other organs. All other cells know that this signal has been addressed to the pancreas, not to them. That is because the molecular structure of the signal has been so created to affect only the receptor molecules on the membranes of pancreatic cells. In other words, the stomach cells have written the correct “address” on the hormone it produced in a conscious, knowledgeable way. In order for that address to be written properly, the stomach cell needs to know all the features of a pancreatic cell.

The miracle is not solely restricted to the correct writing of the address. The letter sent by the stomach cell also contains a message. Two tiny cells in the depths of the human body, located far away from one another, correspond and communicate to serve a specific purpose. Though they have never seen one another, they know the language the other will understand and act together to plan for the digestion of the food you eat. No doubt this is a true miracle!

The pancreas reads the message reaching it, in the form of the hormone cholecystokinin, and loses no time in secreting the necessary enzymes. If the food reaching the duodenum is a protein, then it produces an enzyme that breaks down protein and sends this to the duodenum. If the food is heavy in carbohydrates, then it produces an enzyme that breaks down carbohydrate.

Imagine a blackboard on which are written the formulas for a protein molecule, a fat molecule and a carbohydrate molecule, together with plans of these molecules’ atomic chains. Then imagine that someone asks you to produce the chemical formulas for the best enzymes to break down each one of these three different molecular structures, and to write them down on the blackboard.

Unless you have received specialized chemical training, you could never guess the most ideal formulas that would break down these molecules. You could write down those formulas only in the light of previous training or instruction.

That being so, then how do pancreatic cells know the chemical formulas of the enzymes they produce? Each and every pancreatic cell knows these formulas from the moment it comes into being. Moreover, it constantly uses that information in the most accurate manner to serve the body as a whole. In terms of chemistry, pancreatic cells are far more knowledgeable than human beings! Humans require special training to produce these formulas, whereas a tiny cell knows them all by heart right from the start.

No coincidence can provide cells with such special information and a superior sense of responsibility. No coincidence can ever build a system by which cells can communicate with, and seek assistance from one another. No coincidence can teach a single cell even one chemical formula. No coincidence can endow the cell with the capacity to use whatever information it possesses at exactly the right time.

It is Allah, the Lord of the Worlds, Who created all these systems from nothing and placed them at the service of human beings by ensuring they work at every moment.

Another of the pancreas' important functions is regulating the body's blood sugar levels. The secretions that perform this function, called *insulin* and *glucagon*, are emitted by small, closed glands in the pancreas known as the islets of Langerhans.³⁹

As you sip tea or eat a piece of cake, your need to regulate the level of sugar in your bloodstream never occurs to you. You may never even realize how vitally important this constant regulation is. Your pancreas, however, responsible for your ongoing health in this area, possesses all the information to adjust your blood sugar levels in a particularly sensitive manner. When necessary, it secretes sufficient amounts of hormone to protect the level of sugar in your body.

It is essential for life that the amount of sugar in the blood should be within specific limits. Yet we need not calculate that sensitive balance as we eat sugary foods in our daily lives—because that calculation is performed for us.

When the level of sugar in the blood rises, the pancreas immediately becomes aware of it and secretes a special substance known as insulin, which instructs the liver and other body cells to keep hold of the excess sugar. If the level of sugar in the blood falls, then the pancreas learns of this, too and secretes the hormone glucagon. The liver then releases into the blood the sugar stocks it has previously stored by means of special processes.⁴⁰ Thanks to this, the blood level of sugar never reaches dangerous levels, except during cases of diabetes.

In your day-to-day life, you will be quite unaware of the pancreas, its insulin and your liver. You will not feel that your blood sugar level has risen. Even if blood samples with two different amounts of sugar in them are placed before you, you will be unable to tell the difference. Yet some of your cells, which you have never seen, measure the levels of sugar in your blood far more sensitively than any laboratory could, and immediately decide on the steps that need to be taken.

How did your cells come by this incomparable intellect and ability?

Of course, your cells did not give themselves the intellect and ability with which to make measurements, make decisions and put them into practice. It is Almighty Allah Who creates the cells in your body with such a flawless system, gives them the necessary commands, and makes them aware of how they must behave.

In our description so far, we have used such verbs as knows, makes, and produces. Bearing in mind that the pancreas is also composed of cells, you can immediately see that these actions require reason, and cannot be attributes of the pancreas itself. That being so, who gave the cells of the pancreas their ability to produce for an entire lifetime and endowed them with their sense of responsibility? Who taught the pancreatic cells the chemical formulas of enzymes that break down so many different complex molecules?

Who provided the duct system to allow the fluids they produce to empty into the correct locations? Who established the warning and communications systems to allow the right enzymes to be released at the right time?

These questions and hundreds of similar ones lead us to one evident truth. It is Allah Who does all this. Allah reveals Himself to us with such magnificent features as these, which He has installed in such a tiny volume. This is the most important fact in anyone's life.

Say: "Who is the Lord of the heavens and the Earth?" Say: "Allah." Say: "So why have you taken protectors apart from Him who possess no power to help or harm themselves?" Say: "Are the blind and seeing equal? Or are darkness and light the same? Or have they assigned partners to Allah who create as He creates, so that all creating seems the same to them?" Say: "Allah is the Creator of everything. He is the One, the All-Conquering." (Surat ar-Ra'd: 16)

Why Is the Pancreas Not Harmed by Its Own Secretions?

The pancreas secretes so many dissolving enzymes, yet does not digest itself. The pancreas, with a basically protein structure, remains unaffected by any of the dissolving enzymes it secretes. This protective system comes about in a most astonishing, miraculous way.

The pancreas first produces its enzymes in a non-active form, in which they are unable to break down proteins—and therefore, the pancreas itself.

When released into the duodenum, however, the enzymes combine with a very special substance produced only in this region of the body, and immediately begin to change. Enzymes combine with the substance known as *enterokinase*, produced in the small intestine, and suddenly assume active form, acquiring the ability to break down proteins.⁴¹ The way that one substance secreted in the pancreas joins together in complete harmony with another secreted in the intestines is a considerable wonder.

These two molecules have never met before, having been secreted in different regions. Yet these two independent molecules complement each other flawlessly, and serve a common purpose. This miraculous phenomenon cannot, of course, be explained in terms of chance.

What is more, the miraculous systems that prevent the pancreas from digesting itself are by no means limited to this. The pancreas secretes another protein-digesting enzyme called trypsin and at the same time, secretes another special substance known as a trypsin-inhibitor to prevent the trypsin from dissolving the pancreas. These two enzymes, have no effect when secreted together, separate from one another when they reach the duodenum. This in a way liberates the trypsin, which begins to break down the protein in the foods arriving at the intestines.⁴² Were these two substances to separate earlier, it

would dissolve the pancreas itself. If they never separated from one another, then the trypsin would be unable to break down proteins. However, as this example shows, everything happens at the right time and in the right place. The pancreas knows it must secrete the necessary substances at just the right time, and the enzymes go into action only after dividing from each other. Clearly the cells composing the pancreas, and the molecules that make up its enzymes, could never form such a flawless system, nor establish such perfect order within the human body of their own accord.

Anyone reasonable can see that such a system, which works with no gaps and no confusion in the order of tasks performed, and with the same flawlessness in all human beings, is the product of a superior Intellect and a flawless Creation. It is impossible to account for this system in evolutionary terms. This system is one of the manifest proofs of Allah's creation. Allah reveals these signs in this and other such examples to those able to use their minds and who are able to see.

It is He Who appointed the Sun to give radiance, and the Moon to give light, assigning it phases so you would know the number of years and the reckoning of time. Allah did not create these things except with truth. We make the Signs clear for people who know. In the alternation of night and day and what Allah has created in the heavens and the Earth there are Signs for people who guard against evil. (Surah Yunus: 5-6)

THE BODY'S PURIFICATION PLANT: THE EXCRETORY SYSTEM

There are some 100 trillion cells constantly active in the human body. As a result of these activities emerge waste products consisting of urea, uric acid and keratin, some of them very toxic. Unless they are immediately expelled from the body, the body's functions become impaired, and death is inevitable.

At this point, we can once again see the body's immaculate creation. In the same way that special systems have been created to eliminate exhaust fumes from a car's engine, so the special excretory system have been created in the human body to eliminate the toxic products produced during its day-to-day activities.

Just like factories that discharge poisonous wastes into rivers, cells release the waste byproducts they create into the blood plasma. This means the human bloodstream is being polluted by the waste products from 100 trillion cells—pollution that represents a danger to life, unless the polluted blood is cleaned constantly.

But here a major problem arises. Along with such toxic wastes as urea and uric acid, there are also substances in the bloodstream that the body needs, such as amino acids, vitamins, water and glucose. That being so, whatever purifies the blood needs to be more than a simple filtering system. In addition to recognizing and retaining useful substances, this system also must function as a complex purification plant that will distinguish and eliminate only toxic products.

You might at first imagine that a plant so perfect and technologically equipped could be constructed only in a very large area. Yet this incomparable purification plant is actually installed in a very small area, just beneath your skin, at the level of your back, and it has existed ever since you were in your mother's womb.

The paired organs known as the kidneys serve as a purification plant with which no technology can possibly compete.

MICRO-FILTERS: THE KIDNEYS

How Is the Blood Purification Carried Out?

Blood flowing through the body is first subjected to filtering in the kidneys. In them, a large number of minute filters enable this purification to take place. A manifest miracle can be seen when one considers these filters' number: In a single kidney there are 1,200,000 filters known as nephrons. These micro-filters consist of a Bowman capsule—a hemispherical structure composed of capillary vessels at the end of the nephron, the

glomerulus, the Malpighian corpuscle, and kidney veins.⁴³ Each of these 1,200,000 filters possesses a perfect creation with thousands of microscopic holes.

Approximately one-quarter of the blood leaving the heart comes direct to the kidneys, by means of the renal arteries, which accounts for more than 1 liter (0.3 gallons) a minute. The vein carrying the blood divides into thinner ones as soon as it enters the kidney. Each of these thin vessels leads to a micro filter. Thanks to the pressure established by the heart, the blood strikes the surface of the filter at considerable speed, and toxic products and water pass through to the other side of the filter. Since proteins and blood cells are too large to pass through the filter, they remain behind. The blood that is unable to pass is thus cleansed and purified.

Consider the information provided so far:

Some 1,200,000 filters have been located in a piece of flesh the size of one's fist. The same detailed creation exists flawlessly in every single filter. In every nephron, for instance, there is a section called the *glomerulus*—a ball of blood vessels inside the Bowman capsule. Later, these blood vessels join up and leave the capsule as an artery. Let us now have a brief look at this region.

The glomerulus that enters the Bowman capsule divides into a number of capillary vessels that will constitute the vein node. These blood vessels will later join up and leave the capsule as an artery.

A blood vessel network between two arteries can only be seen in this part of the body. Since the glomerulus capillaries lie between two arteries, the blood pressure is higher here than in the body's other capillary vessels. The higher blood pressure maintained in this region serves a very specific purpose: to make the filtering process more effective. Again in contrast to other capillary vessels, the walls of the vessels here are double-layered—a structure that not only allows them to withstand this higher blood pressure, but also prevents proteins and leucocytes from leaking out of the blood vessels.

Thanks to all these features, only water and substances dissolved in water pass from the glomerulus capillary vessels into the Bowman capsule. Although there is reverse absorption in other capillary vessels, none occurs in these.

These veins can be cited as an example of the kidneys' overall creation. The veins that bring the polluted blood to the filters, removed the filtered waste products and carry the remaining clean blood back to the body are equipped with 1,200,000 filters, created in such a way as to create no confusion whatsoever. The veins all lead where they need to go. The path that blood vessels follow in the kidneys, where they will go to carry these products, and where they will leave the kidneys—all is the product of a special creation.

What has been described so far are very small parts of the kidneys' detailed structure. Many books have been written, countless studies and experiments carried out, regarding just a single process in the kidneys or a substance that's secreted. All the research into human anatomy leads to a single conclusion: that all of our body's components have to exist as a whole, because our very survival depends on our bodies

functioning as a single unit. If the venous system just described did not exist in the kidneys, the body's excretory system and equilibrium would be impaired, resulting in death.

This totally undermines the claims of evolutionists, who maintain that the human body assumed its present form under the gradual effects of such factors as chance and mutations. But to follow their chance-based scenario: Is it possible for a capillary vessel to form by chance, and then to combine with other capillaries, again by chance, to form capsules in the kidney, which also emerged by coincidence, then for these to combine in the form of an artery, and then to acquire the most appropriate structure for the performance of the filtering process—all by chance? It is obvious that any such an account, based on one coincidence after another, is nothing more than a fairy tale. Not one such system could possibly form in such a way in a living thing. Everything in the human body exists as a result of perfect planning. There is, of course, a Power that fulfils this creation, which power belongs to the Omniscient Allah.

Moreover, what has been described so far is only the bare outline of the processes that take place within the kidneys.

The Purification Plant Goes into Action

Every minute, some 125 cubic centimeters (7.6 cubic inches) of fluid is filtered in the kidneys' microfilters, and this fluid is passed by the bloodstream as waste products to the other side of the filters. This means that 180 liters (47.5 gallons) are filtered every day—enough to fill the gas tanks of four cars.⁴⁴ Of course, a human body weighing 60 to 70 kilograms (130 to 145 pounds) couldn't possibly withstand the loss of 180 liters (47.5 gallons) of fluid every day.

Moreover, in addition to containing toxic substances, this fluid also contains vital ingredients such as amino acids, vitamins and glucose. The loss of these materials would result in death. That being so, the fluid must not be expelled from the body immediately. First, useful substances need to be identified, retained, and re-acquired for the body's use.

In fact, 99% of the fluid passed through the micro filters is re-absorbed by the kidneys and released back into the bloodstream. At the same time, substances the body needs are caught one by one for re-use. Vitamins, amino acids and other important substances are thus prevented from being expelled in the urine.

Technology in the Purification Plants

As described above, a perfect and multi-functional plant is essential to purify the blood—and to re-absorb useful substances in the fluid already filtered. Allah has installed more than 1 million micro-purification plants in a kidney only 10 centimeters (4 inches) in size and 100 grams (0.2 of a pound) in weight.

As you've seen, blood pumped from the heart to the kidney is filtered through more than 1 million micro-filters. What we call micro-purification plants have been installed

immediately behind these micro-filters. Each plant consists of a mini-pipe 31-millimeters (1.2 inches) long.

Yet this is one of the most perfect purification plants in the world. Despite all the great technological means mankind has invented, no purification plant comparable to this little tube has ever been created.

Before examining how this little tube functions, we need to concentrate on the important fact that it is only 31 millimeters (1.2 inches) long. Bearing in mind that there are more than 1 million of these micro-purification plants in a single kidney, the total length of all these tubes laid on end is actually 31 kilometers (19 miles)!

The fact that Allah has installed these 31 kilometers of tubing so flawlessly into a 10 centimeter (4-inch) organ is one of the countless miracles He has manifested in the human body. In addition to containing an important quantity of useful substances, the yellowish kidney fluid also contains harmful substances that cross to the other side of the micro-filters, and now starts a very important journey within the 31-millimeter (1.2-inch) purification plant.

A Living Pipeline

The 31-millimeter purification plant or pipeline we have been referring to is actually a living tube—or more accurately, a collection of millions of living cells. These cells which constitute the pipeline fulfill a vital function for the human body with enormous determination, consciousness and responsibility.

From within the urine, the cells select and trap those substances necessary for human survival. They then pass them through the capillary vessels surrounding this pipeline, expending considerable quantities of energy. Substances of vital importance—glucose, amino acids, and proteins—are thus released back into the bloodstream. For this process to take place, the transportation molecules that will assist the cells need to be ready. Everything has been flawlessly planned and set out.

We now need to think a little. The cells gain nothing from the work they do. Yet just like a chemist, they distinguish the requisite molecules and deliver them to the blood vessels, day and night. To select between different substances, a cell needs to possess information, and must have intellect and experience to tell them apart.

But it is not enough for only one single cell to possess awareness. It is essential that millions of cells in the kidneys should assemble to form a tube, and that all of them should work together, demonstrating the same determination. Therefore, billions of cells all exhibiting similar consciousness must come together to form a million independent pipelines. At the same time, more billions of cells must combine so as to form a million filters and locate themselves at the entrances to the pipelines.

Remember that no cell possesses any consciousness whatsoever. If a collection of cells come together in a tiny tube in one corner of our bodies and perform actions requiring reason, responsibility, and coordination, then that is a manifestation of Allah's

infinite intellect and incomparable artistry. Such a flawless order can only come into being, not through a string of coincidences, but by Almighty Allah telling it to “Be!”

The Originator of the heavens and Earth. When He decides on something, He just says to it, “Be!” and it is. (Surat al-Baqara: 117)

The Kidneys’ Delicate Tasks

Before examining the other functions of the kidneys, it will be useful to look briefly at the world of water inside us. The human body’s solid appearance is actually based on the fluids it contains. More than half of the water, comprising 60% of our body weight, is inside our cells. The remainder—mainly in form of blood and lymph—bathes all the cells in our body.

The water surrounding our cells must be of a particular density, or the situation could grow very dangerous. To emphasize the importance of the water surrounding the cells, if the cells in a drop of blood are placed into pure water, they will swell up and explode. If placed into a liquid environment denser than tap water, they will fold up on themselves and collapse.

The pure water in the first experiment will enter the denser cells. In the second experiment, the water within the cell will be pulled out into the denser external environment. Developments of this kind in the cells, give rise to deadly consequences in the body. For that reason, it is essential that the body’s internal fluids should remain at a specific density.

The kidneys are created with special systems to ensure that the balance in question is maintained. In addition to filtering and cleaning the blood, this miraculous pair of organs also regulates the quantity and density of the fluid in your tissues and makes the necessary adjustments accordingly.

You may never think about the water level in your tissues in the course of your day-to-day life. Without your being aware of it, however, the kidneys regulate this water level for you—working non-stop, just like the trillions of different cells that work on your behalf.

How Do the Kidneys Regulate the Water Level in the Body?

Investigating the answer to this question, we once again see the incomparable nature of Allah’s creation. An interconnected and perfectly created system functions to maintain the balances in the body.

If you lose a considerable amount of water, through sweating or not drinking water for a while, the density of the water in the blood falls. As blood flows through the brain, special sensors in the region known as the hypothalamus send a signal to the pituitary gland, the commander of the hormonal system. The pituitary, realizing that the water level

in the bloodstream has gone down, sends a special message to the kidneys, in the form of the anti-diuretic hormone ADH, signaling the cells that there is a water deficiency in the body, and instructing them to hold back water. The micro-tubes extract more water from the urine and release it into the blood, thus averting any crisis in the body.⁴⁵

If you drink more water than you require, then there is another communication within that same chain of command. This time, the cells are instructed there is too much water in the bloodstream and do not retain any excess.

What do the cells in the pituitary gland, immediately under the brain, respond? The cells here send a signal to the kidneys, which are far distant from themselves. The kidney cells then obey, unquestioningly and unconditionally, the chemical message that reaches them. And subsequently select water molecules one by one from the liquid urine, thus recycling crystal-clear water back into the body. The communication between the brain and kidney cells and how the kidney cells purify urine to produce pure water is a sure indication of intellect and intention. The existence of this system by itself is sufficient to completely demolish the theory of evolution, which accounts for the existence of all world's living things in terms of simple coincidences. If the excretory system is to function, it is essential that all of its many independent components should all exist at the same time, and that they should all work in complete harmony.

For example, any lack of the anti-diuretic hormone that carries messages from the pituitary gland to the kidneys could result in a fatal illness: The daily production of urine, which should be 1.5 liters (0.4 gallon) a day, would rise to 25 to 30 liters (6.5 to 8 gallons), and that would be fatal.

Sodium Regulation

The kidneys regulate the levels in the bloodstream of a great many substances of which you are quite unaware. Most people, for instance, do not know of the sodium molecules in their tissues and blood. Yet the kidneys work day and night to regulate the level of this element.

The kidneys contain special sensors responsible for monitoring the level of sodium in the body. If that level falls, these sensors immediately notify the sodium-absorbing cells in the kidneys.

It is most surprising that a cell should go about measuring the level of any particular substance, and possesses the consciousness to inform other cells of a change it identifies.

During filtration in the kidneys, a quantity of sodium is mixed with the fluid to be expelled as urine. When the sodium-absorbing cells realize that the sodium level in the blood has gone down, they seize the sodium molecules in the urine and return them to the body. The level of sodium in the bloodstream thus returns to normal.

Special pumps, located atop of these cells to let them trap sodium molecules, go into operation when needed to re-acquire sodium molecules for the body.

If that re-absorption mechanism in the kidneys did not exist, then our death from excessive water loss would be inevitable.

As you see, the connections between different parts of the body are flawless, and the regulatory mechanisms and precautions taken in the event of emergencies are incomparable. Any deficiency in the vitally important molecules in the blood is immediately identified by the relevant units, and begin work to remedy that deficiency. A chemical message is immediately dispatched to the relevant cells, which understand that message, act upon it and take the requisite precautions. Thanks to this flawless communication, which takes place in a very brief time, continued health is guaranteed.

When you consider how every kidney cell knows what it will do, acts in an organized manner together with other cells, reads and understands the messages sent to it and does what is required of it, you can see that this chain of events represents a miracle from start to finish.

It is totally impossible for the components making up such a system to have formed by chance. As you have seen, to claim that such a system appeared in the kidneys by coincidence clearly reveals the logical collapse suffered by Darwinists. Every action taken by cells, which consist of proteins and can be seen only under the microscope requires a separate plan and reason. The presence of such intention in the cells is a clear indication of creation—just one of the signs of Allah’s infinite knowledge, intellect and power.

Those who grasp these facts need to waste no time in altering their lives in a way pleasing to Allah. This will be of benefit to all when they gather to account for their actions on the Day of Judgment. Allah has warned people of the Day of Judgment in these terms:

Allah is my Lord and your Lord, so worship Him. This is a straight path. The parties differed among themselves. Woe to those who disbelieve when they are present on a terrible Day! How clear will be their hearing, how perfect their sight, on the Day they come to Us; whereas today the wrongdoers are clearly misguided. Warn them of the Day of Bitter Regret when the affair will be resolved. But they take no notice. They have no faith. (Surah Maryam: 36-39)

The Kidneys and the Pressure in the Veins

One of the kidneys’ important functions is regulating blood pressure, determined mainly by the level of fluid in the veins. The more fluid in the veins, the higher the rise in blood pressure, which can damage many organs in the body.

Sensors on the anterior chambers of the heart perceive there is too much fluid in the veins. When the heart contracts with excessive fluid entering it, these sensors send a report of the situation to the brain, which then increases blood filtration by adjusting the width of the veins leading to the kidney.

Let us now consider an imaginary example of the pressure measurement carried out in the anterior chamber of the heart and the adjustments in the body performed in the light of it. Imagine a room, totally isolated from the outside world. A human being lives in there, and must spend his entire life in there—to fulfill a very important responsibility.

The air pressure on the walls of this room changes constantly. This man's task is to measure that pressure with special equipment. He must also notify the measurements he makes to an information-processing center, making thousands of reports every day, and there must be no errors in any of them. If he forgets to take a measurement, grows inattentive, or makes an inaccurate measurement, then the room he lives in, the building that contains that room, and the city it stands in will all be destroyed!

One cannot even imagine a person devoting his life to measuring the pressure on the chamber walls, never sleeping for a moment, and never making a mistake. Yet the events that take place in the body far exceed the bounds of this example. Cells in the walls of the heart's anterior chamber do indeed devote their entire lives to measuring the blood pressure and reporting the results to the brain. The fact that these cells perform such an important function with such self sacrifice all their lives, are located in the anterior chamber of the heart, can take measurements and inform the brain of these, all shows that these cells were specially created.

The Message Concealed in the Fibers of the Heart

Located in the depths of the fibers of the heart are special molecules carrying a very important message that concerns not the heart, but another organ far distant from it. Under normal conditions, however, the molecules carrying the message, can never leave that region, because they are surrounded by powerful heart fibers.

So, what message do these molecules carry? And why are they located in the depths of the heart tissue? As we examine the answer to these questions, another miracle of creation emerges.

This molecule is a hormone known as *atrial natriuretic factor*. Only the kidneys can decipher the message it contains, instructing them to expel sodium from the body.⁴⁶

Why is a message to be sent to the kidneys concealed within the depths of the heart? And what does the heart have to do with the kidneys expelling sodium from the body? However, Allah has created the human body with thousands of interconnected systems. The concealing a message of concern to the kidneys within the depths of the heart is just one of these complex, interconnected systems.

High blood pressure—a rise in the force exerted by fluid in the veins—is a very dangerous condition that can be fatal unless precautions are taken. Increasing blood pressure causes the heart to expand, opening gaps between the muscle fibers, and the message molecules imprisoned there are released into the bloodstream and then reach the

kidneys. The kidney, obeying the instruction, acts to expel the sodium from the body. Blood pressure thus returns to normal levels, and the heart continues to beat healthily.

What Happens When Blood Pressure Falls?

The kidneys' role in regulating blood pressure does not end there. When blood pressure is low, the kidneys secrete a substance called *rennin* from a cell with a special structure known as the JGA. Yet this substance has no direct pressure-reducing effect of its own.

This substance combines with a molecule called *angiotensinogen*, secreted by the liver, far distant from where it itself is produced, and transforms into the molecule angiotensin-1. Yet this resulting hormone has no serious effect on blood pressure. This hormone, present in the bloodstream, turns into a very different molecule: angiotensin-2, thanks to an enzyme called ACE which is present in the lung and serves only to break down the molecule angiotensin-1.⁴⁷

This molecule, produced at the very end of the process, is the hormone that affects the veins and raises blood pressure back to normal levels. If that molecule did not exist, then none of the "earlier" hormones produced before it would have any effect on blood pressure. The molecule angiotensin-2 only contracts the veins after combining with sensors located on the surface of the vein and thus increases blood pressure.

The angiotensin-2 molecule does more than this to raise blood pressure. The bloodstream transmits the molecule to a gland above the kidneys. Certain cells in this region release into the blood a molecule called *aldosterone*, which these cells produce only after combining with angiotensin-2. When this happens, blood pressure begins to rise under the influence of another mechanism. By combining with the special receptors on the kidney's collecting channels, the aldosterone molecule permits the body to re-absorb sodium molecules expelled in urine.⁴⁸ The sodium molecules then raise the blood pressure by increasing the density of the blood.

Without doubt, the effects of these substances are interconnected. Since not a single one of these could have come about by chance, it is even more impossible for all of this system's components to have emerged by coincidence in the human body. Coincidences cannot give the kidneys their ability to understand, nor the necessary initiative to adopt various measures.

To claim that the order of the dozens of substances and mechanisms used to regulate blood pressure came about by themselves is a form of behavior unique to people blindly devoted to the theory of evolution, who have adopted it as a belief system. Indeed, evolutionists have admitted in various ways that theory is only a belief, and flies in the face of all the facts. One of these admissions reads as follows:

From my earliest training as a scientist, I was strongly brainwashed to believe that science cannot be consistent with any kind of deliberate creation. That notion has had to be painfully shed. At the moment, I can't find any rational argument to knock down the

view which argues for conversion to Allah. We used to have an open mind; now we realize that the only logical answer to life is creation—and not accidental random shuffling.⁴⁹

Clearly and irrefutably, all the scientific facts that evolutionists have had to admit show the existence of a Creator Who has dominion over everything—in other words, the existence of Allah.

Imitation Kidneys

In the event that organs fail to function properly, present-day technology places artificial devices to replace them at the disposal of medical science. If the kidneys fail or cease to function properly, dialysis machines have been developed to function as a blood-purification system. In these machines—incomparably larger than the kidneys themselves—blood is passed through various mechanisms and cleansed of such toxic substances as uric acid.

These machines work by simple diffusion, in which blood passes from a very high-density environment to a low-density one. Blood from an artery is pumped through a tube into the dialysis machine, containing fluid that's similar to blood plasma in terms of oxygen richness and salt concentration. As blood is pumped through the tubes, waste products such as urea are diffused into the dialysis fluid, while needed substances such as erythrocytes and proteins remain in the dialysis tubes. During this process, the device lightly shakes the dialysis fluid, thanks to which waste products in the blood are separated out and the blood is made suitable for being returned to the body. If required, glucose is added to the dialysis fluid and again passed into the blood by means of diffusion.

The purified blood is returned to the arteries using another tube. During this process, the dialysis fluid is constantly renewed and maintained at the equivalent of body temperature, lest the patient suffer hypothermia.

A full dialysis takes some four to six hours, during which the dialysis fluid is changed several times. Patients are subjected to the process two or three times a week. Yet dialysis can never replace the normal kidney.⁵⁰ Even the most effective dialysis machines can prolong a patient's lifespan by only a few years, and most patients eventually die.

Everything in the human body has been perfectly created. Medical research seeks to develop technology that's able to produce features comparable to the human body's. Yet it is impossible to install artificial devices into spaces as small as those in the body.

The systems installed by Allah in the human body is incomparable in all aspects. A person must regard this as a blessing from Allah and to give thanks to Him at every moment.

Allah is He Who appointed the night for you so that you might rest in it, and the day for seeing. Allah pours out His favor on humanity but most people do not show thanks. That is Allah, your Lord, the Creator of everything. There is no deity but Him—so how have you been perverted? That is how those who deny Allah's Signs have been perverted. (Surah Ghafir: 61-63)

SPLENDID COMMUNICATION WITHIN THE BODY: THE HORMONE SYSTEM

Your hundred trillion cells work together in great harmony, just as if they were aware of one another. This harmony can be seen in the number of times your heart beats as you read these words, the level of calcium stored in your bones, your blood-sugar level, the amount of blood filtered by your kidneys every minute—in these, and thousands of other similar details.

Bearing all these systems in mind, you might compare the human body to a giant orchestra consisting of 100 trillion musicians, playing the most incomparable compositions 24 hours a day. The tempo sometimes speeds up, or slows down; sometimes with a fast tempo, and at others with a calmer melody. However, the musicians in the orchestra never fall out of tune with one another. So Who is it who conducts this matchless orchestra? How can millions of different musicians are able to play their common notes at the same time, with different instruments?

Hormones are proteins charged with carrying messages between the 100 trillion cells in the human body cells. Consider, for example, the secretin that starts being secreted during food digestion. Though you may be quite unaware of this hormone, it prevents your stomach from being harmed by acid. It's impossible for you to prevent this or to protect yourself by any other means. And this applies to all the other organs, enzymes and systems in your body.

A perfect system in all aspects has been established in the human body, although people are unaware of what is taking place within them. Substances in your body issue instructions on your behalf and maintain your body's equilibrium, directing you to eat or drink or move more quickly, even while you are unaware of these directions. Your body's survival depends on a chain of command controlled by means of hormones.

How did this system come into being? How is it regulated? How do these hormones know where and when to act?

As you shall see in the pages that follow, it is essential for the hormonal system to have emerged in its entirety, all at once. It is impossible to imagine hormones acquiring all their properties over the course of time. Like all other systems in the body, the hormonal system emerged in a single moment. In other words, it was created. The details of this system, one of the proofs of Allah's existence and infinite might, again encourage us to consider His creation. In verses, Allah commands people to think about the entities He has created, and to turn to Him:

It is He Who sends down water from the sky. From it you drink and from it come the shrubs among which you graze your herds. And by it He makes crops grow for you and olives and dates and grapes and fruit of every kind. There is certainly a Sign in that for people who reflect. He has made night and day subservient to you, and the Sun and Moon and stars, all subject to His command. There are certainly Signs in that for people who use their intellect. And also the things of varying colors He has created for you in the earth. There is certainly a Sign in that for people who pay heed. It is He Who made the sea subservient to you so that you can eat fresh flesh from it and bring out from it ornaments to wear. And you see the ships cleaving through it so that you can seek His bounty, and so that hopefully you will show thanks. He cast firmly embedded mountains on the earth so it would not move under you, and rivers and pathways so that hopefully you would be guided, and landmarks. And they are guided by the stars. Is He Who creates like him who does not create? So will you not pay heed? (Surat an-Nahl: 10-17)

THE CONTROL SYSTEM IN THE BODY

Airplanes, spacecraft and even modern automobiles all now feature computers that monitor the vehicle's status and capacity. Thousands of years before human beings developed these systems, however, perfect control systems were already in operation, inside the human body itself.

The body's control and supervision mechanisms—the nervous system that stretches along an organic network, and the hormonal system that analyzes chemical signals—possess a technology far higher than any human can imagine.

To a large extent, both systems work according to classical reaction principles. A message sent from the control system causes the target organ to increase or reduce its activity. Analysis is performed at every moment, thanks to a constant flow of information, and new instructions are issued according to that analysis. Millions of pieces of information are processed every second. The nervous system permits information exchange by means of nerves that span the entire body.

The nervous system and hormone system work together at many points. For example, stimuli from the nervous system are needed in order for the hormone adrenalin to be secreted.

The hormonal system's communications are delivered thanks to the bloodstream. A gland releases message-bearing hormones directly into the blood. These messages travel throughout the whole body, reach the target organ and set it into activity. But of course the hormonal system cannot function in the absence of the circulatory system. If we recall the link between the hormonal and nervous systems, then we face the fact that the hormonal-nervous-circulatory systems must have arisen at the same time.

The endocrine and nervous systems work together to maintain a balanced equilibrium in the body. The hormonal system plays a role in reproduction, the cells' use of nutritional substances and in the establishment of salt and liquid levels. The harmony between this system of tissues, glands and all the other organs and cells in the body is striking. Most glands that comprise the hormonal system have no ducts, or channels. Glands release hormones into the tissues around them, where they are absorbed by capillary vessels and carried away by means of the blood. But the condition of the target tissues sets the hormones into action—and hormones may be specific to that tissue. For example, when the male hormone testosterone is secreted, it causes hair to grow on the cheeks and jaw but has no effect on the hairs on the scalp. In addition, other hormones affect the entire body. Thyroid hormone, for instance, stimulates all the cells in the body.

Locks and Keys

Hormones can be defined as a group of chemical signals coded to regulate the body's internal environment to stimulate all the different organs and cells. Many tissues remain unaware of a hormone until it reaches them. So how does the target tissue recognize its specific hormone?

On the surfaces of target cells is a receptor that the hormone joins with. The receptor and the hormone are created so specifically for one another that the hormone dispatched never adheres to the wrong receptor.

Every hormone thus resembles a key, and the receptor affected by it resembles a special lock that only that key can open. Yet this three-dimensional harmony is far more complex than—and far superior to—the match between any lock and key. Only one hormone fits the lock and influences that cell's general behavior. Thanks to that harmony, no incorrect organ or tissue is ever set in motion.⁵¹

When the hormone attaches itself to the receptor on the cell's surface, a series of chain reactions take place, at the end of which the cell will have carried out the given instructions.

If, for instance, the instruction dispatched commands the cell to produce a particular protein, various enzymes in the cell go into action. These enzymes locate and copy the data for the protein to be produced by going to the DNA, the cell's data bank. Protein production thus begins.

The elements in the system work like a chain of dominoes. The failure of any one of these links to work will spell the disruption of the whole system—very damaging to the body, and possibly ending in death.

The Hormonal System's Control Center

The cells that comprise a tiny piece of tissue, no larger than a pea and weighing only 0.5 grams, manage your whole body on your behalf. This tiny pituitary gland, the center of operations of the hormonal system, acts as the conductor of the world's most

magnificent orchestra. This tiny conductor passes on its instructions to the other cells with the help of the molecules known as hormones.

The pituitary gland runs and regulates the hormonal system and works under the control of the hypothalamus region of the brain. Thanks to the data that reach this tiny organ from the hypothalamus, it knows the conditions you require, which cells of which organs need to work in order to meet that need, those cells' chemical mechanisms and physical structures, the products they need to produce and when production has to be brought to an end. Nor does it simply know all these things: Thanks to a very special communications system, it sends the necessary instructions for these needs to be met.

For example, the human body develops until the age of puberty. Throughout this period, trillions of cells divide and multiply, allowing cells and tissues to grow—but growth activity in the tissues halts when it reaches a specific level. The pituitary gland knows how much we need to grow and stops the cell division once that level has been reached.

Growth hormone secreted by the pituitary gland tells the cells how much to divide. Their growth halts when secretion of this hormone stops.

The growth hormone literally knows which regions in the body need to be extended. Regions of the body immediately recognize the growth hormone and do what is expected of them. Yet the growth hormone affects different parts of the anatomy at different levels of intensity in men and women. In men, for instance, the growth hormone goes to the shoulders to build up this region, but does not do this in women.

Even a tiny baby's vocal chords develop thanks to the growth hormone, which knows how the voice will be produced. It develops women's vocal chords in such a way as to produce high-pitched tones and men's in such a way as to produce deeper sounds.

Cells' obedience to the growth hormone is particularly striking. Thanks to this, all the organs and tissues grow in a harmonious manner. For example, when the growth of the skin covering the nose stops, the development and growth of the cartilage beneath the nose also comes to an end. It never continues growing so that it eventually distorts the skin. All the organs in the body grow and develop in harmony with one another.

The Conductor's Other Duties

The pituitary gland also regulates your body's metabolism of carbohydrates and fats. At the appropriate times, it accelerates the protein synthesis taking place in your cells. When blood pressure falls, molecules emitted by the pituitary gland cause the millions of muscles around the veins to contract; and this shrinking of the veins thus causes blood pressure to rise.

The pituitary gland even regulates the functioning of the kidneys, which are far distant from it. This tiny conductor also knows when our bodies need water, and secretes a special hormone (vasopressin) under those circumstances.⁵²

Mother's milk is of vital importance for her newborn baby, and the pituitary gland is aware of this need of the baby's. Shortly before birth, the mother's mammary glands go into action due to the hormone prolactin issued by the pituitary and start secreting milk. As birth approaches, the uterine muscle goes into action thanks to oxytocin, another hormone issued by the pituitary, and this helps with the birth process.⁵³

The way that your skin tans after exposure to sunlight is actually a precaution taken by the cells to protect the underlying tissue from the damaging effects of solar rays. Again, the pituitary gland gives the cells this protective command, by emitting the hormone HSH.

In the region of the brain where the pituitary gland is located, more than 20 hormones with entirely different chemical structures have been identified. Most of these hormones possess the ability to stimulate the secretion of other hormones. How did this flawless equilibrium come into being? How was the connection between the hormones established? How does one hormone understand a message from another and react in the correct manner?

The existence of these 20 hormones, all with very different chemical structures but which all work in perfect coordination, can never be explained in terms of so-called, evolutionary mechanisms. Chance can never install hormones within the body and permit them to acquire these properties. No coincidence-based process can ever produce the substances that make up the hormones, determine the signals they transmit, nor install a system by means of which these hormones know where their messages are to go.

The pituitary is just one of the regions where hormones are mass-produced. Hormones of vital importance to our survival are also secreted in such glands as the adrenals, the pancreas, the sex glands and the thyroid. If any one of these were to break down or work deficiently, we would be unable to survive. This whole complex system maintained by the hormonal system constitutes very clear proof of creation.

It is the omniscient Allah Who creates the hormonal system and all its details.

The Manager of the Hormonal System

The pituitary gland does not fulfill its own functions only. With an extraordinary sense of responsibility, it also regulates and monitors the functioning of the other hormone-secreting glands.

This is a most important detail, because it reveals how an organ no larger than a pea acts with an impressive consciousness—which can be better understood when we examine the pituitary's capabilities in regulating the functions of the thyroid, adrenal and sex glands.

The pituitary gland lies in the middle of the brain, the thyroid gland under the throat, the ovaries in women and the testes in men, and the adrenal glands immediately above the kidneys. The pituitary secretes the hormone TSH to regulate the development and working of the thyroid, the hormones FSH and LH to regulate the working of the sex

glands, ACTH to regulate the working of the adrenals, and LTH to regulate the development of the mammary glands.⁵⁴

To examine the effect of the pituitary on just one of these organs: When necessary, the pituitary secretes ACTH to regulate the adrenals gland, the hormone leaves the pituitary and reaches the adrenals by way of the bloodstream. The adrenal glands read its “message” and immediately begin a series of chemical processes by producing the requisite hormone.

In order to do this, the pituitary gland has to know the function of the adrenals, how the adrenals discharge that function, and the necessary sign to set the adrenal gland into operation.

Another point that needs to be borne in mind is the distance traveled by these hormone molecules, far too small to be seen with the naked eye. The distance they travel from the brain to the kidney is the equivalent of thousands of kilometers in human terms.

This leaves a great many questions to be answered: How can the pituitary know the responsibilities of another gland so far away and produce just the right chemical and physical formulae to set the adrenals into action? Why did the pituitary assume responsibility for regulating the adrenals’ functioning? How did these chemical substances’ ability to communicate come about? How did mere molecules, unable to see, hear or think, come by such consciousness?

A human being is a conscious entity, able to find methods of using and developing that consciousness. Despite all the superior intelligence, learning ability, and the capacity to research and draw conclusions that human beings possess compared to other living things, they can never—unless they have received special training—know where the hormones in their bodies are secreted, nor ever produce them. It is also impossible for us to intervene in our hormones’ functioning change the places they are secreted from, or add any new ones.

The glands that secrete hormones are collections of cells, themselves consisting of inanimate and unconscious atoms. How can these unthinking organs do what entire human beings cannot? How are organs in the depths of the human body, that can never meet one another, able to exhibit such conscious intelligence?

Evidently, hormones and the glands that secrete them were created, possessing all these features, by a superior power, and were specially located inside the human body. To ensure their continuity, a special system was created, without exception, in all human beings, and this information has been encoded in their DNA.

All these processes require an unsurpassed intelligence. That superior intelligence is that of Almighty Allah, Creator of the entire universe, the Lord of the Worlds, Who has no equals.

Say: “Am I to desire other than Allah as Lord when He is the Lord of all things? What each self earns is for itself alone. No burden-bearer can bear another’s burden. Then you will return to your Lord, and He will inform you regarding the things about which you differed.” (Surat al-An‘am: 164)

OTHER HORMONE COMMUNICATION EXCHANGES

The Thyroid Glands

The hormonal system’s other distribution centers include the thyroid. The thyroid gland regulates your body’s metabolism, so you can enjoy a healthy life. Thanks to thyroxin, a special hormone it produces that affects all the cells in the body, determines the amount of oxygen those cells will use.

For example, if thyroxin is given to a cell in which mitochondria are present, then its oxygen consumption and energy production rise. Insufficient thyroxin in the blood leads to a slowing of the metabolism and increased levels of water and sodium in the tissues.⁵⁵

The thyroid’s production and secretion of thyroxin again take place thanks to an interconnected system. Thyroxin’s secretion is brought about by another hormone, thyrotropin, secreted from the anterior lobe of the pituitary.

Calcitonin is yet another hormone secreted by the thyroid gland. Together with the parathormone (or PTH) secreted by the parathyroid gland, calcitonin plays an important role in regulating the body’s calcium-phosphate level. Regulation of calcium levels is of vital importance, since this substance is used in such essential processes as bone formation, the functioning of the muscular and nervous systems, blood clotting, and active carriage from the cell membrane. Therefore, a specific level of calcium needs to be maintained in the bloodstream. That explains why the bones act as a kind of bank, storing calcium. These two different hormones allow calcium to be “deposited” in or “withdrawn” from the bones.⁵⁶

The parathormone produced by the parathyroid gland, located above the thyroid, plays a role in helping calcium stored in the bones get returned to the blood. This hormone’s secretion is regulated without any direct influence from the pituitary or nervous system, but automatically, depending on the level of calcium in the bloodstream. This hormone identifies when the level of calcium in the blood has fallen and accelerates the passage of calcium from the bones. Then when the level of calcium in the blood exceeds a certain level, the thyroid secretes the hormone calcitonin, which causes excess calcium in the blood to pass into the bones for storage there.⁵⁷

If there is a lack—or excess—of this hormone of such great importance, what sort of problems arise?

In the case of too little parathormone, the level of calcium in the blood decreases, accompanied by contractions in the muscles, especially those of the hands and face. If this constriction occurs in the muscles of the windpipe, breathing is obstructed, which may lead to death. Too much of the hormone causes excessive calcium being released into the bloodstream from the bones, which become easily bent or broken. The kidneys try to expel the excess calcium from the blood, but these crystals of calcium can lead to kidney stones.⁵⁸

As these examples show, we humans can live healthily and comfortably, thanks to our hormonal system functioning fully. Indeed, just a small deficiency in the thyroid gland alone can lead to a great many diseases. So who has established and maintained such a perfect system? Who realizes which substances have decreased in the bloodstream, identifies the level of the deficiency and produces the necessary substances, knows what these substances must contain and keeps producing them for as long as required, to effect all the other organs in the body? Does the thyroid itself exhibit such a will? Such a possibility is quite impossible, of course. The thyroid gland is only a community of cells, in which it is impossible to seek anything possessed of consciousness.

Neither can we say that this will or intention belongs to the hormones. What we call a hormone is a collection of molecules. That being so, where must we look for that will?

The sole conclusion we encounter at this point is the fact of creation. All the glands in the body, all the elements comprising the hormonal system, the hormones they produce, the molecules within those hormones and the atoms constituting those molecules are all products of Allah's incomparable creation.

The Importance of the Adrenal Glands

Adrenalin, one of the important hormones produced in the adrenals, serves a very interesting purpose, causing various sudden bodily changes in times of emergencies. These changes represent a kind of preparation in the face of abrupt danger. As an example, imagine someone exposed to imminent threat—who is attacked by an animal, for instance. In the seconds that follow, that individual's body will have requirements very different from those prevailing under normal conditions. His muscles will need to move faster, his blood pressure to rise and the heart to beat faster. He will thus be able to run faster, flee quicker, or deal with the danger in a more powerful manner. But how is all this to happen?

When danger approaches, the body's alarms are activated. The brain sends a fast command to the adrenal gland, whose cells go into action and swiftly release molecules of the hormone adrenalin. The adrenalin is released into the blood and distributed to the various regions of the body.

The hormone adrenalin has one purpose: to place the entire body on action stations and allow the individual to become stronger, more resistant and faster.

The secreted adrenalin molecules adjust the veins, allowing more blood to reach vital organs in this case of emergency. Cells around the blood vessels leading to the heart, brain and muscles obey and cause the arteries to expand, so that more blood reaches those vital organs.

The adrenalin molecules also cause arteries going to those organs that will not be needed to contract, thus ensuring that less blood reaches them.

The effect of the adrenalin widens arteries leading to the heart, brain and muscles and also contracts those leading to the skin and the liver. Extra support is thus provided for the organs the body needs most. The vessels leading to the heart or brain never contract by mistake, nor do those going to the liver or skin contract in error. The adrenalin molecules know very well what they must do. The blood vessel cells obey them to the letter. The diameters of hundreds of vessels in your body, and how much blood they will deliver and where, are regulated by the mind of a hormone too small to be seen with the naked eye.

There is another reason behind less blood being pumped to the skin. In the event of injury, the risk of blood loss is minimized. The pallor of the face at times of extreme excitement is also due to less blood being pumped to the skin at that time.

Adrenalin molecules mean something different to every organ:

The adrenalin molecules that widen the blood vessels also accelerate the contractions of the heart muscles. The heart thus beats faster and provides the muscles with the blood they need for extra strength.

When the adrenalin molecule reaches the muscle cells, it permits them to contract more powerfully.

The adrenalin molecules instruct the liver cells to release more sugar into the bloodstream. The level of blood sugar rises, and the muscles are given the extra fuel they need.

As a result of all these special adjustments, a 100% increase in strength takes place. Thanks to the changes that adrenalin causes in the body, a person becomes able to think and make decisions more quickly, is able to fight more strongly and run faster, and also becomes more resistant.

Adrenalin molecules know very well what kind of bodily changes the body needs in times of danger. Moreover, the molecules prepare the body against danger in a most harmonious manner.

Every tissue and organ that the adrenalin reaches begins acting toward a common purpose. No organ acts outside of—or in conflict with—that common goal.

The reactions the body needs to make and the precautions that need to be taken in emergency situations have all been prepared, outside the person's knowledge or control. The adrenalin hormone's effects on the body once again prove that its workings have been created in a special manner to be compatible with one another.

Glands That Create the Differences Between Men and Women

When a person reaches puberty, the pituitary realizes that certain changes need to be made in the body and sends a series of commands to the sex glands, or gonads. At this, a hormone secreted in the female sex glands (estrogen) matures the female body and regulates the development of the reproductive organs and bodily structure, while another hormone, progesterone, prepares her for pregnancy.

Testosterone, another hormone secreted in the male sex glands allows the male physical form to mature and regulates sexual development.

The hormones produced by the pituitary and thyroid glands in both male and female bodies possess pretty much the same characteristics. Once puberty has been attained, however, the gonads produce completely different hormones. When the body matures, the sex hormones that are never secreted during childhood go into operation in a particular order and at the appropriate time. How does this phenomenon take place?

A molecule in your body calculates the time that has passed, and goes into operation at a specified time. It is astonishing that an inert substance should calculate the passage of time and, furthermore, that it should go into operation at roughly the same age in all human beings. How does a hormone know about the passage of time? Such a thing is, of course, impossible. It is Allah, the hormones' Creator, Who sets hormones into action at specific times. It is Allah Who stipulates when they will be secreted and when that process will stop. Allah is He who knows all forms of creation.

A Very Sensitive Measure

Hormones are of indispensable importance for our bodies, but how much volume do they occupy in the blood? One liter of blood contains only from a millionth to a billionth of a gram of hormones.⁵⁹ Even though they are present in the body in such miniscule quantities, hormones provide communications in almost all processes in the body, and play a catalytic role.

The way that hormones, occupying such an unbelievably miniscule volume in the blood, are secreted in just the right amounts at just the proper time—and the way that secretion stops at just the right time—are of the greatest importance.

Who regulates all this? Who realizes that too much hormone has been secreted and gives the order to “Halt!”?

If the organs affected by the hormones do more than is required of them, this can endanger the body. An organ that is working more than is necessary sends a message to the gland producing the hormones that set it into operation, saying in effect, *I do not need to work any more. Do not produce any more hormones that make me work.*

One of the diseases arising from a flaw in this system is hyperthyroidism, which results from an excessive secretion of the thyroid gland. Unless this disease is treated, survival is impossible.

As we have seen, this system works in a flawless manner except in cases of sickness. Every organ knows which gland secretes the hormone that regulates it. If this gland causes it to labor more than necessary, the organ takes action, and establishes communication with the relevant organ, allowing the individual to keep leading a healthy life.

However, the human in whom all this procedure occurs is unaware of any of it, and doesn't need to undertake any efforts in its fulfillment, which is so important to ongoing health. That is because Allah has made molecules, consisting of inanimate and unconscious atoms, a means whereby a human being can live in a healthy manner. This is a proof of Allah's infinite compassion for all living things.

Hormone Packaging

Most of the various components of a vehicle produced in an automobile plant—the chassis, windows, engine, and seats—are produced in different factories and assembled later. The same principle applies to the production of some hormones.

The different components produced in the ribosomes, in the light of the instructions in DNA, are brought together in the endoplasmic reticulum region. Later on, these components are sent on to a different region (the golgi body), where the hormone is “assembled” into a form in which it can be used.

Though the hormone is produced in a perfect state, this by itself is not enough. The hormone must also protect its three-dimensional structure throughout the long journey it will undertake in the bloodstream, or else it will be damaged or altered en route and become unable to influence its target organs. However, the necessary precaution has been taken to avoid this danger. The hormone molecule is brought to the golgi body and encased in a special packaging, consisting of a thin membrane. The molecule is now ready for its long journey.

Significantly, the cells engaged in producing the membrane do not use the hormones themselves, but send it on elsewhere. The hormones will be used by totally different cells, which are located too far away for the original cells ever to know. Bearing in mind the cell's dimensions, the journey made by the hormones it produces is comparable to a distance of thousands of kilometers in human terms. The cell cannot know where or how the substance it has produced with such care and effort will be used. Throughout its life, however, it continues to produce complex products, whose purposes it is unaware of, for the sake of that unknown aim.

For example, one special hormone produced by cells in the pituitary regulates kidney activity. A cell in the pituitary gland cannot know what sort of organ the kidney is, where it is, nor the functions it performs. Then how can it produce a substance with just the right features to suit the structure of the kidney, of which it can never have any knowledge? How can it have such control over the kidney's operations? It is definitely

impossible for all this perfection to take place by the will of the cells themselves. They were specially created by Allah to fulfill this task.

To Whom Does Humanity Owe This Magnificent System?

The theory of evolution maintains that human beings assumed their present form by small stages, over a process lasting millions of years. This implies that at one time, some of the body's organs did not exist, and came into being only at a later date.

In order to show how such a claim could never be, let's take another look at some of the hormones we have discussed. For example, to balance the level of calcium in the blood, several independent factors all need to exist at one and the same time. The absence of even one of those factors—parathormone, for example—will render the whole system non-functional. This also applies to the other glands and the hormonal substances they produce. The absence of the aldosterone secreted by the adrenal glands, for instance, will mean death. That being so, it cannot be conjectured that the adrenal glands came into existence gradually, because in their absence, a human being cannot survive.

Similarly, no human can survive without a pancreas and insulin. Imagine what would happen to semi-humans with no pancreas. The answer is simple; they would enter a coma with the first sugary food they ate. Shortly thereafter, they would die and not wander the Earth for millions of years.

Assume that some of them went on a very conscious diet—which is actually impossible since by far the greater part of the foods we consume contain sugar—and managed to survive. We then face the question of how our imaginary ancestors came to possess a pancreas and insulin.

Did some of them one day say, “We need to resolve this sugar problem. How about placing an organ under the stomach to secrete a hormone that regulates the level of sugar in the blood?” And did those individuals then grow a pancreas underneath the stomach? Did they then calculate the formula for insulin and teach that formula to their pancreas?

Alternatively, did a “successful” mutation take place one day, as the result of a flaw in the DNA of one of these imaginary semi-humans, causing the sudden appearance of a fully-formed pancreas and the hormone insulin?

Yet even that “perfect” mutation would not be sufficient on its own. At the same time, in some corner of the brain, as a result of “chance,” a decision-making mechanism would have to form to keep the blood sugar level under constant control, send the pancreas instructions to start producing insulin when necessary, and give the command to stop once sufficient insulin had been produced as the pancreas.

As these unscientific scenarios clearly show, it is impossible for the hormonal system to have come into being by stages, as evolutionists claim. And so it is with all the other systems in the body. It is impossible for coincidences over the course of time to endow cells with being able to analyze the substances in the blood, make decisions on the

basis of those analyses, be aware of the status of other organs and set them in motion, or to use special hormones as a means of communication.

It is Allah, the Omniscient, Who creates this flawless system and sets out every detail in exactly the form it needs to be.

YOUR INTERNAL AIR-CONDITIONING: THE RESPIRATORY SYSTEM

From the largest to the smallest, all the billions of processes take place in the human body thanks to the energy obtained thanks to oxygen. The respiratory system, in turn, provides the oxygen our bodies require.

Breathing takes place automatically. A person makes no effort to carry out this vitally important function, seldom makes any decisions regarding it and needs not intervene in it in any way. This miraculous system goes into operation from the moment you are born, and works without ever stopping. The signal to start the respiration that will continue throughout life occurs in every newborn baby, without its being aware of it.

“Respiration” does not just mean breathing. It is the name given to a whole series of processes performed in order to let the body produce energy by using the oxygen in the air.

The Gateway to the Respiratory System: The Nose

Consider the smells of new-baked bread, honeysuckle in the garden, new-mown grass, rain-washed soil, meat cooked to perfection, fresh- picked strawberries, peaches and parsley, the soap you use, your fragrant shampoo and so many more: For all of these, you are indebted to the sensitive structure in your nose.

Few people ever consider the many smells they encounter during the course of the day, nor how these are shaped by the organs within their heads. Yet your sense of smell imparts the flavors to what you eat. Smell is one of the senses that let you identify objects.

Smells enter through the nose with every breath you take. The human nose possesses the impressive ability to analyze a scent in 30 seconds and to distinguish between some 3,000 different chemicals.⁶⁰

In the upper part of the nose, two small areas known as the olfactory epithelia contain a large number of nerve cells. These areas are responsible for scent perception. Scents move as molecules in the air. As you breathe, these molecules enter the nose alongside oxygen. When the scent molecules carried by the air reach the olfactory epithelium, the receptor cells there are stimulated and send an electrical signal to the brain. The brain deals not with the scent molecules directly, only with the electrical signals that reach it, and the brain’s interpretation of those signals is then perceived as smell.

Beyond just allowing us to enjoy the lovely scents of flowers or delicious foods, the nose has many other important functions, being the beginning of the respiratory passages one of the main conduits between the air we breathe and the blood that transports oxygen

to cells throughout the body. When air enters the nose, it encounters tiny hairs known as cilia and is immediately subjected to analysis. Molecules in the air are separated out and examined, and the nature of their smell is forwarded to the brain and determined, all in as little as 30 seconds.

There is also a flawless aerodynamic system in the nose. Air does not directly go to the lungs when it enters the nasal passages. Just like an air-purification unit, the nose prepares air which may be dirty, too hot, cold or dry, using very special filtering systems. Thanks to the special undulating structure in the nose, the air performs a sort of turn, making greater contact with the cilia and network of blood vessels. Thanks to its undulating structure, the air filters 15 cubic meters (19 cubic yards) of air a day,—about equivalent to the volume of air in a room—while cleaning, moistening and warming it.

The word “dirty” must not be taken as meaning only dusty, however. Together with the dust that enters with the air, some 20 billion foreign substances such as bacteria and pollen are prevented from entering the body by means of special system in the nose.

In his book *Human Engineering*, the evolutionist medical engineer John Lenihan compares the nose to an air-conditioning system, and describes its flawless creation:

The space behind the nostrils contains the world’s finest air-conditioning plant, combined with a detection system of extraordinary sensitivity, which analytical chemists are not yet able to explain, still less to imitate. . . . the air conditioning system of the nose is, in engineering terms, very well designed.⁶¹

Air, having deposited dust and all kinds of harmful bacteria inside the nose, then passes over the three undulating structures in each nostril. Any foreign bodies that attach themselves to the tiny hairs there are then neutralized by the antibacterial mucus there. As it meets these undulations, the air changes direction and strikes the mucosal fluid on the wall of the nose. The cleaning of the air is most wide-ranging, because if a bacterium or other harmful body were to enter such a sensitive organ as the lung, this could have damage the individual’s health. Yet if any harmful bodies nonetheless manage to pass through the nose, they are caught in the respiratory passages.

The cleaned air is now ready to pass to your lungs through the windpipe. But before we follow the air on its journey through the respiratory system, it will be useful to emphasize our air-conditioning analogy. An air-conditioning system also regulates air temperature. So, how did such a system come into being in the human body? How was it installed? How did it come to be present and fully formed in every human being?

Is it possible for all the components of such an air conditioning system to be the work of coincidences? Imagine that we place all the fully formed parts of an air-conditioning system into a room. Even if we re-enter that room one million years later, will we encounter a fully functioning air-conditioning system? Even if the system has come into being by itself, its parts will have long since rusted and broken down.

In order for any technical device to come into existence, there must logically be a talented maker, making a deliberate effort to put the component parts together in a specific

order. Any logical person will agree with that. In terms of functioning, there is no difference between the air-conditioning in our bodies and those we are familiar with outside—and moreover, ours is far superior in its structure. The system's inimitable creation belongs to Allah. Allah has created Man together with the most perfect systems for his survival. Allah is the flawless and peerless Creator of all.

He is Allah—the Creator, the Maker, the Giver of Form. To Him belong the Most Beautiful Names. Everything in the heavens and Earth glorifies Him. He is the Almighty, the All-Wise. (Surat al-Hashr: 24)

The Windpipe's Vital Passageway

In the next stage of the respiratory process, the clean air from the nose will descend further down, into the windpipe.

Examined under the microscope, the windpipe reveals a structure that protects the lungs by constantly cleaning itself. The windpipe's interior is carpeted in vibrating hairs with a link-like structure. These tiny hairs engage in a constant whip-like motion away from the direction of the lungs, and toward the mouth. Smaller particles falling onto them are thus propelled up the throat, away from the lungs. The windpipe joins the esophagus in the throat region and propels the accumulated waste particles and bacteria that could lead to sickness in the lungs into the esophagus, where they are swallowed in to the stomach; where the stomach's gastric acid destroys them. When you wake up in the morning, the reason for your feeling a fullness in your throat and hearing your voice altered is that foreign bodies and bacteria accumulated in your windpipe during the night-long cleaning process.

That is by no means the end of the safety systems protecting the lungs. If liquid or pieces of food chance to enter the windpipe, these are expelled by the explosion of air known as a cough, which can expel air at a speed of 960 kilometers/hour (596 miles an hour).⁶²

The windpipe is a tube of some 30 centimeters (11.8 inches) long that runs from the throat to the lungs. The tube must always be open, or else the individual will suffocate. But it is not easy to make sure that this flexible tube running through such a mobile region as the neck is kept open constantly. Thanks to the windpipe's perfect creation, however, it has been reinforced with C-shaped cartilage that prevents the windpipe from closing.

The absence of any one aspect of this complex system would lead to irreparable harm. Kartagener syndrome, for example, is a genetic disease, in which all the components of the system are present, but the tiny hairs coating the windpipe lack the ability to move. The great majority of babies born with this deficiency suffer recurrent lung infections and die before reaching childhood.

These micro-hairs in the depths of the human body, invisible to the naked eye, work with all their might for the body's health, literally transporting the dust and foreign bodies

away from the lungs. The billions of micro-hairs, which you are never aware of but which work night and day on your behalf, are proofs that the human body was created.

Could You Make a Device to Clean Your Own Blood?

The oxygen that passes through the windpipe moves down through the two bronchia that lead to the two lungs on the right and left of the chest cavity. The lung is one of the most important organs in the whole body. In addition to its blood-vessel connections to all the other organs, it possesses its own exceedingly complex internal creation.

Before detailing the lung's structure, consider how any production is implemented.

The first stage consists of a specific plan, following which specific components are brought together. Looking around you, you will see many products of design—on the cover of this book, in its internal layout, and in its subject matter. The paper this book consists of, the clothes you have on, and the chair you are sitting in are all products of design. As the detailed evidence presented in this book so far, there is also obvious creation in the human body.

Now, imagine that you're asked to make a human body.

You must plan a device that will clear the carbon dioxide from the blood and replace it with oxygen. But that device also has to be small enough to fit into a human body.

In order to make it, first you need to know thousands of details about the chemistry and behavior of oxygen and carbon dioxide, how oxygen is transported in the blood, the structures of the molecules that do the carrying, and oxygen's atomic properties. It is totally impossible for you to make the required device without that information.

If you engage in wide-ranging research into blood and oxygen, you will conclude that in order for the CO_2 in the blood and the O_2 in the air to change places, then the blood and the air need to make contact with each other over as wide an area as possible. This area must be at least 100 square meters (119 square yards) in size. In other words, the device you need to make must place blood and air in contact over that wide an area, but also must be small enough to fit into the human body. No doubt that a very superior intellect is required to possess the knowledge to make such a device.

Call together the world's most expert designers to produce such a mechanism, using the most up-to-date technology. Yet no matter how hard you try, you will never be able to make a device produced as perfectly as your own lungs.

What kind of technology must there be for the lungs' surface area of 100 square meters (119 square yards) to be packaged and installed? To answer that question, we must examine the lungs' miraculous properties.

Perfect Creation in the Micro-Sacs

Examining the lung, you encounter a flawless structure created to bring together oxygen and carbon dioxide.

Inside the lung are more than 300 alveoli, each no larger than the tip of a needle, with a diameter of just 0.25 millimeter (0.01 inch). When the total area occupied by these alveoli is calculated an astonishing figure emerges. The surface area of the human lung is between 70 and 100 square meters (83 and 119 square yards). The squeezing of such a large surface area into such a small volume is the work of an impeccable creation.

There are blood vessels on the inner surfaces of these 300 million alveoli. Every time you breathe, the alveoli fill with air, and the carbon dioxide in those blood vessels changes place with the oxygen atoms in the air.

However, it is not as easy for these air sacs to open and close as might appear. In the same way that it is difficult to inflate a balloon for the first time, so it is just as hard to inflate alveoli, which possess very high tension under normal conditions. Yet you experience no difficulty in breathing in and out. You don't even feel our alveoli opening and closing, because your respiratory system's creation allows you to breathe with ease. The absence of a system that allows the alveoli to open and close easily with each breath would lead to such serious, if not fatal problems.

As always, the very best creation possible has been placed at our disposal.

The surfaces of the more than 300 million alveoli in your lungs are covered in a substance known as surfactant, which helps the alveoli open and close and reduces surface tension.⁶³ Another function of this substance is to prevent the alveoli from closing fully during exhalation. Thanks to surfactant, a certain amount of air remains in the lung even after the most powerful exhalation. In this way, blood circling around the alveolus is always in contact with the air and thus regularly transports oxygen to the body's cells.

Surfactant is synthesized by a very special group of cells, called type II granular pneumocytes, on the surface of the alveoli. Thanks to these cells, not found anywhere else than in the lungs, you can inhale and exhale with no difficulty.

One of this substance's miraculous aspects is that it begins to be produced a month before a baby is actually born. How can a baby in the womb, where it does not need to use its lungs, realize that it will face such a difficulty in the outside air and needs to produce this substance? How does it know that surfactant will help the air sacs in its lungs? What chemical knowledge does it use to calculate that it will reduce the alveolis' surface tension? The absence of this surfactant will soon cause the newborn to die. In exceptional circumstances where this precaution is not taken—for instance, in premature babies, when insufficient surfactant is produced—the result is oxygen insufficiency.⁶⁴

This sensitive equilibrium seen at every point in the human body is an important example of the perfection of Allah's creation of living things. With His infinite might, He has created every living thing with incomparable forms. The duty of anyone taking a

further step toward knowledge of Allah is to properly appreciate His might and to fear Him accordingly.

He has given you everything you have asked Him for. If you tried to number Allah's blessings, you could never count them. Man is indeed wrongdoing, ungrateful. (Surah Ibrahim: 34)

The Body's Eternal Flame: Respiration

In many respects, the process of respiration can be compared to oxidation, as in a burning fire. Compared to fire, however, respiration is a chemical process that takes place slower and at lower temperatures.

Your cells “burn” the carbon in nutrients by using the oxygen in the air, producing the energy your body needs. That is why it wouldn't be inaccurate to describe the phenomena that take place after every inhalation as the smoldering inside you of billions of little sparks.

Every one of the cells in your body requires a constant supply of oxygen. For example, because the billions of cells on the retinas of your eye are kept constantly fed with oxygen, you are able to read this book. In the same way, all the cells that make up the muscles in your body obtain energy by burning carbon compounds—in other words, by reacting them with oxygen. Every time you inhale, some 100 trillion air molecules enter your lungs. Of these, around 21% or 21 trillion, are oxygen molecules. Having entered your body by way of the respiratory system, these molecules are carried by the bloodstream to the furthest points in your body, and change places with the CO₂ dioxide molecules there. Although you may imagine that you are simply inhaling, there is actually a constant exchange of O₂, CO₂ and water going on in the depths of your body.

Oxygen Bearers

The principal aim of respiration is to expel the CO₂ in your cells and replace it with oxygen. This process actually takes place far from the bodily tissues—in the lungs. That being so, the O₂ entering your lungs must somehow be transported to the tissues, and the CO₂ forming in the tissues carried to the lungs. How does that transportation take place?

The indefatigable carriers of both molecules are the erythrocytes in the blood. Erythrocytes that come into contact with the air sacs in the lungs release the waste-product CO₂ they are carrying and absorb the O₂ in them. This process takes place along a very special membrane: On one side of this membrane is the oxygen-rich air inside the air sacs (alveoli), and on the other, there are capillary protrusions only wide enough for just a single erythrocyte to pass. The O₂ molecule is thus able to contact the erythrocytes with no difficulty.

The O₂ molecule is carried to the cells by hemoglobin, a molecule inside the erythrocyte—whose external appearance resembles a saucer, ideally shaped for carrying O₂ or CO₂. Hemoglobin binds with oxygen in the lung and sets out for the deepest recesses of the body by way of the red blood cells. When they reach tissues that need oxygen, a miracle takes place. The hemoglobin molecule, with its very special creation, is chemically affected by its environment. The chemical link between it and the O₂ is broken. As a result of this, the hemoglobin releases its load of oxygen molecules to the cells there.

Nor is that the end of hemoglobin's functions. It also transports back to the lungs the CO₂ that needs to be carried away. To sum up this process:

The CO₂ that emerges from cell respiration passes to the tissue fluid, and from there to the capillary vessels. Part of the CO₂ molecule attaches to the erythrocytes' hemoglobin and is carried in the form of carbamino hemoglobin. Another part turns into carbonic acid by combining with water under the effect of an enzyme, carbonic anhydrase. Later, the carbonic acid divides into bicarbonate and hydrogen ions; and the hydrogen ions are caught by the hemoglobin. In this way the CO₂ is brought from the tissue capillaries via the veins to the heart, and then to the lungs. Following a number of processes in the lung, the carbon dioxide is finally expelled during exhalation.⁶⁵

There is yet another noteworthy feature in the structure of hemoglobin. In the same way that it possesses the ability to transport O₂, hemoglobin also possesses the ability to carry that oxygen to just the right destination, thanks to a chemical link between hemoglobin and oxygen. To emphasize the importance of this property of hemoglobin, the following analysis will be useful:

If the link between hemoglobin and oxygen were slightly weaker, hemoglobin could not bind to O₂, and the latter could not reach the tissues—spelling death for living things.

If the exact opposite were true—and the link between hemoglobin and O₂ were any stronger—then the two could not separate once they reached the tissues. The cells would be deprived of oxygen, and would expire within a few minutes.

This offers clear evidence that hemoglobin is specially created as a perfect system for transporting O₂ in the human body. Every detail within that system is proof of the infinite nature of Allah's knowledge and power. There is an infinite range of possible molecular attractions between hemoglobin and O₂. Yet the most ideal of all of these attractions has been established between the two—neither too strong nor too weak, but at just the right level. This cannot have come about by chance, but is clearly the product of a deliberate creation.

Any defect or deficiency during the production of a molecule, during the respiratory process or the pumping of the blood, any change in the blood's contents (a simple kidney problem is enough for that to happen), will lead first to severe illness, then to death. That being so, none of the components making up this system could have come into being of its own accord. All must have come into existence at the same moment, within the same

body. And this applies not just to the process of O₂ transport in a single cell, but to every individual process in all the trillions of cells in all the billions of people on Earth.

As you've seen, hemoglobin carries oxygen from the lungs. Yet the production of this complex molecule is entirely under the control of the bone marrow. Can the bone marrow cells know about an organ so very distant from them and to decide to initiate processes according to its requirements? It would clearly be quite irrational to maintain so.

Evidence of an incomparably superior Intellect can be seen in every detail of the respiratory system. The existence of that system—so complex and yet so perfect—can never be explained in terms of random coincidences. The only explanation is creation. Out of nothing, Allah has created humans with their flawless bodily structures.

It is He Who created the heavens and the Earth with truth. The day He says 'Be!' it is. His speech is Truth. The Kingdom will be His on the Day the Trumpet is blown, the Knower of the Unseen and the Visible. He is the All-Wise, the All-Aware. (Surat al-An'am: 73)

Details of the Superior Creation in the Lungs

To Breathe In and Out, the Lung Needs an External Power Source

Human beings are unaware of what happens as they breathe. The way respiration accelerates as they run or slows during sleep, is nothing extraordinary. Yet the way that inhalation and respiration regulate themselves is a miracle all by itself.

The lungs pump air in and out for a whole lifetime, and in order to function, the lungs—just like all other organs—need energy from outside. That is provided by the rib muscles, directly underneath the ribcage, in the diaphragm. When you inhale, the ribs move outward and upward. The lung pulls the air down the windpipe. When you exhale, the ribs are pulled back in, while the diaphragm muscle beneath the ribcage moves up. As the lungs contract, air in the tiny air sacs is pressurized and departs up through the windpipe.

You can make no contribution at all to these activities inside your body. You can give no instructions nor contribute to how your muscles work. Neither do you have any need to do so, because the energy for your lungs has been provided by a superior Intellect.

Expansion of the Ribcage Facilitates Breathing

The ribcage plays a very important role in the respiratory system, but this structure's best-known feature is the way that it protects the internal organs, especially the heart and lungs. Yet the ribcage's flexible nature is also important in facilitating breathing.

When you inhale, the armor plating of your bony ribcage possesses a surprising elasticity. The ribcage, which under normal conditions resembles a hard protective shield,

is astonishingly flexible. However, if the ribcage were just a little less flexible than it is, the lungs could not expand and you could not breathe comfortably. Allah has created that flexibility in an ideal form that is neither too much nor too little—a blessing for human beings.

The System of Shock-Absorbers in the Lungs

The ribcage's protection against external blows, the hairs in the windpipe that prevent dust entering from the outside, the nasal mucus that regulates the temperature of inhaled air and traps germs, the production of surfactant that eliminates surface tension in the air sacs, and many more such details—these are hardly all the systems in place to safeguard the lungs. A different protection mechanism also prevents friction between the lung surface and other organs.

The external surface of the lung is covered in a layer of membrane (pleura), so that the lung is never harmed as you breathe in and out. The pleura surrounding each lung just like bags is in contact with another membrane covering the chest wall and the internal surface of the diaphragm, with slippery liquid between them. The outer surface of the lung thus never makes contact with any other organ during respiration, and the lung is protected from friction.⁶⁶

In addition, the negative pressure or vacuum between the membrane covering the lung and the one surrounding the chest wall causes the lung to adhere to the chest wall. This allows the lung not to be crushed by its own weight. If the lung's vacuum environment is impaired for any reason—in a traffic accident for instance, or when a sharp object pierces the chest wall—the lung deflates like a balloon and with a so-called “collapsed lung,” the individual may die.⁶⁷ This system is another indication of the lung's splendid creation.

The Automatic Regulation of Breathing

The frequency and depth of the respiration varies according to the body's activity and the surrounding environment. For example, anyone who is running or climbing stairs breathes faster and more deeply than one sitting down, because muscle cells expend more energy while the body's in motion. The body's trillions of cells therefore need more O₂ than usual. In addition, the excess CO₂ produced by the cells must also be expelled. If the increasing oxygen demand is not met, all the cells will suffer. The cells in such regions as the brain and heart, which have a low tolerance for lack of oxygen, will soon lose all their vitality.

In order to provide more O₂ and remove more CO₂ than normal, the only solution is to accelerate the respiratory system by ensuring that the lungs work faster. A special system must therefore come into operation to bring that about. And indeed, the respiratory

system indeed possesses a miraculous system that comes into operation at times of sudden need.

Respiration is controlled by centers in the brain via the spinal cord. Nerves going to the diaphragm and rib muscles ensure that these structures contract at a regular rates of 4 to 5 times a second. If these nerves are cut, then respiration comes to a stop.

Another factor that influences respiration is the level of CO₂ in the blood. In situations where the metabolism hastens, the CO₂ level also rises. As a result, blood acidity rises and therefore, blood pH drops, which affects the respiratory center in the nervous system. These centers in turn stimulate the diaphragm and rib cage by means of the nerves to accelerate respiration. Oxygen is taken in and CO₂ expelled more quickly. The level of carbon dioxide in the blood is thus returned to normal, and blood pH is adjusted.

If respiration increases more than necessary, the brain stem makes the requisite adjustments. In addition, pressure-sensitive receptors on the outer face of the lung send the necessary instructions to the brain stem, telling it to not to breathe so deeply, since the lung is expanding more than it needs to.⁶⁸

As you see, this system is interconnected in all respects. Therefore, the nervous system, respiratory center, diaphragm and all the other components must have emerged at once. In order for respiration to be automatically regulated, therefore, the system has to exist fully formed, as an integral unit. In other words, all its components have to be present all at once, appearing at the same time.

According to the theory of evolution, none of these details in the lung existed in the beginning. Each one of these flawless features formed gradually by means of coincidences. Yet that claim is in obvious conflict with both science and reason. First of all, for a human being to breathe, all the features in the lung just described must have existed right from the beginning, in the first human being who ever lived. For example, ribs whose cartilage “hinges” lacked elasticity, or a lung that lacked alveoli or the surfactant around those alveoli, or with no protective membrane around it, would serve no purpose. It is impossible for evolution’s chance mechanism to bring any organ into being or to let it acquire any features. That will never change, not even over hundreds of millions, or even trillions of years.

These details in the human body are some of the proofs of Allah’s existence. Allah, Who has no partners in creation, builds this interconnected order. Allah is the Almighty, Who has knowledge of all forms of creation.

Your Lord is Allah, Who created the heavens and the Earth in six days and then settled Himself firmly on the Throne. He covers the day with the night, each pursuing the other urgently; and the sun and moon and stars are subservient to His command. Both creation and command belong to Him. Blessed be Allah, the Lord of all the worlds. (Surat al-A‘raf: 54)

A RESISTANT STRUCTURE: THE SKELETAL SYSTEM

At this moment, you may well be sitting or lying down. After finishing this book, you may want to replace it on the top shelf of the bookcase. Also, you may want to continue sipping the cup of tea you are holding in one hand. However, whatever action you perform, you are indebted to your skeletal bones for your every movement. Were it not for them, you would be unable to read this text, move your fingers, or even get up and walk. Your body would crumple up like an empty sack of flesh. Your organs would be crushed under their own weight, and within a few seconds, you would die.

Actions you perform in your daily life without even thinking about them, which might be described as very simple, all occur thanks to your bones' functional structures. Consider, for example, what you do as you read this book. To read this page, you must have turned over the one before. In doing so, your index or middle finger went into action first. Your thumb assisted. The three bones comprising your index finger angled in turn. At the same time, the two bones comprising your thumb rose up and helped the page turn over. As all this was going on, your wrist bone and the other bones in your hand also pivoted at particular angles. Your arm bones of course helped you to hold the book. In short, you began reading thanks to a mechanism whose existence you may never have been aware of before, which performed for you a number of functions, again without your being aware of them, and which are still going on now, as you continue reading.

Laughing, running, walking, sitting down, getting up, lying down, writing—you do all these things thanks to your bones. It is thanks to your skeleton that you can walk, sit down and stand up, lie down, laugh or eat.

The framework of the human body is made up of 206 hard components, fitted to one another just like the parts of a jigsaw puzzle and connected to one another from specific ends.

Examined in terms of task and function, the skeleton and the bones that comprise it make us aware once again that we are faced with a miracle of creation. The bones in our human body, with all their very different functions, demonstrate to us the glory of Allah's creation. This matchless creation is emphasized in a great many verses, such as : “. . . Look at the bones—how We raise them up and clothe them in flesh. . . . ” (Surat al-Baqara: 259)

In another verse, Allah cites the bones' first creation to a denier who refuses to believe in eternal life after death:

He makes likenesses of Us and forgets his own creation, saying, “Who will give life to bones when they are decayed?” Say, “He Who made them in the first place will bring them back to life. He has total knowledge of each created thing.” (Surah Ya Sin: 78-79)

THE STRUCTURE OF BONES

In just about all bones in the body, especially in the long ones, there are two different structures. The bulk of the bone consists of dense, hard tissue, while the ends consist of a thin layer of bone made up of a more porous structure. This is actually very important in terms of the bones fulfilling their functions, because only with such a characteristic can the bones move, transferring the stress placed on their body to their joints. If every region of bone had exactly the same structure, then the bones would lack elasticity and strength.

Bone tissue consists of cells and the raw material that those cells secrete around themselves. There are three kinds of cells in bone tissue: those that play a role in the structure of the bones and provide their shape, those that form the hollows inside the bones, and those that establish the communications that link these to one another.

The Structure that Gives the Bones Their Strength

The internal structure of bone is a microscopic marvel. The skeleton occupies a rather large space in the body and performs the most vital functions. The secret of how it is so light and yet so strong lies in the structure of the bones. Their interior, described by scientists as a marvel of engineering, possesses a quite amazing creation.

Indeed, in the second half of the twentieth century, engineers developed a technique adapted from the structure of bone in the construction of difficult, lengthy and costly projects such as skyscrapers and bridges. Under this method, known as the cage system, a structure's load-bearing elements are constructed not as a single slab, but in the form of interconnected ribs. With the benefit of complex calculations capable of being performed by computer—and replicating the characteristics in bones— large bridges and industrial structures were built far stronger and far more economically.

However, the system inside the bones is far more complex than the technique employed in these buildings. Bones possess two seemingly contradictory features at once: strength and lightness. Due to the materials employed in their construction, however, buildings do not possess these two characteristics together. The porous, hollowed structure of bones makes them light, though they are also exceedingly strong and resistant.

The simultaneous presence of these two features, lightness and strength, imparts a number of benefits on human beings. Any contrary state of affairs would have lethal

consequences. If bones possessed only one of these two characteristics—if they were strong but heavy, for example—then the entire skeleton would be far too weighty for human muscles to carry. People's freedom of movement would decrease, severely restricting their daily lives. And as a result of this hardness and brittleness in the bones, the slightest blow would lead to cracks and fractures.

In the exact opposite case—if the bones were light, but not hard—the body could not exist in its present form. Many vitally important organs such as the brain and heart would be exposed to constant danger.

Furthermore, bones possess different features depending on the position they occupy in the body. All bones are strong and elastic, although the levels of these properties do vary. The rib cage, for example, is strong enough to protect such vital organs as the heart and lungs, but also possesses the capacity to expand and contract in such a way as to permit easy breathing. If the ribcage consisted of bones as hard as the skull, then breathing would be almost impossible, and the lungs would become trapped in this hard cage every time you inhaled. As these examples show, detailed examination of just one feature in the bones reveals a great many miracles of creation. However, this is by no means the end of the bones' special structures.

How Do We Move?

In order to move, we need a muscular system as well as a skeleton. All the bones comprising the skeleton are attached to muscles. As a muscle contracts, it pulls on a bone and enables it to move. In this way, the muscles and bones act together, allowing you to walk, sit, stand up and perform many other movements. In the actions we perform countless times throughout the course of the day, your bones and muscles are used together. You walk, speak, eat, sit and lie down only thanks to the coordinated functions of your muscular-skeletal system.

The muscular system understands the bones' structure and functions, and the bones are equally well acquainted with the muscles; they literally understand each other. When you go to sit down, the knee joint bends, together with the leg muscles contracting. You are thus able to sit down without difficulty, and stand up again. The muscle surrounds and attaches to the bone so perfectly that every condition necessary for the muscle's contraction is met. The tendons never come loose from the bone, and neither does the bone tear the muscle, except in cases of injury. These two entirely different complex tissues with their entirely separate systems cooperate with each other perfectly.

So how did this cooperation come into being? How did these flawless systems, a few examples of which we shall be considering in some detail, arise in the human body?

First, in order for vital functions to be performed, clearly they must all be present as a whole, to have emerged at a single moment. It is therefore impossible for complex bodily systems to have developed gradually, on their own. In addition, tissues such as muscle or bone clearly cannot possess such attributes as awareness, knowledge,

calculation or cooperation. This leads us to only one conclusion: that mankind was created by a creator. That Creator is Allah, He Who is aware of all, Who knows the needs of every living thing down to the very finest detail. Allah creates human beings' bones and Who permits them to work in unison by attaching them to muscles. Allah knows all forms of creation. There is no doubt that Allah creates everything to perfection.

How many Signs there are in the heavens and earth! Yet they pass them by, turning away from them. Most of them do not believe in Allah without associating others with Him. Do they feel secure that the all-enveloping punishment of Allah will not come upon them, or that the Last Hour will not come upon them all of a sudden when they least expect it? (Surah Yusuf: 105-107)

The Perfect Lubrication System Between the Bones

Bones possess different features, depending on where they are located in the body. For example, those skeletal bones that move constantly need very different support to those that remain largely immobile. We can consider your joints as examples. Since the vertebrae that comprise your spinal column, and the joints in your legs, arms, hands and feet are in constant motion, they also need support systems.

Friction can occur anywhere that the moving parts of any mechanical device make contact with each other. Where there is friction, parts break down eventually. Every moving mechanical system, from a simple door hinge to a car engine with the latest technology, needs to be regularly lubricated. However, lubrication does not entirely eradicate wear, but only delays it. For example, even though car engines are lubricated every five thousand kilometres wear can still not be entirely eliminated. That is why engine parts constantly need changing.

But even though the joints of humans and animals are in constant motion throughout their lives, they never require maintenance in any form. If you think of a human covering a distance of around 100,000 kilometers (62,140 miles) in a lifetime, the miraculous aspect of this becomes all the more apparent.

Were it not for the assistance from your joints, you would be unable to move, because all your bodily movements occur thanks to how your joints move against one another. During a basketball match, what are the responsibilities of the players' joints as they run, dribbling the ball?

Anywhere two bones come together, the duty of the joint is to keep the distance between the bones as great as possible to prevent any friction. But in such a condition, it would be impossible for the knees, elbows or wrists to move comfortably. Were it not for the joints' unique structure and the buffer zone in between them, you would be able to move only in stops and starts, like a robot.

Scientists have been studying the joints' attributes for many years now, particularly how they prevent friction. Their aim is to adapt to robots this perfect system in the human body. At first, researchers thought that the absence of friction in the wrists stemmed from fluid in the joints, but subsequently they realized that this fluid had no power to prevent friction. In a most superior example of creation, the surfaces of the joints were covered with a fine layer of porous cartilage, underneath which was a dense liquid. In the event of pressure on one part of the joint, the bone pushes this liquid out through the cartilage, and the joint surfaces are allowed to slide just as if they were coated in oil.

As we have seen, human beings possess a flawless creation in all aspects, and this allows them to move.

The Skeletal System's Superior Load-Bearing Capacity

In addition to their perfect functions, the bones comprising the skeleton also have a flawless internal structure, with the capacity and strength to bear weight with no difficulty. Indeed, a rather wide safety margin has been included, for any difficulties the body might conceivably be exposed to.

The pelvic bone has one of the greatest load-bearing capacities, able to withstand a load of one ton in the upright position. Indeed, with every step you take, you place on this bone a load of three times the weight of your body. When a pole-vaulter lands, the pelvic bone is exposed to a pressure of 1,400 kilos (3,086 pounds) per square foot. The bones in your body are subjected to intense weight and pressure every time you lie down, sit, or stand up from a sitting position. During all these movements that you perform without thinking, a complex skeletal system goes into action in a most systematic manner.

In order to fully grasp the perfection of the creation in the bones let us draw a comparison. Steel is one of the strongest and most functional materials, being both strong and flexible. Yet a piece of bone is actually much stronger than solid steel, and ten times more flexible. Bones are also superior in terms of weight. A steel carcass is three times heavier, in relative terms, than the human skeleton.

It is not only steel, but any other material used by mankind that lags far behind when compared with the structure of bones. It will be seen that compared with the same weight of reinforced concrete, bones have four times the load bearing capacity.

Bones: The Body's Living Bank

Most people imagine bones to be inanimate substances, but apart from their outer layers, they are in fact living tissues, containing microscopic blood vessels, nerves, and bone marrow. At the same time, the bones store vital substances such as calcium and phosphorus and return these to the body when needed for any reason.

What would happen if there were no calcium in the body?

Calcium assumes a most important role in ensuring that stimuli from the outside environment reach the nerves. Without calcium, signals could not reach the nerves, leading to paralysis and failure of the internal organs, eventually resulting in death.

But calcium's importance goes even further.

When you cut yourself, the blood congeals soon afterwards, preventing your death from blood loss. This is of vital importance. If blood did not clot, all of it would eventually flow out of your body from even the tiniest cut as in the case of fluid running out of a barrel with a hole in the bottom. However, a miraculous mechanism ensures that clotting does take place to protect us from certain death, as you saw in Chapter 1. Calcium is one of the main factors that sets this mechanism in motion, and were it not for the calcium stored in the bones, your blood would not clot.

Your Bone Cells' Ability to Trap Calcium

We have already stated that the bone cells serve as calcium and phosphorus depots. There is another important point here that needs to be dwelt on. A bone cell, which has no sense organs, can easily distinguish calcium and phosphorus from the thousands of different substances in the blood, and then traps these atoms with perfect accuracy.

Unless he has received special training, no human being can possibly distinguish between different elements such as calcium, phosphorus, iron, zinc placed before him in powder form. Could you separate and remove all the calcium particles from this mixture? If not, then you can better understand the success achieved by the bone cell, which has not received any special training in this field.

At the same time, the bone cell is also most obedient, just like all the other cells in the body. When instructed to store calcium or to stop, it obeys at once.⁶⁹ The bone cells continue to serve, day and night, with great ability and discipline.

Bone Marrow: The Machine That Produces Blood Cells

A large hollow area in the centers of bones contains the marrow that ensures the production of the necessary materials for blood. Marrow consists of fat, water, erythrocytes and leucocytes. Yellow marrow, consisting almost entirely of fat, is found in some bones. In red marrow are produced and stored the red blood cells that provide carry O₂ and CO₂ and the white cells that protect against infections.

The hemoglobin molecules in the erythrocytes produced in red marrow distribute oxygen to all the cells after taking it on in the lungs. If the level of blood production in red marrow were just a little lower, then we would develop anemia and eventually die from lack of oxygen. Production in the marrow therefore needs to be constant. Various precautions have been taken inside the body to ensure that nothing ever goes wrong with such a vital function.

These precautions may be compared to strategies being changed according to the course of an enemy's progress.

When the body is fighting an infection, defensive white cells are produced in the red marrow. Yet these cells may not always be enough. In the event that the enemy puts up a better attack than expected, the body sounds the alarm. In addition to mounting a serious defence, the body also has to go onto the attack. At this stage the yellow marrow enters the equation. However, since yellow marrow consists solely of fats, what role can fats play in the defense?

Of course, the fats themselves play no role in the defense. The yellow marrow's basic role is to store fat in the body and to begin producing blood cells when it receives an urgent signal that the red marrow cannot cope on its own. The objective is to win by establishing one single force to cooperate against the foe.

This important detail can never be explained by the Darwinian logic that links all of life to blind coincidences, because fluids inside the bones, devoid of reason or logic, decide to cooperate together in their struggle against an enemy. At the same time, those fluids demonstrate characteristics they have never employed before so as to perform different functions.

All these facts point very clearly towards creation. Examples like these of Allah's superior creation are all opportunities for one to turn to Allah and comprehend His might and greatness.

Every human being, created with so many superior features, both known and unknown, has the duty to give thanks to Allah, Who endows us with bodies so perfect in every way.

A Self-Repairing Block of Stone

Bones are as hard as stone, yet they nonetheless still break from time to time. However, the broken region heals itself shortly afterwards.

If bones were a little less resilient than they are—if they stored a little less calcium—they would break under the slightest pressure. If bones also lacked this self-repairing ability, no doubt that this would mean a great deal of suffering and trouble. People would be left crippled because their bones did not mend, and death could even result from breaks in the ribs of skull.

However, human beings have been endowed with a blessing, of which they are generally unaware. Apart from following very serious accidents, bones tend not to break. And those that do for any reason soon fuse back together.

After being broken, a bone immediately starts to repair itself, and once the repair process is complete, it becomes even stronger than before, to replicate this most extraordinary phenomenon, scientific research is aimed at producing a substance similar to that which comprises human bones. Yet to date, no engineer has been able to produce a substance as strong yet as light and functional as bone, that constantly grows and

lubricates itself in the way bone does, requires no shutdown time, and repairs itself when damaged.⁷⁰

The Vital Function of Bone Cells

Various kinds of bone cells, all of which perform very different functions inside a single bone, all work together. Osteoblast cells, the makers of bone, ensure the constant renewal of bone by hardening protein with minerals. Another bone cell known as the osteoclast permits the exchange of nutrients between blood and bone tissues, as well as playing a role in the expulsion of wastes from inside the bone.

Another function of the osteoblasts is to enable bone to change dimensions and reach adult form and proportions, by leading to collapse of the tissue in the interior surfaces, bone marrow hollows and porous bone tissues. It also has an effect on the external bone surfaces by shrinking protrusions there. Uniform thickness is thus maintained throughout.⁷¹

As the osteoclast cells perform their work in the bone, osteoblast cells do not stand idly by but begin making new bone that will constitute the skeleton. Osteoblasts bear a heavier burden during childhood, since as growth is more rapid during that stage, and there needs to be more bone-making than tearing down. But once the skeleton has reached a certain level of maturity, the processes of bone making and destruction begin to balance one another. The bone's shape and dimensions remain the same during this process, and the calcium level in the blood and the fluid between the tissues is also regulated.

The cells present in the bones of every human being, perform exactly the same functions in everyone. They all know how to reduce the size of the bone surface, know the differences between the skull and the pelvic bone, and the different forms they will give to them, when growth has to stop, and what their thickness must be. They also act in the knowledge that during childhood, they have more work to do; and possess knowledge of what calcium levels should be at which time.

As you see, the bone cells knew one another's abilities very well and act in a planned manner. They accurately determine when they need to engage in various processes. This may be compared to the production schedule in a factory, which must prevent excess production and the accumulation of too much overstock in the warehouse, as well as under-production that will result in shortages. Factories have special planners involved in such work who produce regular daily or weekly inventories to ensure balanced production in the factory.

In a comparable way, bone cells maintain the level of calcium at a fixed rate. Osteoblast and osteoclast cells work in a balanced manner, in that the osteoblast engages in production, while the osteoclast prevents any excess. Their communication is impeccable, and the balance never goes wrong, thanks to which your bones always maintain a sufficient level of calcium.

To claim that bone cells acquired their capabilities of production-planning and balance-maintenance of their own will, or that these came into being by sheer chance, conflicts with logic and with science in every possible way.

A cell cannot plan or make decisions, or become aware of the imbalances in the body. It cannot learn. Yet each and every one of the trillions of cells in the human body behaves like a conscious being, and even exhibits a higher intellect than that of human beings. This shows that cells are directed by a superior Force: It is Almighty Allah Who inspires in them knowledge of how they are to behave.

Have they not reflected within themselves? Allah did not create the heavens and the Earth and everything between them except with truth and for a fixed term. Yet many people reject the meeting with their Lord. (Surat ar-Rum: 8)

The Spine: The Body's Mobile Joist

The spine consists of a number of components. Through 33 small, round bones placed one on top of the other runs the spinal cord, which provides the coordination between the brain and all the organs, which are equipped with a major communications network. These bones have been combined with a structure that is attached to the ribs and the internal organs and results in the body's upright posture. The large structure formed by these 33 bones is one of the greatest engineering marvels in the world.

The most important task of the backbone is load-bearing. The upper body's weight is borne by the backbone. The vertebrae composing the spine move on top of one another with every step you take, which movement naturally gives rise to friction. Friction in turn will lead to erosion, and that—for a vertebra protecting a vital communication network and at the same time bearing a heavy load—can cause severe problems. So how is this structure of 33 discs protected from compression—and friction?

Within the backbone has been located the best possible protective system. Between each of the vertebrae comprising the spinal cord has been placed a cartilage disc that works like a shock absorber to soak up pressure.

The backbone's shape, in the form of a letter S, has also been created in such a way as to assist in load-bearing by allowing weight to be distributed evenly. Due to your body's weight, an impact from the ground is produced every time you take a step. This force does your body no damage, however, thanks to the shock absorbers in the spine and its force-dispersing shape. Were it not for the elasticity and special structure that reduce the counterforce, then the force created would be transmitted directly to the head, and the upper part of the spinal column would shatter the bones of the skull and enter the brain.

That does not happen, however. You continue to lead a healthy life with the perfect engineering created by Allah in your human body.

Mechanical Creation in the Skeleton

Another example of the flawless creation in the bones is the bones of the feet. Each human foot is made up of 26 bones, meaning that a quarter of all the bones in the human body are in the feet. The foot possesses a very special structure created to facilitate its mechanical functions. We may compare the perfection in the structure of the sole of the foot to the engineering of a bridge—the sole's curved shape helps supports the weight of the body.

We use automobiles as another example. When a car's gas pedal is depressed the pedal works like a lever. In the same way, when you perform a lifting movement, your toes work like a hydraulic jack, lifting your body into the air. And when you run, they work as shock absorbers for the legs, so that no harm befalls the feet, veins or muscles during all these movements.

To fully grasp the importance of this special situation, compare any other organ—your hand, for example—with your feet in terms of weight-bearing capacity. Let's assume that the same weight is applied to your hands every time you stand up, that you place your hands on a table and then place on top of them a weight of 70 to 80 kilograms (155 to 175 pounds). The flesh will soon be crushed, your veins will burst, and even your bones will even be shattered. Yet in your feet, which bear the weight of your body all day long, the veins do not burst, nor are the tissues crushed, because the foot is specially created to carry weight.

This is another proof of Allah's affection for human beings. Allah reveals Himself to us by creating human bodies whose creation allows us them to live in a most comfortable manner, feeling no discomfort, and easily able to meet all our needs. The signs of Allah are visible everywhere for those who can see. The important thing is to turn to Allah, the Lord of all, by thinking deeply about this evidence.

In the creation of the heavens and Earth, and the alternation of the night and day, and the ships which sail the seas to people's benefit, and the water which Allah sends down from the sky—by which He brings the earth to life when it was dead and scatters about in it creatures of every kind—and the varying direction of the winds, and the clouds subservient between heaven and earth, there are Signs for people who use their intellect. (Surat al-Baqara: 164)

The Cage That Protects the Brain: The Skull

The skull, a fusion of eight separate bones, surrounds the brain, affording it the most excellent protection. Just as bones in the body have different properties according to their location, so the skull has its own unique creation. Unlike other bones, the sutures

where the skull's bones join together bear protrusions and indentations, because the skull bones' fusion points are created to be able to lie alongside one another.

In adults, the skull is very hard and strong, but completely different in newborn babies. The skull of a baby that has only recently left its mother's womb has a soft structure, and the eight bones comprising the skull have not yet joined together. This might seem a disadvantage as far as health is concerned, but is actually a most important feature that preserves the baby's life during birth.⁷² If its skull had a hard bony structure, with no gaps between the component bones, there would be a high risk of the baby's head being crushed during birth. But because of the cartilaginous nature of a baby's skull, the bones are flexible enough to bend.

Flexibility by itself is not enough, of course. The skull also needs room to expand — provided by the gaps in the skull that are not yet closed until after birth. The bones of the skull squeeze together to close this gap, and even slide over one another, decreasing the skull's volume. In this way, the baby is born safely after passing through a birth canal only half the diameter of the baby's head.

What if none of these were to apply? For instance, if the skull bones were still flexible but there were no gap between them, or the exact opposite—if there were a gap, but the bones were not flexible—then in either case, the baby's brain would suffer enormous damage. It is essential that both these properties be present at the moment of birth. Yet there is one very important factor here: the mother's pelvic bones.

Toward the final months of pregnancy, a woman's pelvic bones expand and separate slightly from one another. This means that the baby can be born without its head being crushed.

Every feature in the human body has been created in order to protect health and to prevent any damage. The question here is, "How did the clearly visible planning, and the creation manifested within it, come into being?" The only answer is that this incomparable creation belongs to Allah, Who created and laid out in order everything in the universe. Allah possesses a most superior intelligence. Everyone who can understand His infinite intelligence and draws conclusions from that will achieve true salvation. A person's duty is to consider these blessings that Allah has created inside him and to give thanks for them. Allah loves the grateful.

. . . Allah shows favor to humanity, but most of them are not thankful. (Surah Yunus: 60)

POWERHOUSES IN THE BODY: THE MUSCLES

A car has one single engine. Airplanes often fly with two or four. How many “engines” enable you to hold this book in your hand, or to take a single step?

Billions!

Whatever you may be doing, countless microscopic engines produce the power necessary for you to perform that action. The engines in question are your muscle fibers.

There are more than 6 billion of these tiny engines in your body, which allow you to drink, drive, walk, speak, allow your heart to beat, your eyelids to blink, and let you eat and turn your head. Even as you read these lines, the movement of your eyes takes place thanks to the energy produced by these tiny motors.

The size of the muscle cells depends on where they are used. Some may be no more than 1/100,000th of a centimeter in size, whereas others can be 3 centimeters (1.18 inches) long.⁷³

These tiny muscle fibers come together to constitute larger powerhouses—the muscles themselves. For example, the muscle that permits you to contract your forearm consists of the combination of millions of tiny motors.

There are more than 400 of these powerhouses, large and small, in your body. Some—those that regulate the amount of light entering the eye, for example—are very small. Of whatever size, however, all are powered the same way: Billions of tiny engines work together to allow the muscles to act. When you pick up a pen, for example, more than 100 individual muscles go into action.⁷⁴

The working systems of all the muscles in your body have been set out within very sensitive bounds. In addition, your muscles need to cooperate in order for you to be able to move. One of the muscles’ most important features is their being linked to a control system that permits us to survive.

The Control System in the Muscles

Human muscles are divided into two kinds: those voluntary muscles that you can control and those involuntary ones that you cannot.

In order to be able to move our voluntary muscles, you need to think and make a decision. For example, when you want to bend your arm, the muscles contract in the light of the command from your brain, and movement then takes place.

Control of the involuntary muscles, however, does not depend on your wills. Since these involuntary muscles’ functions are of vital importance, their expansion and contraction is controlled by the autonomous nervous system. Thanks to this, your heart,

stomach and intestines perform their vital functions, all beyond your volition. This is a most essential precaution to preserve human life.

What would happen if the control of the muscles in question were at this very moment left up to you? Imagine that the control of just one involuntary muscle—, your heart muscle, for instance—was left up to you. You would have to devote all your time to contracting and expanding your heart, to the total exclusion of everything else. As soon as you fall asleep death will inevitably follow, since you will be unable to supervise your heart's functioning. Your heart muscle must never stop working, not even for a moment, not even when you sleep: The heart continues working, though it does slow down. You therefore need to adjust your heartbeat according to prevailing circumstances.

This one example is enough to see how truly wise and flawless are the boundaries set out with regard to the muscles.

Certain muscles are under the individual's control at some times, and outside it at others. For example, you can open and close your eyelids at will as well as by blinking—a reflex beyond your control. The diaphragm muscle that allows you to breathe is another that can be consciously controlled, but it works automatically during the course of your day-to-day life.

Many other muscles have their own particular ways of working. Many people are quite unaware of when they should be working and when not, but thanks to the perfect control system created inside the body, there is no reason ever to think about such things. In the face of this considerable facility, a person's only responsibility is to give thanks to the Lord, the infinitely merciful and compassionate, and to behave ways that will be pleasing to Him.

Who could do greater wrong than someone who is reminded of the Signs of his Lord and then turns away from them, forgetting all that he has done before? We have placed covers on their hearts, preventing them from understanding it, and heaviness in their ears. Though you call them to guidance, they will nonetheless never be guided. (Surat al-Kahf: 57)

High-Performance Engines

Muscle fibers work with a 25% efficiency level—more or less the same as that of modern car engines.

But how do the muscle fibers actually work? Again, we can answer that question with a comparison to a car's engine.

Any engine needs fuel to make it work. The fuel used by the muscles is the sugar, or glycogen, carried in the bloodstream. Some of this high-octane fuel is stored in the muscles. In car engines, fuel is injected into the pistons, and a spark ignites the atomized gasoline. The piston expands, and the car's regular motion is ensured by means of a series of explosions— all features built into engines by industrial design.

However, the creation of a muscle cell is far superior. This tiny cell performs both the ignition and piston functions, extracting the energy from the sugar molecule and using it in its own contraction. Both the extraction of energy from chemical molecules and the transformation of that energy into physical force take place within the muscle cell.

The energy produced affects the proteins that constitute the muscle cell. As the proteins attract one another, the muscle cells contract. As a result of thousands of cells moving at the same time, an entire muscle contracts and shortens. Tendons attaching the muscles to the bones move the bones as a result of that contraction.

These contractions can produce considerable force. For example, in order for your arm to bend at the elbow, it's enough for your forearm muscles to contract by 2 centimeters (0.8 inches). This contraction pulls the arm bone and leads to the whole arm bending.

All the muscles you use to move work in basically the same way. But even the simplest actions, such as opening and closing your eyelids, require several muscles working together.

Igniting the Fire: the Engines in the Muscles

When you go to bend your arm, an electrical signal departs from your brain. During its complicated journey, the signal first passes to the spinal column, from where it proceeds at high speed to the organ where the message needs to be delivered. An electrical current moves over the muscle surface. The millions of muscle fibers receive the signal react immediately and "fire the ignition" by contracting. These events all take place in the blink of an eye: in as little as one thousandth of a second. In other words, the electrical current moving through the muscles turns the ignition switch in the muscle fibers by moving at a speed of 1/1,000th of a second (1 millisecond).

The command reaching the muscles is produced and transported in the nervous system. The muscular system therefore functions under the command of the nervous system, but the way the muscles work together in harmony results from the coordination of the body.

The Body's Communications Network

The first condition for coordination is obtaining accurate information. Only with accurate information can new analyses be performed. And in order for the muscles to function correctly, there is a magnificent reception network in the body.

To carry out a coordinated action, first the location involved in that action must be known. That information comes from the eyes, the balance mechanism in the inner ear, the muscles, the joints and the skin. Every second, billions of pieces of information are processed, analyzed, and new decisions taken as a result.

Millions of receptors located in the body provide information. Inside the muscles and joints, billions of micro-receptors provide information at any given moment. Messages from these receptors reach the central nervous system, and new instructions are issued to the muscles in accord with the analyses performed there.

For a clearer example of this coordination, simply raise your hand. Your shoulder has to bend, the biceps muscle must expand and the triceps must contract. Muscles between your elbow and wrist have to turn your arm, and the muscles controlling your fingers have to give your hand the correct shape. At every stage of this action, millions of receptors in the muscles report the status of the muscles to the central control system. A moment later, the center tells the muscles what to do next. You are of course unaware of these chemical and physical reactions taking place at breathtaking speed; you merely want to raise your hand.

Nor do you make any special effort in order to speak. You never sit down and calculate what sounds you want to emerge from your mouth, how much your vocal chords need to vibrate and which of the hundreds of muscles in your mouth, tongue and throat need to contract and expand—how many times, in which order and at what level—how much air to take into your lungs, or at what speed and intervals you need to exhale that same air.

The nervous system is aware of not just the muscles, but also of the status and functioning of the internal organs. This information too is processed and the necessary measures taken. Even while you sleep, your vital organs continue to function, thanks to instructions received from another part of the nervous system—the sub-brain and spinal cord. Your heart beats, your lungs work, and you breathe.

The body's speed of information-processing is far beyond that of any computer. Whatever you do, from the simplest task to the most difficult, your body performs unbelievable calculations.

Clearly, all this takes place as the result of a creation requiring infinite might. That infinite might belongs to Almighty Allah, Creator of the entire universe.

. . . No, everything in the heavens and Earth belongs to Him. Everything is obedient to Him. (Surat al-Baqara: 116)

The Harmonious Working of the Muscles

For just a small smile, seventeen separate muscles have to act at the same moment and perform their correct functions. If just one of those 17 muscles fails to function correctly, then the smile will not appear, and furthermore the person's facial expression cannot be interpreted.

In the human face, there are 28 muscles whose sole task is facial expression. By contracting in various combinations, these muscles can produce thousands of different

expressions. The human face has an expression, shaped by the muscles, for every state of mind, such as anger, surprise, comfort, and enjoyment.

For you to take one simple step, 54 separate muscles in your feet and back have to work in harmony together. Holding a flower or drinking a glass of water is possible thanks to the help of 27 bones and the perfect muscular and nervous systems that direct them.

Functions such as smiling, speaking, blinking, walking and running may be very familiar, but nonetheless everyone who reads about them must stop once again and think. All the muscles, bones and cells operate independently of the individual. No one has any power to add any new organ. Even modern technology can not produce systems similar to those in the human body. For that reason, people must not forget for even a moment that they are indebted to this flawless system in their bodies—in other words, to Allah Who created it for them—every time they smile, and must give thanks for it.

Allah has created human beings in a perfect manner. As is revealed in verses He has formed and proportioned them. The human body is one of the proofs of Allah's power and infinite knowledge. Everyone capable of using his or her reason will clearly see this truth. "O man! What has deluded you in respect of your Noble Lord? He Who created you and formed you and proportioned you and assembled you in whatever way He willed. . . ." (Surat al-Infitar: 6-8)

Blinking and Load-Bearing

Every one of the hundreds of muscles in the body has unique features such as its length, lifting power, ability to perform sensitive processes, and elasticity.

Muscles perform a great many different functions, from simple actions such as blinking the eyelids to lifting heavy weights. In their structure, for example, the eye muscles are very different from those in the arms or legs. One feature all muscles have in common, however, is that they work at a high productivity, in flawless harmony and produce considerable force.

The total power of all the muscles in your body is so considerable that if it were possible to employ all the muscles at once, then you would be strong enough to lift a large truck.⁷⁵

As we'll consider in detail in the following sections, that every muscle has its own particular attributes shows the existence of a manifest creation. The location of every muscle in just the right place, their ideal sizes, elasticity and capacities are all very different, but cannot be explained in terms of chance. Every muscle has been located in just the right place, with just the right features. For example, it would be meaningless for an eye muscle to have the same features as ones in the arm. Far from being beneficial, it would be positively damaging for a muscle similar to the heart muscle, which works involuntarily, to be in our leg muscles. Indeed, none of these mismatches occur. Every muscle is in just the right location, with just the right characteristics.

If you want to lift anything, your central nervous system has to know the present length of your arm muscles, their condition and tension, to provide the most appropriate contraction. When your arm has reached the object in question, the central nervous system must halt the contraction while setting into action the muscles of the hand that will take hold of the object. Once you have grasped the object, the necessary information for extending your arm must be transmitted to the special sense organs known as muscle marrow. If the chemical mechanism essential for us to perform any action is obstructed for any reason, the end result is paralysis.

Paralysis means the loss of a muscle's function, due to the incapacity of the nerves leading to it. Someone with a paralyzed arm, for instance, is quite unable to move it. The nerve cells extending to the bicep and triceps have lost their function and are unable to forward on instructions from the brain telling these muscles to contract. The arm is thus unable to function, even if it is otherwise healthy.

One single nerve cell failing to forward a signal is sufficient for an organ failing to work. Therefore, the lack of just one component of a system will result in its collapse. In addition, as you have seen, there is stage-by-stage flow of information in the working of the muscles. Wherever information exists, intelligence is also needed for all the elements in the system to understand and act on the arriving messages. In this case, the muscles act in accordance with the instructions they receive from the spinal cord. In addition, your voluntary muscles work when you want them to—so in order for them to act, the need to know what you are thinking.

View in this way, it's clear that the information possessed by the muscles, the system that ensures the links between them, or their ability to obey our thoughts can never come into existence by chance. Yet also, muscle cells clearly cannot exhibit intelligence.

This system has existed since the first human came into being, and has been working perfectly ever since. The muscles of the first human possessed the same information as will those of every other human who ever comes into the world.

That is because Allah has created human beings in a perfect proportion. Everything we have learned leads us to the glory and superior might of Allah.

It is Allah Who made the Earth a stable home for you and the sky a dome, and formed you, giving you the best of forms, and provided you with good and wholesome things. That is Allah, your Lord. Blessed be Allah, the Lord of all the worlds. He is the Living—there is no deity but Him—so call on Him, making your religion sincerely His. Praise be to Allah, the Lord of all the worlds. (Surah Ghafir: 64-65)

The Reason for Ease of Movement: Flawless Harmony

Muscles in the human body always move in one direction. The bicep, for example, bends the arm, but cannot restore it to its former position. The triceps muscle is therefore needed to straighten the arm out again, to its former position. These muscles have to act consecutively; otherwise, if one were to start contracting while the other was still functioning, the arm could not move at all. Flawless coordination regulates the order in which the muscles in the body act.

There is no doubt that the bones are the most important factor in the transformation into energy of the power produced in the muscles. As a muscle contracts, it pulls on a bone and enables it to move. Opposing muscles are perfectly and securely attached to the bones by ligaments so that they can move in both directions. Were it not for the bones, the strength the muscles produce could not be translated into movement. Similarly, were it not for the muscles, the bones could not move at all.

In order for a human to move, more than 200 bones and 400 muscles must work together in a coordinated manner. The bones are joined to one another to permit the most ideal movement. Each muscle has been located in such a way as to allow the bones to move comfortably. Obvious creation can be observed in every detail, from the movement permitted the body by these dual systems, to the structure of the tendons joining muscle to bone. Bones never separate from one another because they are loosely connected, and muscles are never prevented from moving because the joints between bones are too tight.

Of course, the bone tissue or the cells that comprise that tissue do not make these decisions. Cells and tissues are devoid of consciousness. Nor is it possible for this information to be placed inside the cell in any way. There must therefore be some Force that installs this information in the cell, that teaches it how to behave—that rules it, in other words. This incomparable knowledge and might belong to Allah, Who maintains everything under His control.

**Do you not know that Allah is He to Whom the kingdom of the heavens and the Earth belongs and that, besides Allah, you have no protector and no helper?
(Surat al-Baqara: 107)**

CONCLUSION: HUMAN BEINGS ARE CREATED BY ALLAH

While reading this book, you may have come to understand how your muscles and bones work together in moving your legs. As you chewed a meal, you may have thought how it was being made ready for digestion. And after going to bed, you may have listened to your heartbeat and remembered that the human heart has a spare generator. The muscles in your hand may now come to mind as you read this page, and you've tried to follow the movements of your fingers.

It's important that your feelings and thoughts should maintain their influence in the days that follow. And think of the facts related throughout this book in the face of all events. The purpose behind writing this book is not simply to provide you with biological information about your human body. The interesting comparisons and examples, striking accounts and detailed information in the book are intended to eliminate any erroneous interpretation of the miraculous events taking place at every moment in the body. Besides avoiding the error of regarding these phenomena as ordinary, you've been asked questions to encourage you to think with a little effort and acquire greater understanding. Eradicating the "myth of chance" that hypnotizes people into regarding evolutionary scenarios as scientific fact is possible only through these methods.

With the revelation of evolutionists' logical inconsistencies, you can also clearly see that the "scientific" mask worn by the theory of evolution is nothing more than a deception.

By eradicating the spell of evolution, the manifest truth of creation can be seen. As this book has explained in considerable detail, Allah has created man without flaw, and has revealed this in His verses.

Our bodies work non-stop 24 hours a day as a blessing for us. Do not forget, however, that everything you read in this book entitled *The Human Miracle* takes place not only in your own body, but in those of your parents, siblings, children, spouse, relatives and neighbors—in short in all the other human beings in the world. These systems have also been present, fully formed and wholly functional, in the bodies of everyone who has ever lived—and by Allah's leave, in all those who live in the future.

This is the creation of Allah, the Lord of the Worlds! Allah's might is infinite.

Those able to using their reason and conscience, who can see this manifest truth, will live with the sole aim of pleasing their Lord.

THE DECEPTION OF EVOLUTION

Darwinism, in other words the theory of evolution, was put forward with the aim of denying the fact of creation, but is in truth nothing but failed, unscientific nonsense. This theory, which claims that life emerged by chance from inanimate matter, was invalidated by the scientific evidence of miraculous order in the universe and in living things. In this way, science confirmed the fact that Allah created the universe and the living things in it. The propaganda carried out today in order to keep the theory of evolution alive is based solely on the distortion of the scientific facts, biased interpretation, and lies and falsehoods disguised as science.

Yet this propaganda cannot conceal the truth. The fact that the theory of evolution is the greatest deception in the history of science has been expressed more and more in the scientific world over the last 20-30 years. Research carried out after the 1980s in particular has revealed that the claims of Darwinism are totally unfounded, something that has been stated by a large number of scientists. In the United States in particular, many scientists from such different fields as biology, biochemistry and paleontology recognize the invalidity of Darwinism and employ the fact of creation to account for the origin of life.

We have examined the collapse of the theory of evolution and the proofs of creation in great scientific detail in many of our works, and are still continuing to do so. Given the enormous importance of this subject, it will be of great benefit to summarize it here.

The Scientific Collapse of Darwinism

Although this doctrine goes back as far as ancient Greece, the theory of evolution was advanced extensively in the nineteenth century. The most important development that made it the top topic of the world of science was Charles Darwin's *The Origin of Species*, published in 1859. In this book, he denied that Allah created different living species on Earth separately, for he claimed that all living beings had a common ancestor and had diversified over time through small changes. Darwin's theory was not based on any concrete scientific finding; as he also accepted, it was just an "assumption." Moreover, as Darwin confessed in the long chapter of his book titled "Difficulties on Theory," the theory failed in the face of many critical questions.

Darwin invested all of his hopes in new scientific discoveries, which he expected to solve these difficulties. However, contrary to his expectations, scientific findings expanded the dimensions of these difficulties. The defeat of Darwinism in the face of science can be reviewed under three basic topics:

- 1) The theory cannot explain how life originated on Earth.
- 2) No scientific finding shows that the "evolutionary mechanisms" proposed by the theory have any evolutionary power at all.

3) The fossil record proves the exact opposite of what the theory suggests.
In this section, we will examine these three basic points in general outlines:

The First Insurmountable Step: The Origin of Life

The theory of evolution posits that all living species evolved from a single living cell that emerged on the primitive Earth 3.8 billion years ago. How a single cell could generate millions of complex living species and, if such an evolution really occurred, why traces of it cannot be observed in the fossil record are some of the questions that the theory cannot answer. However, first and foremost, we need to ask: How did this "first cell" originate?

Since the theory of evolution denies creation and any kind of supernatural intervention, it maintains that the "first cell" originated coincidentally within the laws of nature, without any design, plan or arrangement. According to the theory, inanimate matter must have produced a living cell as a result of coincidences. Such a claim, however, is inconsistent with the most unassailable rules of biology.

Life Comes From Life

In his book, Darwin never referred to the origin of life. The primitive understanding of science in his time rested on the assumption that living beings had a very simple structure. Since medieval times, spontaneous generation, which asserts that non-living materials came together to form living organisms, had been widely accepted. It was commonly believed that insects came into being from food leftovers, and mice from wheat. Interesting experiments were conducted to prove this theory. Some wheat was placed on a dirty piece of cloth, and it was believed that mice would originate from it after a while.

Similarly, maggots developing in rotting meat was assumed to be evidence of spontaneous generation. However, it was later understood that worms did not appear on meat spontaneously, but were carried there by flies in the form of larvae, invisible to the naked eye.

Even when Darwin wrote *The Origin of Species*, the belief that bacteria could come into existence from non-living matter was widely accepted in the world of science.

However, five years after the publication of Darwin's book, Louis Pasteur announced his results after long studies and experiments, that disproved spontaneous generation, a cornerstone of Darwin's theory. In his triumphal lecture at the Sorbonne in 1864, Pasteur said: "Never will the doctrine of spontaneous generation recover from the mortal blow struck by this simple experiment."⁷⁶

For a long time, advocates of the theory of evolution resisted these findings. However, as the development of science unraveled the complex structure of the cell of a

living being, the idea that life could come into being coincidentally faced an even greater impasse.

Inconclusive Efforts of the Twentieth Century

The first evolutionist who took up the subject of the origin of life in the twentieth century was the renowned Russian biologist Alexander Oparin. With various theses he advanced in the 1930s, he tried to prove that a living cell could originate by coincidence. These studies, however, were doomed to failure, and Oparin had to make the following confession:

Unfortunately, however, the problem of the origin of the cell is perhaps the most obscure point in the whole study of the evolution of organisms.⁷⁷

Evolutionist followers of Oparin tried to carry out experiments to solve this problem. The best known experiment was carried out by the American chemist Stanley Miller in 1953. Combining the gases he alleged to have existed in the primordial Earth's atmosphere in an experiment set-up, and adding energy to the mixture, Miller synthesized several organic molecules (amino acids) present in the structure of proteins.

Barely a few years had passed before it was revealed that this experiment, which was then presented as an important step in the name of evolution, was invalid, for the atmosphere used in the experiment was very different from the real Earth conditions.⁷⁸

After a long silence, Miller confessed that the atmosphere medium he used was unrealistic.⁷⁹

All the evolutionists' efforts throughout the twentieth century to explain the origin of life ended in failure. The geochemist Jeffrey Bada, from the San Diego Scripps Institute accepts this fact in an article published in *Earth* magazine in 1998:

Today as we leave the twentieth century, we still face the biggest unsolved problem that we had when we entered the twentieth century: How did life originate on Earth?⁸⁰

The Complex Structure of Life

The primary reason why the theory of evolution ended up in such a great impasse regarding the origin of life is that even those living organisms deemed to be the simplest have incredibly complex structures. The cell of a living thing is more complex than all of our man-made technological products. Today, even in the most developed laboratories of the world, a living cell cannot be produced by bringing organic chemicals together.

The conditions required for the formation of a cell are too great in quantity to be explained away by coincidences. The probability of proteins, the building blocks of a cell, being synthesized coincidentally, is 1 in 10^{950} for an average protein made up of 500 amino acids. In mathematics, a probability smaller than 1 over 10^{50} is considered to be impossible in practical terms.

The DNA molecule, which is located in the nucleus of a cell and which stores genetic information, is an incredible databank. If the information coded in DNA were written down, it would make a giant library consisting of an estimated 900 volumes of encyclopedias consisting of 500 pages each.

A very interesting dilemma emerges at this point: DNA can replicate itself only with the help of some specialized proteins (enzymes). However, the synthesis of these enzymes can be realized only by the information coded in DNA. As they both depend on each other, they have to exist at the same time for replication. This brings the scenario that life originated by itself to a deadlock. Prof. Leslie Orgel, an evolutionist of repute from the University of San Diego, California, confesses this fact in the September 1994 issue of the *Scientific American* magazine:

It is extremely improbable that proteins and nucleic acids, both of which are structurally complex, arose spontaneously in the same place at the same time. Yet it also seems impossible to have one without the other. And so, at first glance, one might have to conclude that life could never, in fact, have originated by chemical means.⁸¹

No doubt, if it is impossible for life to have originated from natural causes, then it has to be accepted that life was "created" in a supernatural way. This fact explicitly invalidates the theory of evolution, whose main purpose is to deny creation.

Imaginary Mechanism of Evolution

The second important point that negates Darwin's theory is that both concepts put forward by the theory as "evolutionary mechanisms" were understood to have, in reality, no evolutionary power.

Darwin based his evolution allegation entirely on the mechanism of "natural selection." The importance he placed on this mechanism was evident in the name of his book: *The Origin of Species, By Means of Natural Selection...*

Natural selection holds that those living things that are stronger and more suited to the natural conditions of their habitats will survive in the struggle for life. For example, in a deer herd under the threat of attack by wild animals, those that can run faster will survive. Therefore, the deer herd will be comprised of faster and stronger individuals. However, unquestionably, this mechanism will not cause deer to evolve and transform themselves into another living species, for instance, horses.

Therefore, the mechanism of natural selection has no evolutionary power. Darwin was also aware of this fact and had to state this in his book *The Origin of Species*:

Natural selection can do nothing until favourable individual differences or variations occur.⁸²

Lamarck's Impact

So, how could these "favorable variations" occur? Darwin tried to answer this question from the standpoint of the primitive understanding of science at that time.

According to the French biologist Chevalier de Lamarck (1744-1829), who lived before Darwin, living creatures passed on the traits they acquired during their lifetime to the next generation. He asserted that these traits, which accumulated from one generation to another, caused new species to be formed. For instance, he claimed that giraffes evolved from antelopes; as they struggled to eat the leaves of high trees, their necks were extended from generation to generation.

Darwin also gave similar examples. In his book *The Origin of Species*, for instance, he said that some bears going into water to find food transformed themselves into whales over time.⁸³

However, the laws of inheritance discovered by Gregor Mendel (1822-84) and verified by the science of genetics, which flourished in the twentieth century, utterly demolished the legend that acquired traits were passed on to subsequent generations. Thus, natural selection fell out of favor as an evolutionary mechanism.

Neo-Darwinism and Mutations

In order to find a solution, Darwinists advanced the "Modern Synthetic Theory," or as it is more commonly known, Neo-Darwinism, at the end of the 1930s. Neo-Darwinism added mutations, which are distortions formed in the genes of living beings due to such external factors as radiation or replication errors, as the "cause of favorable variations" in addition to natural mutation.

Today, the model that stands for evolution in the world is Neo-Darwinism. The theory maintains that millions of living beings formed as a result of a process whereby numerous complex organs of these organisms (e.g., ears, eyes, lungs, and wings) underwent "mutations," that is, genetic disorders. Yet, there is an outright scientific fact that totally undermines this theory: Mutations do not cause living beings to develop; on the contrary, they are always harmful.

The reason for this is very simple: DNA has a very complex structure, and random effects can only harm it. The American geneticist B. G. Ranganathan explains this as follows:

First, genuine mutations are very rare in nature. Secondly, most mutations are harmful since they are random, rather than orderly changes in the structure of genes; any random change in a highly ordered system will be for the worse, not for the better. For example, if an earthquake were to shake a highly ordered structure such as a building, there would be a random change in the framework of the building which, in all probability, would not be an improvement.⁸⁴

Not surprisingly, no mutation example, which is useful, that is, which is observed to develop the genetic code, has been observed so far. All mutations have proved to be harmful. It was understood that mutation, which is presented as an "evolutionary mechanism," is actually a genetic occurrence that harms living things, and leaves them disabled. (The most common effect of mutation on human beings is cancer.) Of course, a

destructive mechanism cannot be an "evolutionary mechanism." Natural selection, on the other hand, "can do nothing by itself," as Darwin also accepted. This fact shows us that there is no "evolutionary mechanism" in nature. Since no evolutionary mechanism exists, no such any imaginary process called "evolution" could have taken place.

The Fossil Record: No Sign of Intermediate Forms

The clearest evidence that the scenario suggested by the theory of evolution did not take place is the fossil record.

According to this theory, every living species has sprung from a predecessor. A previously existing species turned into something else over time and all species have come into being in this way. In other words, this transformation proceeds gradually over millions of years.

Had this been the case, numerous intermediary species should have existed and lived within this long transformation period.

For instance, some half-fish/half-reptiles should have lived in the past which had acquired some reptilian traits in addition to the fish traits they already had. Or there should have existed some reptile-birds, which acquired some bird traits in addition to the reptilian traits they already had. Since these would be in a transitional phase, they should be disabled, defective, crippled living beings. Evolutionists refer to these imaginary creatures, which they believe to have lived in the past, as "transitional forms."

If such animals ever really existed, there should be millions and even billions of them in number and variety. More importantly, the remains of these strange creatures should be present in the fossil record. In *The Origin of Species*, Darwin explained:

If my theory be true, numberless intermediate varieties, linking most closely all of the species of the same group together must assuredly have existed... Consequently, evidence of their former existence could be found only amongst fossil remains.⁸⁵

Darwin's Hopes Shattered

However, although evolutionists have been making strenuous efforts to find fossils since the middle of the nineteenth century all over the world, no transitional forms have yet been uncovered. All of the fossils, contrary to the evolutionists' expectations, show that life appeared on Earth all of a sudden and fully-formed.

One famous British paleontologist, Derek V. Ager, admits this fact, even though he is an evolutionist:

The point emerges that if we examine the fossil record in detail, whether at the level of orders or of species, we find – over and over again – not gradual evolution, but the sudden explosion of one group at the expense of another.⁸⁶

This means that in the fossil record, all living species suddenly emerge as fully formed, without any intermediate forms in between. This is just the opposite of Darwin's

assumptions. Also, this is very strong evidence that all living things are created. The only explanation of a living species emerging suddenly and complete in every detail without any evolutionary ancestor is that it was created. This fact is admitted also by the widely known evolutionist biologist Douglas Futuyma:

Creation and evolution, between them, exhaust the possible explanations for the origin of living things. Organisms either appeared on the earth fully developed or they did not. If they did not, they must have developed from pre-existing species by some process of modification. If they did appear in a fully developed state, they must indeed have been created by some omnipotent intelligence.⁸⁷

Fossils show that living beings emerged fully developed and in a perfect state on the Earth. That means that "the origin of species," contrary to Darwin's supposition, is not evolution, but creation.

The Tale of Human Evolution

The subject most often brought up by advocates of the theory of evolution is the subject of the origin of man. The Darwinist claim holds that modern man evolved from ape-like creatures. During this alleged evolutionary process, which is supposed to have started 4-5 million years ago, some "transitional forms" between modern man and his ancestors are supposed to have existed. According to this completely imaginary scenario, four basic "categories" are listed:

1. *Australopithecus*
2. *Homo habilis*
3. *Homo erectus*
4. *Homo sapiens*

Evolutionists call man's so-called first ape-like ancestors *Australopithecus*, which means "South African ape." These living beings are actually nothing but an old ape species that has become extinct. Extensive research done on various *Australopithecus* specimens by two world famous anatomists from England and the USA, namely, Lord Solly Zuckerman and Prof. Charles Oxnard, shows that these apes belonged to an ordinary ape species that became extinct and bore no resemblance to humans.⁸⁸

Evolutionists classify the next stage of human evolution as "homo," that is "man." According to their claim, the living beings in the *Homo* series are more developed than *Australopithecus*. Evolutionists devise a fanciful evolution scheme by arranging different fossils of these creatures in a particular order. This scheme is imaginary because it has never been proved that there is an evolutionary relation between these different classes. Ernst Mayr, one of the twentieth century's most important evolutionists, contends in his book *One Long Argument* that "particularly historical [puzzles] such as the origin of life or of *Homo sapiens*, are extremely difficult and may even resist a final, satisfying explanation."⁸⁹

By outlining the link chain as *Australopithecus* > *Homo habilis* > *Homo erectus* > *Homo sapiens*, evolutionists imply that each of these species is one another's ancestor. However, recent findings of paleoanthropologists have revealed that *Australopithecus*, *Homo habilis*, and *Homo erectus* lived at different parts of the world at the same time.⁹⁰

Moreover, a certain segment of humans classified as *Homo erectus* have lived up until very modern times. *Homo sapiens neandarthensis* and *Homo sapiens sapiens* (modern man) co-existed in the same region.⁹¹

This situation apparently indicates the invalidity of the claim that they are ancestors of one another. Stephen Jay Gould explained this deadlock of the theory of evolution, although he was himself one of the leading advocates of evolution in the twentieth century:

What has become of our ladder if there are three coexisting lineages of hominids (*A. africanus*, the robust australopithecines, and *H. habilis*), none clearly derived from another? Moreover, none of the three display any evolutionary trends during their tenure on earth.⁹²

Put briefly, the scenario of human evolution, which is "upheld" with the help of various drawings of some "half ape, half human" creatures appearing in the media and course books, that is, frankly, by means of propaganda, is nothing but a tale with no scientific foundation.

Lord Solly Zuckerman, one of the most famous and respected scientists in the U.K., who carried out research on this subject for years and studied *Australopithecus* fossils for 15 years, finally concluded, despite being an evolutionist himself, that there is, in fact, no such family tree branching out from ape-like creatures to man.

Zuckerman also made an interesting "spectrum of science" ranging from those he considered scientific to those he considered unscientific. According to Zuckerman's spectrum, the most "scientific" – that is, depending on concrete data – fields of science are chemistry and physics. After them come the biological sciences and then the social sciences. At the far end of the spectrum, which is the part considered to be most "unscientific," are "extra-sensory perception" – concepts such as telepathy and sixth sense – and finally "human evolution." Zuckerman explains his reasoning:

We then move right off the register of objective truth into those fields of presumed biological science, like extrasensory perception or the interpretation of man's fossil history, where to the faithful [evolutionist] anything is possible – and where the ardent believer [in evolution] is sometimes able to believe several contradictory things at the same time.⁹³

The tale of human evolution boils down to nothing but the prejudiced interpretations of some fossils unearthed by certain people, who blindly adhere to their theory.

Darwinian Formula!

Besides all the technical evidence we have dealt with so far, let us now for once, examine what kind of a superstition the evolutionists have with an example so simple as to be understood even by children:

The theory of evolution asserts that life is formed by chance. According to this claim, lifeless and unconscious atoms came together to form the cell and then they somehow formed other living things, including man. Let us think about that. When we bring together the elements that are the building-blocks of life such as carbon, phosphorus, nitrogen and potassium, only a heap is formed. No matter what treatments it undergoes, this atomic heap cannot form even a single living being. If you like, let us formulate an "experiment" on this subject and let us examine on behalf of evolutionists what they really claim without pronouncing loudly under the name "Darwinian formula":

Let evolutionists put plenty of materials present in the composition of living things such as phosphorus, nitrogen, carbon, oxygen, iron, and magnesium into big barrels. Moreover, let them add in these barrels any material that does not exist under normal conditions, but they think as necessary. Let them add in this mixture as many amino acids and as many proteins – a single one of which has a formation probability of 10^{-950} – as they like. Let them expose these mixtures to as much heat and moisture as they like. Let them stir these with whatever technologically developed device they like. Let them put the foremost scientists beside these barrels. Let these experts wait in turn beside these barrels for billions, and even trillions of years. Let them be free to use all kinds of conditions they believe to be necessary for a human's formation. No matter what they do, they cannot produce from these barrels a human, say a professor that examines his cell structure under the electron microscope. They cannot produce giraffes, lions, bees, canaries, horses, dolphins, roses, orchids, lilies, carnations, bananas, oranges, apples, dates, tomatoes, melons, watermelons, figs, olives, grapes, peaches, peafowls, pheasants, multicoloured butterflies, or millions of other living beings such as these. Indeed, they could not obtain even a single cell of any one of them.

Briefly, unconscious atoms cannot form the cell by coming together. They cannot take a new decision and divide this cell into two, then take other decisions and create the professors who first invent the electron microscope and then examine their own cell structure under that microscope. Matter is an unconscious, lifeless heap, and it comes to life with Allah's superior creation.

The theory of evolution, which claims the opposite, is a total fallacy completely contrary to reason. Thinking even a little bit on the claims of evolutionists discloses this reality, just as in the above example.

Technology in the Eye and the Ear

Another subject that remains unanswered by evolutionary theory is the excellent quality of perception in the eye and the ear.

Before passing on to the subject of the eye, let us briefly answer the question of how we see. Light rays coming from an object fall oppositely on the eye's retina. Here, these light rays are transmitted into electric signals by cells and reach a tiny spot at the back of the brain, the "center of vision." These electric signals are perceived in this center as an image after a series of processes. With this technical background, let us do some thinking.

The brain is insulated from light. That means that its inside is completely dark, and that no light reaches the place where it is located. Thus, the "center of vision" is never touched by light and may even be the darkest place you have ever known. However, you observe a luminous, bright world in this pitch darkness.

The image formed in the eye is so sharp and distinct that even the technology of the twentieth century has not been able to attain it. For instance, look at the book you are reading, your hands with which you are holding it, and then lift your head and look around you. Have you ever seen such a sharp and distinct image as this one at any other place? Even the most developed television screen produced by the greatest television producer in the world cannot provide such a sharp image for you. This is a three-dimensional, colored, and extremely sharp image. For more than 100 years, thousands of engineers have been trying to achieve this sharpness. Factories, huge premises were established, much research has been done, plans and designs have been made for this purpose. Again, look at a TV screen and the book you hold in your hands. You will see that there is a big difference in sharpness and distinction. Moreover, the TV screen shows you a two-dimensional image, whereas with your eyes, you watch a three-dimensional perspective with depth.

For many years, tens of thousands of engineers have tried to make a three-dimensional TV and achieve the vision quality of the eye. Yes, they have made a three-dimensional television system, but it is not possible to watch it without putting on special 3-D glasses; moreover, it is only an artificial three-dimension. The background is more blurred, the foreground appears like a paper setting. Never has it been possible to produce a sharp and distinct vision like that of the eye. In both the camera and the television, there is a loss of image quality.

Evolutionists claim that the mechanism producing this sharp and distinct image has been formed by chance. Now, if somebody told you that the television in your room was formed as a result of chance, that all of its atoms just happened to come together and make up this device that produces an image, what would you think? How can atoms do what thousands of people cannot?

If a device producing a more primitive image than the eye could not have been formed by chance, then it is very evident that the eye and the image seen by the eye could not have been formed by chance. The same situation applies to the ear. The outer ear picks up the available sounds by the auricle and directs them to the middle ear, the middle ear transmits the sound vibrations by intensifying them, and the inner ear sends these

vibrations to the brain by translating them into electric signals. Just as with the eye, the act of hearing finalizes in the center of hearing in the brain.

The situation in the eye is also true for the ear. That is, the brain is insulated from sound just as it is from light. It does not let any sound in. Therefore, no matter how noisy is the outside, the inside of the brain is completely silent. Nevertheless, the sharpest sounds are perceived in the brain. In your completely silent brain, you listen to symphonies, and hear all of the noises in a crowded place. However, were the sound level in your brain measured by a precise device at that moment, complete silence would be found to be prevailing there.

As is the case with imagery, decades of effort have been spent in trying to generate and reproduce sound that is faithful to the original. The results of these efforts are sound recorders, high-fidelity systems, and systems for sensing sound. Despite all of this technology and the thousands of engineers and experts who have been working on this endeavor, no sound has yet been obtained that has the same sharpness and clarity as the sound perceived by the ear. Think of the highest-quality hi-fi systems produced by the largest company in the music industry. Even in these devices, when sound is recorded some of it is lost; or when you turn on a hi-fi you always hear a hissing sound before the music starts. However, the sounds that are the products of the human body's technology are extremely sharp and clear. A human ear never perceives a sound accompanied by a hissing sound or with atmospherics as does a hi-fi; rather, it perceives sound exactly as it is, sharp and clear. This is the way it has been since the creation of man.

So far, no man-made visual or recording apparatus has been as sensitive and successful in perceiving sensory data as are the eye and the ear. However, as far as seeing and hearing are concerned, a far greater truth lies beyond all this.

To Whom Does the Consciousness that Sees and Hears within the Brain Belong?

Who watches an alluring world in the brain, listens to symphonies and the twittering of birds, and smells the rose?

The stimulations coming from a person's eyes, ears, and nose travel to the brain as electro-chemical nerve impulses. In biology, physiology, and biochemistry books, you can find many details about how this image forms in the brain. However, you will never come across the most important fact: Who perceives these electro-chemical nerve impulses as images, sounds, odors, and sensory events in the brain? There is a consciousness in the brain that perceives all this without feeling any need for an eye, an ear, and a nose. To whom does this consciousness belong? Of course it does not belong to the nerves, the fat layer, and neurons comprising the brain. This is why Darwinist-materialists, who believe that everything is comprised of matter, cannot answer these questions.

For this consciousness is the spirit created by Allah, which needs neither the eye to watch the images nor the ear to hear the sounds. Furthermore, it does not need the brain to think.

Everyone who reads this explicit and scientific fact should ponder on Almighty Allah, and fear and seek refuge in Him, for He squeezes the entire universe in a pitch-dark place of a few cubic centimeters in a three-dimensional, colored, shadowy, and luminous form.

A Materialist Faith

The information we have presented so far shows us that the theory of evolution is incompatible with scientific findings. The theory's claim regarding the origin of life is inconsistent with science, the evolutionary mechanisms it proposes have no evolutionary power, and fossils demonstrate that the required intermediate forms have never existed. So, it certainly follows that the theory of evolution should be pushed aside as an unscientific idea. This is how many ideas, such as the Earth-centered universe model, have been taken out of the agenda of science throughout history.

However, the theory of evolution is kept on the agenda of science. Some people even try to represent criticisms directed against it as an "attack on science." Why?

The reason is that this theory is an indispensable dogmatic belief for some circles. These circles are blindly devoted to materialist philosophy and adopt Darwinism because it is the only materialist explanation that can be put forward to explain the workings of nature.

Interestingly enough, they also confess this fact from time to time. A well-known geneticist and an outspoken evolutionist, Richard C. Lewontin from Harvard University, confesses that he is "first and foremost a materialist and then a scientist":

It is not that the methods and institutions of science somehow compel us accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, so we cannot allow a Divine [intervention]...⁹⁴

These are explicit statements that Darwinism is a dogma kept alive just for the sake of adherence to materialism. This dogma maintains that there is no being other than matter. Therefore, it argues that inanimate, unconscious matter created life. It insists that millions of different living species (e.g., birds, fish, giraffes, tigers, insects, trees, flowers, whales, and human beings) originated as a result of the interactions between matter such as pouring rain, lightning flashes, and so on, out of inanimate matter. This is a precept contrary both to reason and science. Yet Darwinists continue to defend it just so as "not to allow a Divine intervention."

Anyone who does not look at the origin of living beings with a materialist prejudice will see this evident truth: All living beings are works of a Creator, Who is All-Powerful, All-Wise, and All-Knowing. This Creator is Allah, Who created the whole universe from non-existence in the most perfect form, and fashioned all living beings.

The Theory of Evolution: The Most Potent Spell in the World

Anyone free of prejudice and the influence of any particular ideology, who uses only his or her reason and logic, will clearly understand that belief in the theory of evolution, which brings to mind the superstitions of societies with no knowledge of science or civilization, is quite impossible.

As explained above, those who believe in the theory of evolution think that a few atoms and molecules thrown into a huge vat could produce thinking, reasoning professors and university students; such scientists as Einstein and Galileo; such artists as Humphrey Bogart, Frank Sinatra and Luciano Pavarotti; as well as antelopes, lemon trees, and carnations. Moreover, as the scientists and professors who believe in this nonsense are educated people, it is quite justifiable to speak of this theory as "the most potent spell in history." Never before has any other belief or idea so taken away peoples' powers of reason, refused to allow them to think intelligently and logically, and hidden the truth from them as if they had been blindfolded. This is an even worse and unbelievable blindness than the totem worship in some parts of Africa, the people of Saba worshipping the Sun, the tribe of Abraham (pbuh) worshipping idols they had made with their own hands, or the people of Moses (pbuh) worshipping the Golden Calf.

In fact, Allah has pointed to this lack of reason in the Qur'an. In many verses, He reveals that some peoples' minds will be closed and that they will be powerless to see the truth. Some of these verses are as follows:

As for those who do not believe, it makes no difference to them whether you warn them or do not warn them, they will not believe. Allah has sealed up their hearts and hearing and over their eyes is a blindfold. They will have a terrible punishment. (Surat al-Baqara: 6-7)

... They have hearts with which they do not understand. They have eyes with which they do not see. They have ears with which they do not hear. Such people are like cattle. No, they are even further astray! They are the unaware. (Surat al-A'raf: 179)

Even if We opened up to them a door into heaven, and they spent the day ascending through it, they would only say: "Our eyesight is befuddled! Or rather we have been put under a spell!" (Surat al-Hijr: 14-15)

Words cannot express just how astonishing it is that this spell should hold such a wide community in thrall, keep people from the truth, and not be broken for 150 years. It is understandable that one or a few people might believe in impossible scenarios and claims full of stupidity and illogicality. However, "magic" is the only possible explanation for people from all over the world believing that unconscious and lifeless atoms suddenly decided to come together and form a universe that functions with a flawless system of organization, discipline, reason, and consciousness; a planet named Earth with all of its features so perfectly suited to life; and living things full of countless complex systems.

In fact, the Qur'an relates the incident of Moses (pbuh) and Pharaoh to show that some people who support atheistic philosophies actually influence others by magic. When Pharaoh was told about the true religion, he told Prophet Moses (pbuh) to meet with his own magicians. When Moses (pbuh) did so, he told them to demonstrate their abilities first. The verses continue:

He said: "You throw." And when they threw, they cast a spell on the people's eyes and caused them to feel great fear of them. They produced an extremely powerful magic. (Surat al-A'raf: 116)

As we have seen, Pharaoh's magicians were able to deceive everyone, apart from Moses (pbuh) and those who believed in him. However, his evidence broke the spell, or "swallowed up what they had forged," as the verse puts it:

We revealed to Moses: "Throw down your staff." And it immediately swallowed up what they had forged. So the Truth took place and what they did was shown to be false. (Surat al-A'raf: 117-118)

As we can see, when people realized that a spell had been cast upon them and that what they saw was just an illusion, Pharaoh's magicians lost all credibility. In the present day too, unless those who, under the influence of a similar spell, believe in these ridiculous claims under their scientific disguise and spend their lives defending them, abandon their superstitious beliefs, they also will be humiliated when the full truth emerges and the spell is broken. In fact, world-renowned British writer and philosopher Malcolm Muggeridge, who was an atheist defending evolution for some 60 years, but who subsequently realized the truth, reveals the position in which the theory of evolution would find itself in the near future in these terms:

I myself am convinced that the theory of evolution, especially the extent to which it's been applied, will be one of the great jokes in the history books in the future. Posterity will marvel that so very flimsy and dubious an hypothesis could be accepted with the incredible credulity that it has.⁹⁵

That future is not far off: On the contrary, people will soon see that "chance" is not a deity, and will look back on the theory of evolution as the worst deceit and the most terrible spell in the world. That spell is already rapidly beginning to be lifted from the shoulders of people all over the world. Many people who see its true face are wondering with amazement how they could ever have been taken in by it.

**They said, "Glory be to You!
We have no knowledge except what You have taught us.
You are the All-Knowing, the All-Wise."
(Surat al-Baqara, 32)**

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About the Author

Adnan Oktar, who writes under the pen-name Harun Yahya, was born in Ankara in 1956. He studied arts at Istanbul's Mimar Sinan University, and philosophy at Istanbul University. Since the 1980s, the author has published many books on political, faith-related and scientific issues. Greatly appreciated all around the world, these works have been instrumental in helping many to return their faith in Allah, and, in many others, to gain a deeper insight into their faith. Harun Yahya's books appeal to all kinds of readers, regardless of their age, race, or nationality, for they focus on one objective: to broaden the reader's perspective by encouraging him or her to think about a number of critical issues, such as the existence of Allah and His unity, and to live by the values He prescribed for them.