HARUN YAHYA

THE CELL IN 40 TOPICS

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This holds true for the human body which possesses many marvelous features in addition to the perfection of its external appearance. Without learning and reflecting on these details, you cannot come to a full realization of the miracles occurring within you. The fact is, however, extraordinary, near-instantaneous events take place inside your body whenever you fear that a car is about to run into you, when you catch the flu, suffer a rise in blood pressure, or even greet a friend. Molecules invisible to the naked eye work like honeybees inside your cells, performing in a matter of seconds or even microseconds actions that are so complex and require such sophisticated expertise that even cellular biologists have some difficulty in comprehending them—much less explaining them.

Almighty God, Creator of the entire universe and all living things and human beings without doubt created these molecules, with their flawless systems and breathtaking abilities, for a particular purpose. For that reason, it behooves anyone possessed of reason and good conscience to learn and reflect on the miracles in God's creation.

This book has been written to set forth certain proofs of the existence of our Lord, the Compassionate and Merciful, and the perfection of His creation, in a manner that every reader can easily comprehend.

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 God, 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 God and His unity, and to live by the values He prescribed for them.


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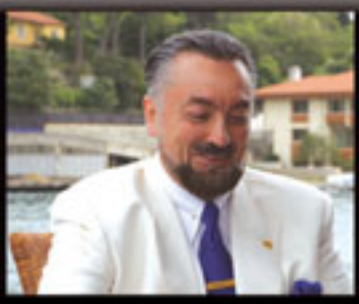


The Cell in 40 Topics

Harun Yahya



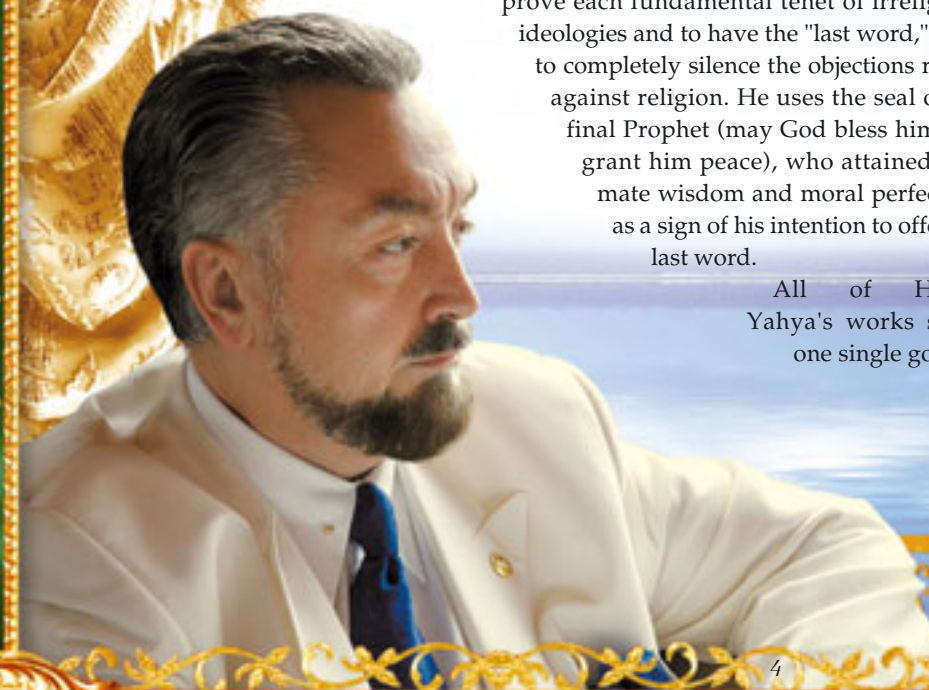
About the Author

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's 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 72 different languages, constitute a collection for a total of more than 55,000 pages with 40,000 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 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 God bless him and grant him peace), last of the prophets. Under the guidance of the Qur'an and the Sunnah (teachings of the Prophet [may God bless him and grant him peace), 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 God 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 God'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 God 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, sincethese 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 God'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 God, 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 God, 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, God's existence—over the last 150 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 chance to read only one of our books, we think it is 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 God's words and to live by them. All the subjects concerning God'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 God. 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.

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All translations from the Qur'an are from *The Noble Qur'an: a New Rendering of its Meaning in English* by Hajj Abdalhaqq and Aisha Bewley, published by Bookwork, Norwich, UK. 1420 CE/1999 AH.

Abbreviation used:

(pbuh): Peace be upon him (following a reference to the prophets)

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Introduction

In order to fully appreciate the marvels in any construction or invention, one first needs to assemble detailed information about it and how it must have come to be.

For example, someone who lacks full, detailed knowledge concerning the pyramids of Egypt at Giza may dismiss them as simply so many piles of stone in the middle of the desert, and be quite unable to understand why they were widely considered to be one of the Seven Wonders of the World. Yet when one discovers that each one of these pyramids consists of some 2.3 million stone blocks weighing an average of 2.5 tons (2.75 short tons) each, that gives him pause. And when he learns about the geometrical knowledge used in the pyramids' location, the accuracy in the cutting of their blocks, the enormous sizes of the structures and the prevailing technology that was applied during the times in question, it is clear that one is dealing with a great miracle. Further, when one also learns about the pyramids' internal design, the secret chambers in them and many other hidden features, then one's amazement increases exponentially.

An even greater complexity is also displayed in the human body, which possesses many marvelous features in addition to the perfection of its external appearance. Without learning and reflecting on these details, you cannot come to a full realization of the miracles occurring within you. The fact is, however, extraordinary, near-instantaneous events take place

inside your body whenever you fear that a car is about to run into you, when you catch the flu, suffer a rise in blood pressure, or even greet a friend. Molecules invisible to the naked eye work like honeybees inside your cells, performing in a matter of seconds or even microseconds actions that are so complex and require such sophisticated expertise that even cellular biologists have some difficulty in comprehending them—much less explaining them.

Almighty God, Creator of the entire universe and all living things and human beings without doubt created these molecules, with their flawless systems and breathtaking abilities, for a particular purpose. For that reason, it behooves anyone possessed of reason and good conscience to learn and reflect on the miracles in God's creation. Learning about them will be help you better understand the infinite might, knowledge, intelligence, greatness and glory of our Lord, the Creator of all these marvels.

As God has revealed in one verse:

... Only those of His servants with knowledge have fear of God. God is Almighty, Ever-Forgiving. (Surah Fatir, 28)

This book has been written to set forth certain proofs of the existence of our Lord, the Compassionate and Merciful, and the perfection of His creation, in a manner that every reader can easily comprehend. Man is an entity created by God. As you shall be discovering throughout this book, humans—right down to their tiniest atoms and molecules—behave with God's permission and knowledge and, like all entities in the universe, are totally submitted to Him. As God reveals in verses:

Everyone in the heavens and earth belongs to Him. All are submissive to Him. It is He Who originated creation and then regenerates it. That is very easy for Him. His is the most exalted designation in the heavens and the earth. He is the Almighty, the All-Wise. (Surat ar-Rum, 26-27)

In the creation of the heavens and the earth, and the alternation of night and day, there are signs for people with intelligence: those who remember God, 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, 190-191)

1.

Monitors That Control the Level of Fluids in the Blood

The level of water within the human body is of the greatest importance, because if it falls below a certain level or accumulates to excess, that life-giving water can give rise to possibly fatal results. Do you know what the ideal amount of water in your body is? Moreover, are you able to determine the amount of water your body contains and take steps to maintain that ideal level? Of course not! Until you read this page, you may never even have considered that question. That is because your body contains an extraordinary self-governing system that flawlessly performs this important duty for you. The details of this system contain a number of astonishing miracles. Let us now examine it in some detail:

In the membranes of hypothalamus cells in the brain, there are receptors whose job is to measure the fluid level in the blood. Notice that it isn't a laboratory staff or trained doctors who determine the level of fluid in the circulatory system, but minute receptors in the delicate membranes of cells that are themselves too small to be perceived with the naked eye.

In order to comprehend the scale of the information, ability and technical prowess that this vital function requires, we can use a comparison: No

one can say for certain what the percentage of water is in a bottle of blood set down in front of him. Expert knowledge is essential in order to make any accurate calculation. And by itself, even that is not enough. A laboratory and equipment capable of making the necessary measurements are also needed. Yet receptors in the cell membrane make these measurements flawlessly, endlessly throughout a person's life, with no prior knowledge and using no equipment. *(Figure 1)*

Yet the responsibilities of these tiny receptors go even further. If they determine that the level of fluid in the blood has dropped below the necessary level, they immediately take appropriate measures. This in itself is quite extraordinary. In addition, the receptors not only determine the

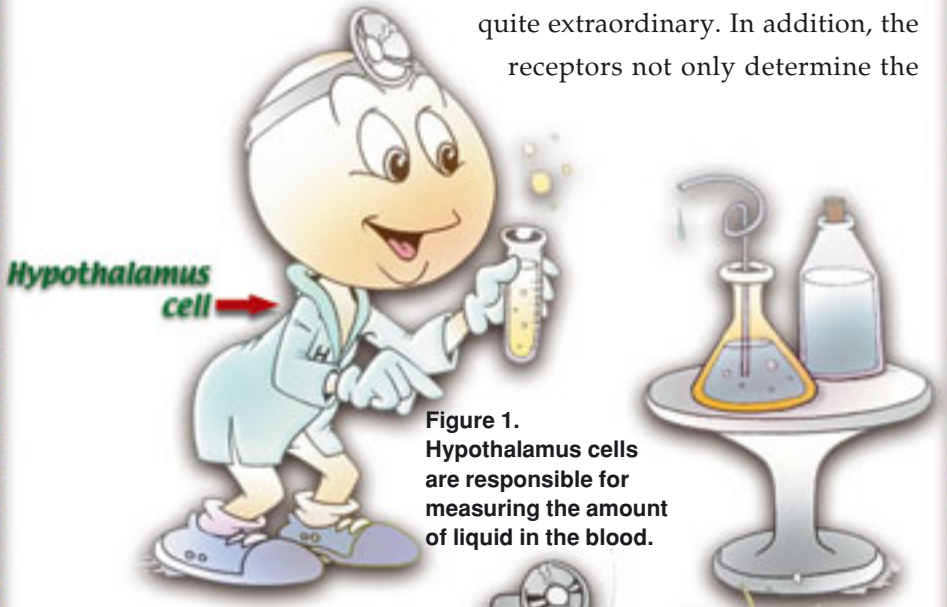


Figure 1.
Hypothalamus cells are responsible for measuring the amount of liquid in the blood.

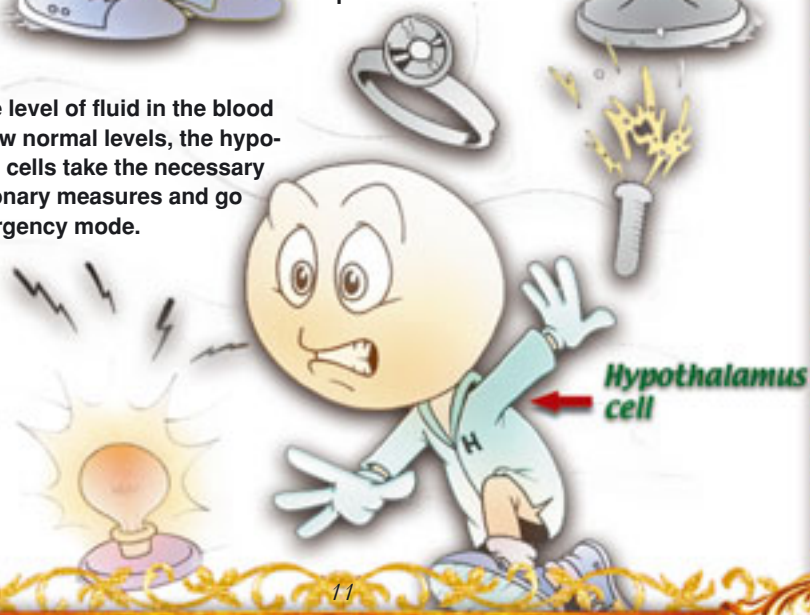


Figure 2.
When the level of fluid in the blood falls below normal levels, the hypothalamus cells take the necessary precautionary measures and go into emergency mode.

fluid levels, but also know what their ideal level should be and when necessary, sound the alarm. *(Figure 2.)* The receptor, in a state of alert, immediately sends a message to the pituitary gland located at the rear of the brain. *(Figure 3.)*

At this point, various important questions need to be considered. How do these receptors know the location—and existence—of the pituitary gland? Moreover, how did they learn that help will be forthcoming from that gland in an emergency? No doubt that the answer to all these questions is the inspiration of our Almighty Lord. As with all the living things He has created, Almighty God, Lord of infinite might, inspires these receptors with the most perfect knowledge to fulfill their responsibilities.

As soon as the pituitary gland receives the message, it begins to release into the bloodstream greater amounts of the hormone vasopressin stored inside it. However, what kind of message does the pituitary gland receive? How is the pituitary gland able to understand a message from another organ and immediately go into action by evaluating it? These extraordinary mira-

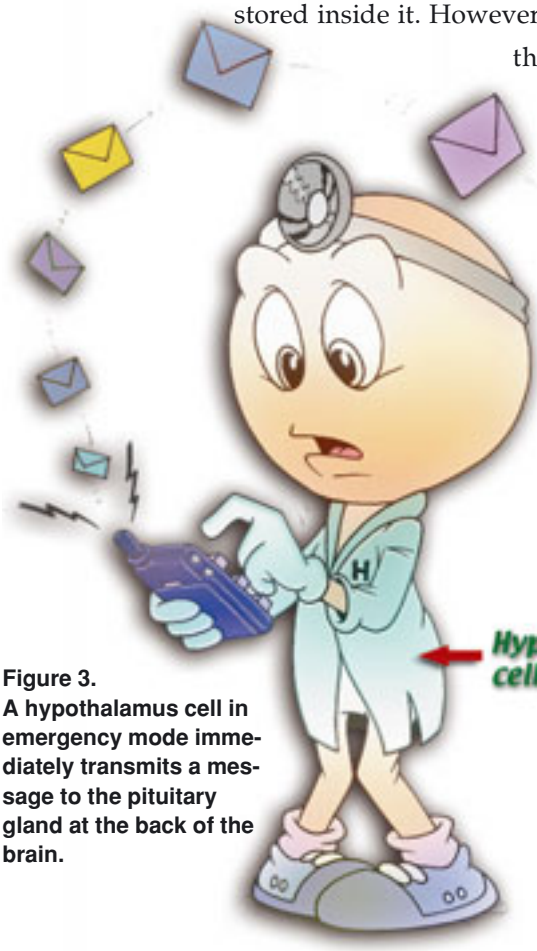
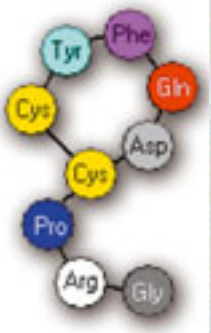


Figure 3.
A hypothalamus cell in emergency mode immediately transmits a message to the pituitary gland at the back of the brain.



Molecular structure of the hormone vasopressin.

cles should be grounds for constant gratitude. *(Figure 4.)*

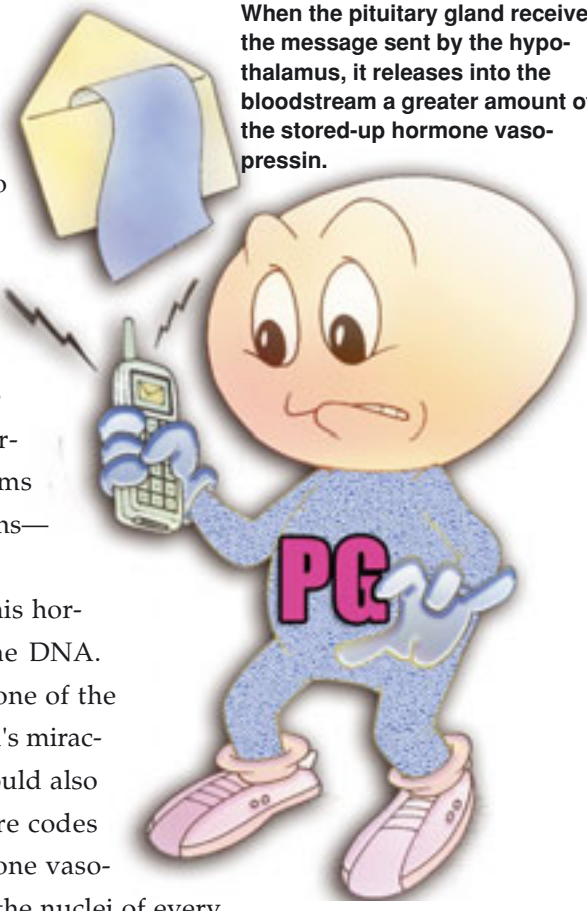


Figure 4.
When the pituitary gland receives the message sent by the hypothalamus, it releases into the bloodstream a greater amount of the stored-up hormone vasopressin.

The vasopressin hormone that the pituatary gland releases into the bloodstream is produced by cells in the hypothalamus. How did those hypothalamus cells learn the formulae for this hormone, which performs very important functions—as you shall soon see?

The formula for this hormone is encoded in the DNA. This, of course, is just one of the proofs of Almighty God's miraculous creation. You should also remember that there are codes belonging to the hormone vasopressin in the DNA in the nuclei of every cell in your human body. However, neither your liver cells, nor your stomach cells nor your muscle cells ever use this code—only those in the hypothalamus, which produce the vasopressin. How has this division of labor been established? What prevents other cells from using this code?

The marvels concerning vasopressin are by no means limited to these. Once the vasopressin has been manufactured, it is transferred to the pituitary gland by being packaged inside another protein, and stored there until the time comes for it to be used. Tiny structures within the cell, too small to be visible without a microscope, work like different units in a factory, organized along the most finely detailed lines. *(Figures 5 through-7.)*

After the message arrives, vasopressin is released into the bloodstream from the pituitary gland and immediately reaches the kidney

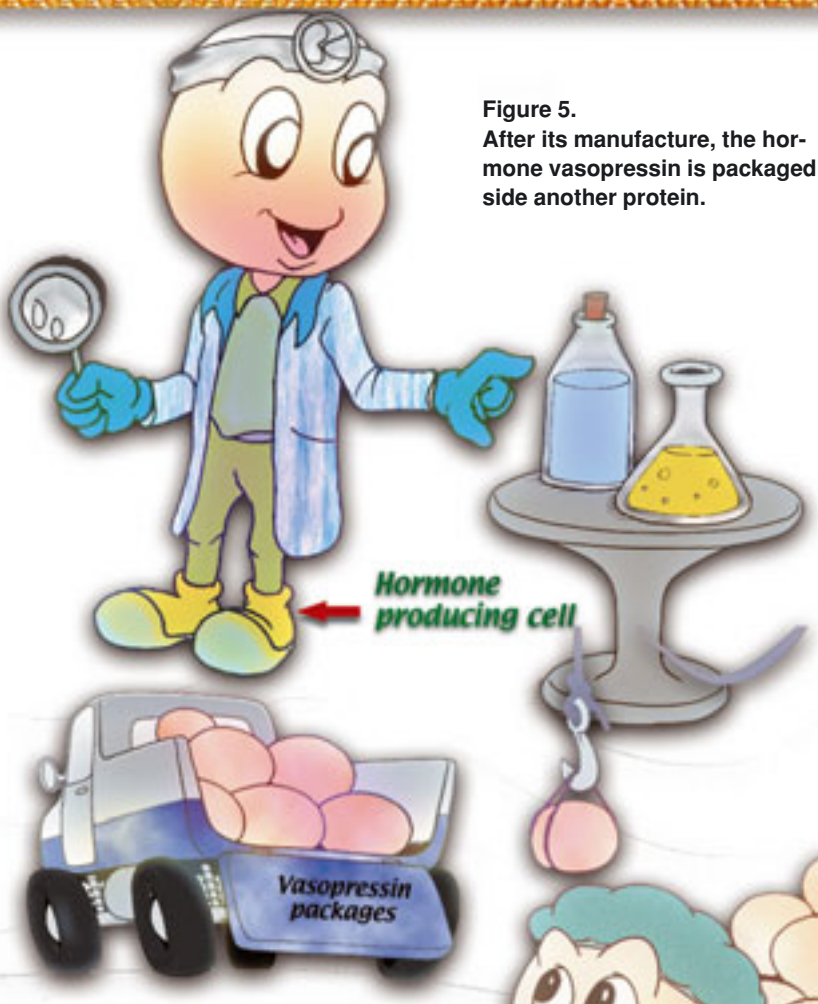


Figure 5.
After its manufacture, the hormone vasopressin is packaged inside another protein.

Figure 6.
The packaged vasopressin is transferred to the pituitary gland and stored there, to be used when the time comes.

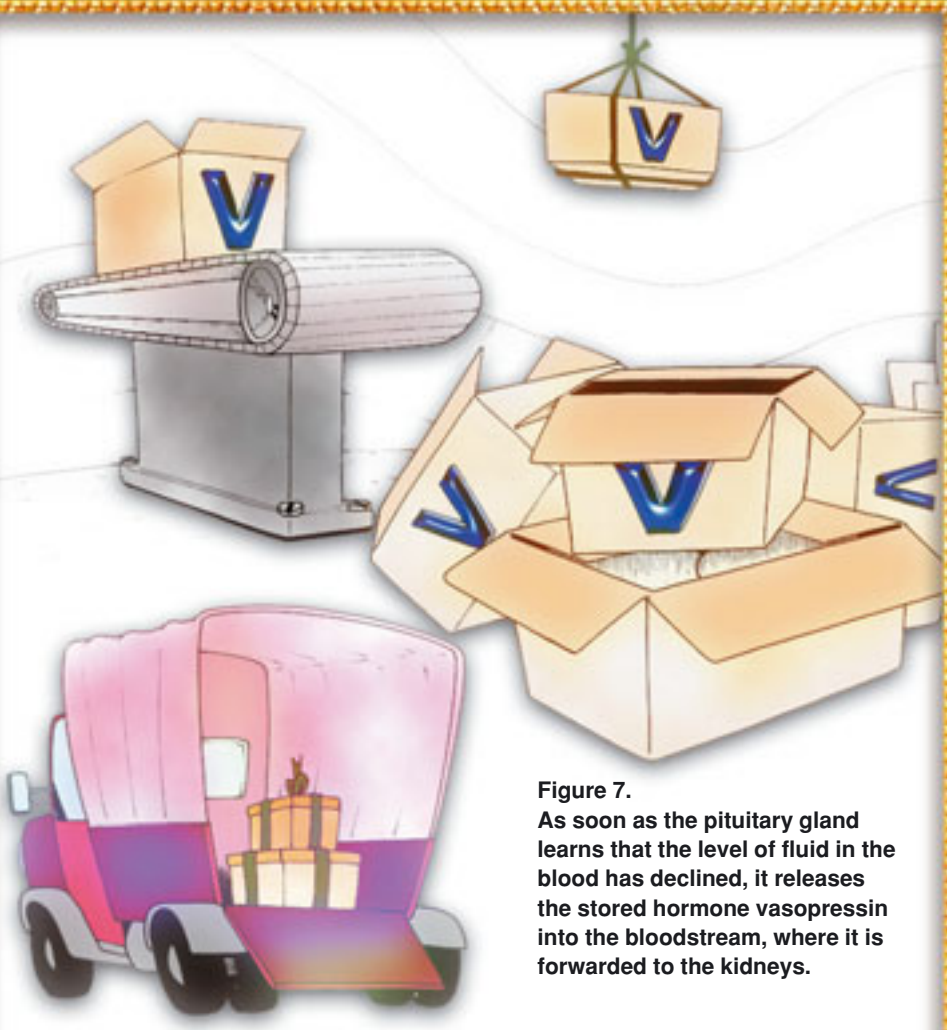


Figure 7.
As soon as the pituitary gland learns that the level of fluid in the blood has declined, it releases the stored hormone vasopressin into the bloodstream, where it is forwarded to the kidneys.

(Figure 8). After vasopressin sets out from the pituitary gland in the brain until it arrives at the kidney, it passes by a great many organs. Yet as if this hormone knew where it was going, by what route and what its purpose was, it reaches the kidney without getting lost or stopping at any other organ. How does it receive the command to head straight to the kidney, and how can the unconscious molecules in question understand the message and duly find their way there?

The vasopressin hormone reaches the kidney by locking onto receivers around the millions of micro-channels in that organ. These receptors have been specially created for vasopressin, and the two fit one another like a key and a lock. *(Figure 9.)* How is this compatibility estab-

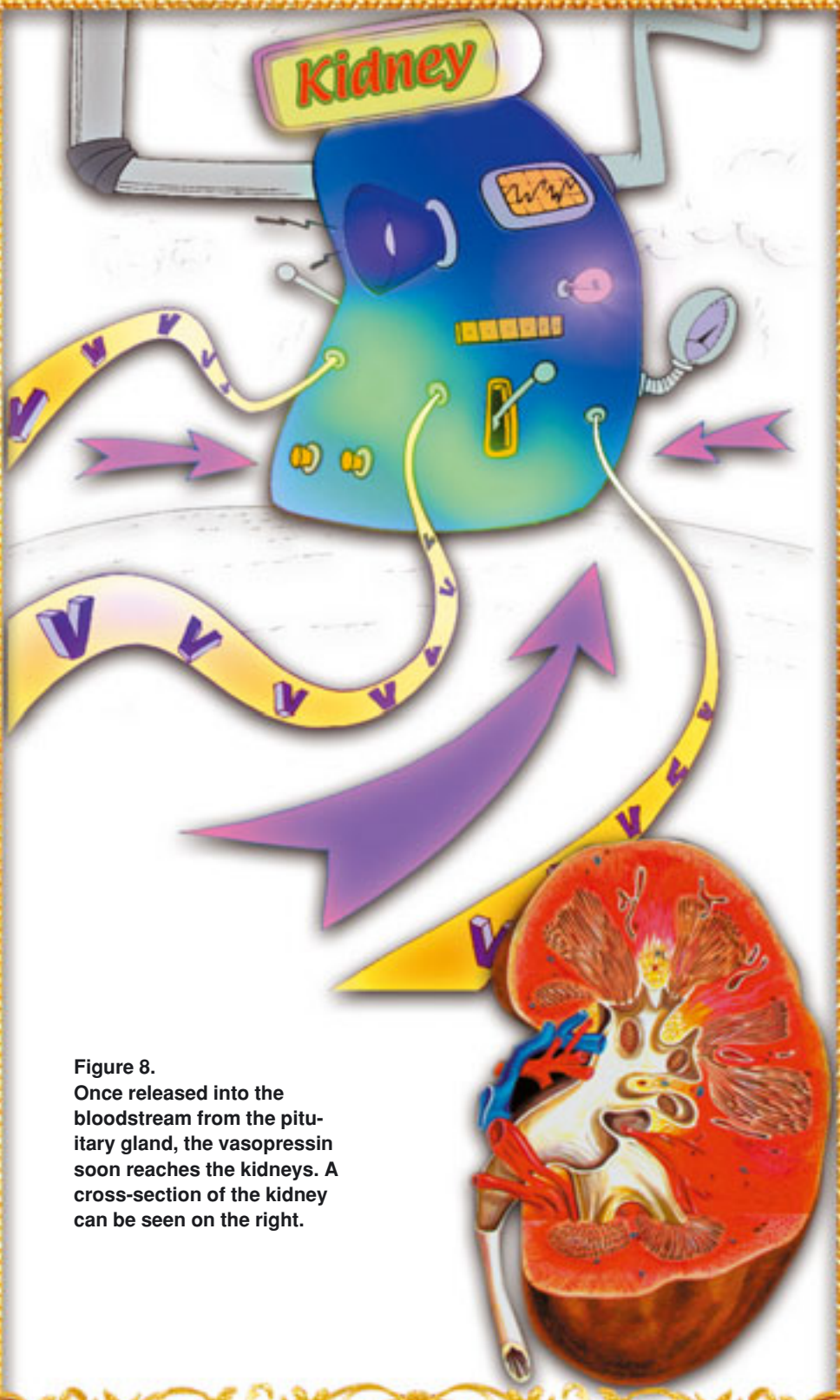


Figure 8.
Once released into the bloodstream from the pituitary gland, the vasopressin soon reaches the kidneys. A cross-section of the kidney can be seen on the right.

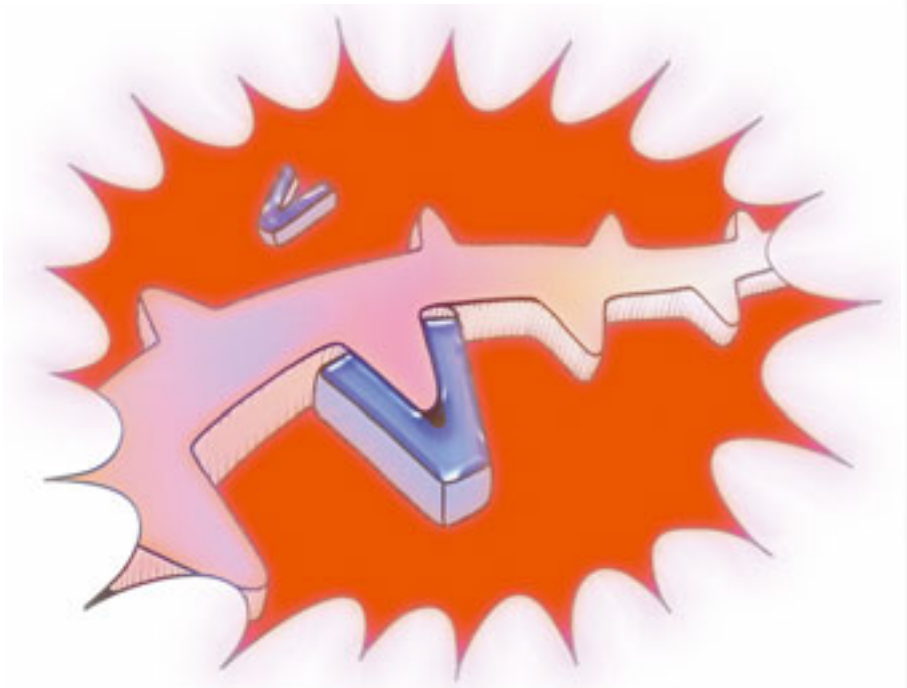


Figure 9.
The vasopressin reaching the kidneys bonds to receptors around millions of micro-channels inside them. These receptors have been specially created for vasopressin, so that they fit one another like a key and a lock.

lished? Anyone could find it difficult to come up with two miniaturized shapes that match each other so exactly, unless biochemistry is specialty and the profession of the individual concerned. Yet there are many other similar examples of this in the body. Moreover, both the hormone vasopressin and the chemical receptors in the kidneys are constructed by cells in completely different areas of the body. Nonetheless, the result is a flawless compatibility. This is an example of our Lord's mercy for His servants.

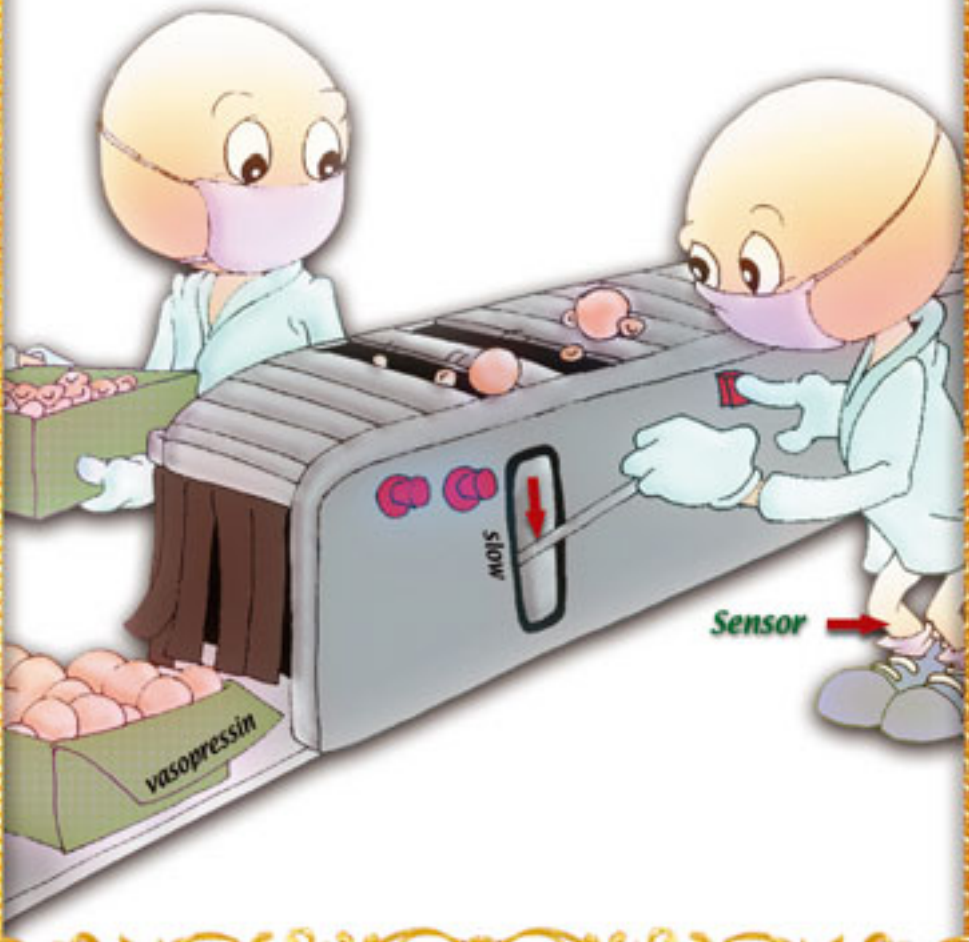
By means of this bonding, the kidney is given the command to withdraw the water molecules from the urine. Thanks to this communication system, a large portion of the water molecules are separated out and introduced back into the bloodstream. As a result, the amount of urine is reduced, and the body re-acquires water it would otherwise have lost.

But if a person has drunk excessive liquids, then the mechanism

works in the exactly reverse direction. When the density of water in the blood becomes elevated, the receptors in the hypothalamus slow down the secretion of vasopressin *(Figure 10)*. As the amount of vasopressin decreases, the volume of urine increases accordingly, and the level of water in the blood is returned to normal, healthy levels.

This flawless system is just a single example of the sophisticated systems operating throughout the body. And even this brief description is sufficient to show that nothing takes place haphazardly, but that all things, at all times, are under the control of Omniscient and Almighty God.

Figure 10.
When the concentration of water rises in the blood, sensors in the hypothalamus slow the release of the hormone vasopressin.



2.

The Body's Impeccable Security System

The hormone vasopressin has yet another ability: It can constrict the blood vessels and thus raise blood pressure. This specially designed security system is yet another proof that human beings were brought into existence through a special creation. In order for this system to be able to function at all, wide-ranging planning has been carried out. Very special receptors that measure blood pressure are located inside the blood vessels extending from the auricle of the heart and entering the heart itself.

It is well-known that technological devices must be employed to measure blood pressure. These instruments are developed through the co-operation of experts in various different fields, and manufactured using advanced technology. Yet in our hearts, tiny molecules, invisible to the naked eye, perform the same task. These consist of molecules with no sensory organs, nor any consciousness with which to perceive whatever they might feel. How can these receptors measure blood pressure and perceive the subtle differences? In addition, how did these receptors come to be located in the heart, in exactly the right place? The answer to all these questions reveals the existence of God and the glory of His creation.

The nerves departing from these receptors are connected to the pituitary gland, just like a cable connection. Under conditions of normal blood pressure, these receptors are constantly stimulated to send a continual electrical current to the pituitary gland by means of these nerves *(Figure 11)*. So long as the pituitary gland continues to receive these signals, it will prevent the secretion of the hormone vasopressin. The ever-ready members of the security system never go into action, as long as they receive "all clear" messages from the center where the system is established.[1]

So when does this security firm, the pituitary gland, go into action? In the event of any serious bleeding, the body loses a lot of blood, and the volume of blood—and hence, the blood pressure—in the veins is reduced, presenting a grave danger for the patient.

The moment that blood pressure falls, the receptors in the blood vessels send a signal to the pituitary gland, and the heart is interrupted. This causes the pituitary gland to sound the alarm and to secrete the hormone vasopressin *(Figure 12)*. When the pituitary gland realizes that the signal has been interrupted, it immediately displays what seems to be an exceptionally conscious piece of behavior—amazing, since this apparently conscious behavior is entirely performed by tiny molecules composed of combinations of particular atoms.

The hormone vasopressin causes the muscles around the blood vessels to contract immediately, which causes blood pressure to rise. This system is actually highly complex, consisting of a number of inter-related components, suggests a great many questions worthy of reflection.

How do the hypothalamus cells that generate the hormone vasopressin know the structure of the muscle cells in the blood vessels located so far away from them?

How have they learned that these vessels must be contracted in order for blood pressure to rise?

How can these cells produce the exact chemical formula that enables this contraction to take place?

How did such a flawless alarm system along the nerves connecting the heart and the pituitary gland come into being?

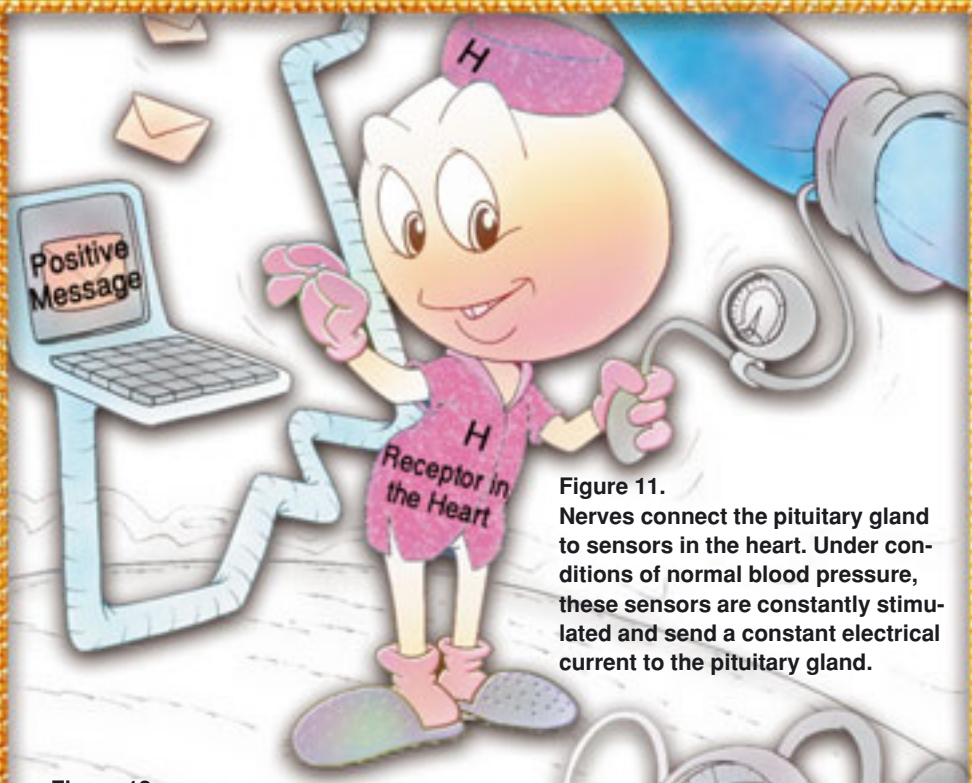
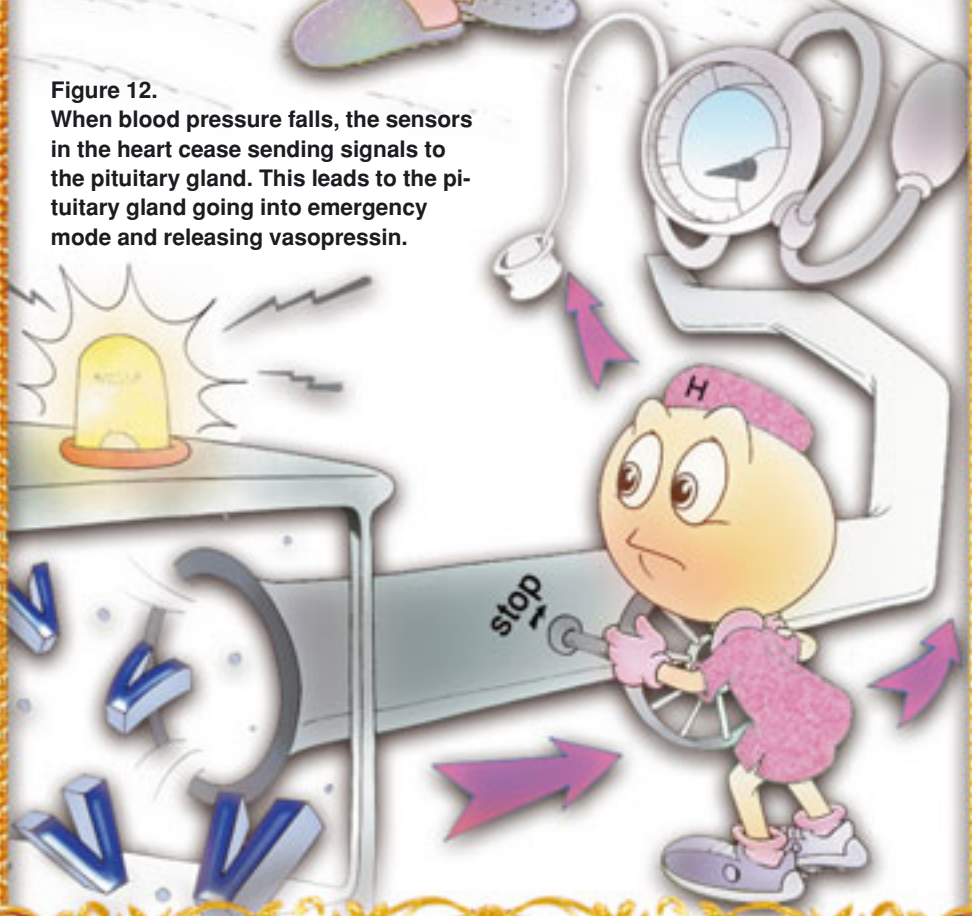


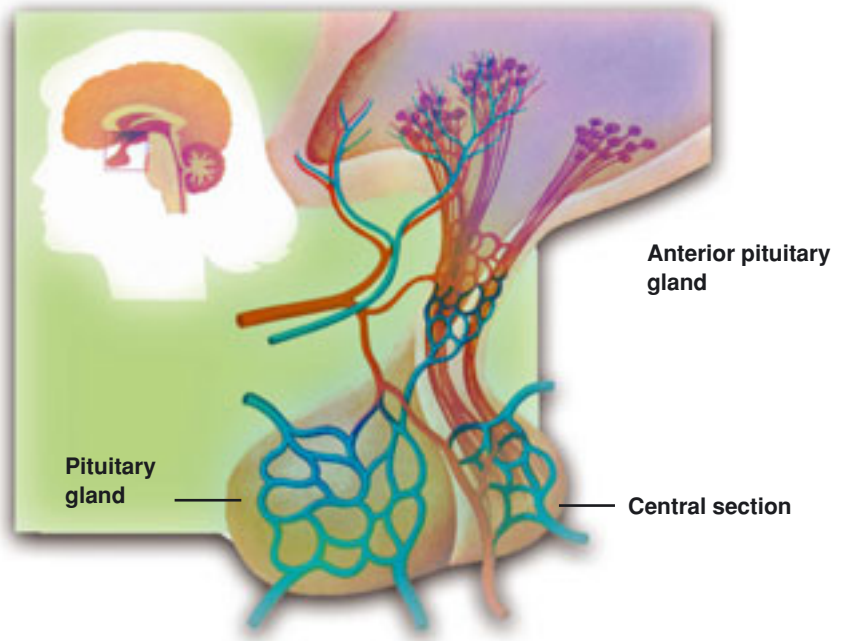
Figure 11.
Nerves connect the pituitary gland to sensors in the heart. Under conditions of normal blood pressure, these sensors are constantly stimulated and send a constant electrical current to the pituitary gland.

Figure 12.
When blood pressure falls, the sensors in the heart cease sending signals to the pituitary gland. This leads to the pituitary gland going into emergency mode and releasing vasopressin.



No doubt that we see here the evidence of an immaculate creation. And this shows that the human body is not the result of a series of blind coincidences, but was brought into being by God's creation. Evolutionists maintain that the body's communication and alarm systems came into being by chance, that the cells spontaneously thought this system up, and then designed and constructed it. But to make such a statement reveals a major collapse in logic. Such a claim is the equivalent of saying that materials such as cement, bricks and electrical cables piled up in an empty field gave rise to a skyscraper as the result of a passing tornado—and then, subsequent storms equipped this skyscraper with an electrical system, and later still, a perfectly functional security system.

No rational person of good conscience could ever accept such a claim. Yet what evolutionists maintain is even more illogical. Determined to deny the existence of God (God is beyond that!), they defend the theory of evolution without considering just how irrational their statements are. In fact, however, Almighty God has brought all things into being through a perfect creation. The evidence is obvious for all to see.



3.

Mother's Milk and the Hormone Oxytosin

Mother's milk is one of the countless miracles that God has created. The ingredients it contains meet all of a newborn baby's nutritional needs. Furthermore, those ingredients change according to the changing needs of the baby's developing body. The manufacturers of this substance, the like of which scientists are unable to manufacture in their laboratories, are particular cells in the mother's breast. These cells possess the matchless formula for mother's milk and know exactly when to begin production and when to alter the makeup of the fluid they produce.

So how does the production of mother's milk begin, and how is it controlled? In the answers to this question lie hidden many miracles of creation. The hormonal system and nervous system work together in milk production, which in turn takes place as the result of a flawless flow of information and planning *(Figure 13).*

One very special hormone activates the milk glands in the mother's breast. This is the hormone prolactin, secreted by the pituitary gland.

At the beginning of pregnancy, however, a number of factors restrict the secretion of the hormone prolactin. We may think of these factors' func-

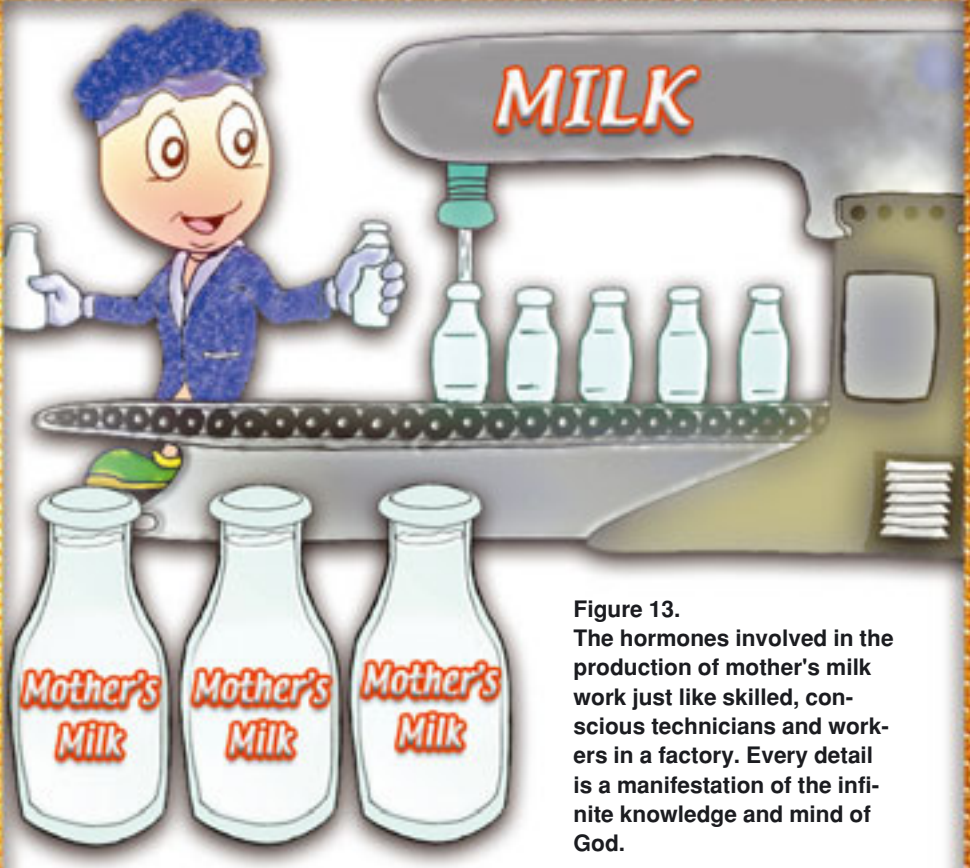


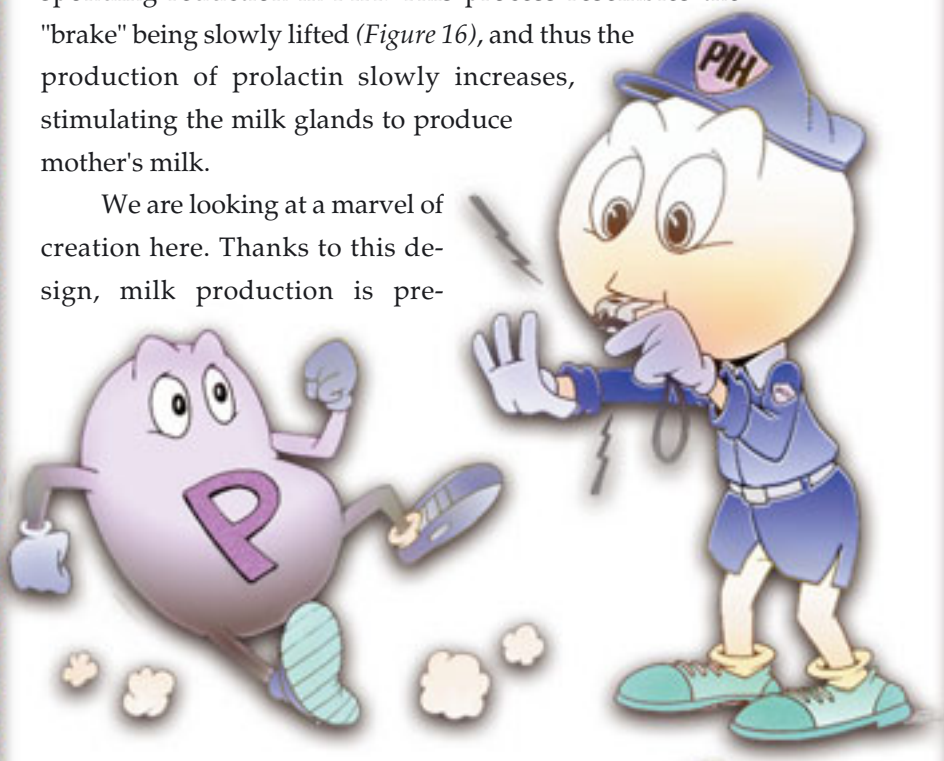
Figure 13.
The hormones involved in the production of mother's milk work just like skilled, conscious technicians and workers in a factory. Every detail is a manifestation of the infinite knowledge and mind of God.

tion resembling the pressure on a brake pedal in a car moving downhill. The tendency of the car is to keep rolling freely downhill, but it will not do so as long as the brake pedal is pushed down. In the human body, milk production is suppressed.

Halting the production of the hormone prolactin is a very wise decision, since there is no point a mother producing milk being before her baby is even born. So how does this "brake pedal" in question function? How is prolactin kept from being secreted earlier than it's required? Here, a perfect system must be factored in. The hypothalamus region of the mother's brain secretes a hormone that suppresses the production of prolactin. This hormone, known as for prolactin-inhibiting hormone (or PIH for short) slows the production of prolactin, thus putting a brake on its secretion.How is the depression of the brake pedal established? The hormone known as estrogen, with the chemical formula $C_{18}H_{24}O_2$, is produced during pregnancy, and permits the hypothalamus to secrete PIH *(Figures 14, 15)*. Secretion of

estrogen declines with the birth of the baby; which in turn permits a corresponding reduction in PIH. This process resembles the "brake" being slowly lifted *(Figure 16)*, and thus the production of prolactin slowly increases, stimulating the milk glands to produce mother's milk.

We are looking at a marvel of creation here. Thanks to this design, milk production is pre-



Figures 14 and 15.
The hormone PIH accelerates or slows the production of prolactin, as required. Milk production is thus prevented during the first months of pregnancy. This, of course, is not a system that hormones could have thought up themselves. God creates all details without flaw.

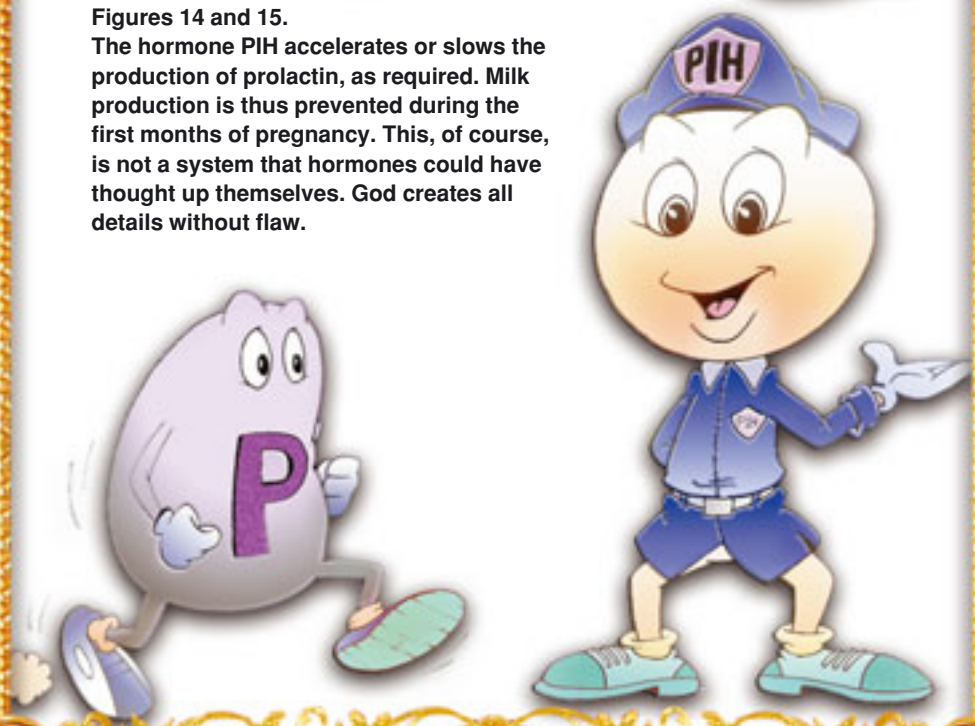


Figure 16.
After the birth of the baby, the release of estrogen decreases, which in turn leads to a reduction in PIH. This process resembles the way a car starts rolling downhill when you slowly take your foot off the brake pedal. In this way, production of the hormone prolactin gradually increases, setting the milk glands in action to produce mother's milk.

vented during the first months of pregnancy. Let us now raise questions presented by this system as a whole:

How do the cells that produce the hormone prolactin recognize the milk glands? By what intelligence and consciousness do they give the needed command to the cells responsible for milk production?

How can the hormones that prevent the production of prolactin before birth know that milk need not yet be secreted, and that they should wait a while longer?

How have these hormones learned that prolactin stimulates milk production in the first place, and that its production must be prevented in order to prevent production of milk?

The answer is that God, the Lord of the worlds, creates all this miraculous system. All things act by His inspiration.

4.

Calcium Measurers

The level of calcium in the blood is of vital importance for survival. In the same way that a human being has to breathe and drink water in order to stay alive, he or she also needs a particular level of calcium in the blood. When the amount of calcium in the blood falls below the level required, the individual dies.

Calcium enables our bodies to carry out many vital functions.. For one thing, in the absence of calcium, blood will not clot—in which event, even a small wound or cut could prove fatal due to loss of blood. Calcium also plays an important role in the transmission of nerve signals, enables the muscles to function, and contributes to bone strength. The body of every healthy adult contains some 2 kilograms (4 pounds) of calcium. *(Figure 17)*. Some 99% of this calcium is stored in the skeletal system; the rest is employed in processes related to metabolism. Only 0.5 grams (0.01 ounces) of calcium needs to be present in the bloodstream for bodily functions to be maintained.[2]

Let us now consider the following imaginary scenario: A one-liter (33-ounce) bottle of blood is placed in front of you. You are told that this blood

Figure 17.
There are some 2 kilograms (4 pounds) of calcium in the adult human body.

is to be transfused into a patient awaiting an operation—but that there is a problem. This blood is calcium-deficient, although the extent of this deficiency has not been determined.

You are also given a large bowl full of powdered calcium and told to make good the deficiency *(Figure 18)*.

What would you do?

First, you would have to measure how much calcium is lacking. In order to do this, however, highly advanced technological equipment is necessary, and you lack both the time and the means. That being so, there is little you can do.

Yet in the body of every human being, there is a magnificent mechanism that calculates the level of calcium at every moment and takes the necessary measures. The thyroid gland and the parathyroid gland—another hormonal gland buried inside the thyroid—function in line with a most rational plan in order to maintain the calcium balance in the body. The parathyroid gland's sole function is to measure the amount of calcium in your blood, 24 hours a day, throughout your entire life, and to keep it at the ideal level *(Figure 19)*.

The parathyroid gland controls the level of calcium in the blood by

Figure 18.
The parathyroid gland's task is to measure, day and night, how much calcium there is in your blood and to maintain it at the ideal level. Whenever it determines that the level of calcium in your blood has fallen, it takes immediate precautionary measures.

means of the parathormone it produces. If the amount of calcium in the blood falls, it immediately releases parathormone[3] *(Figure 20)*.

The parathyroid gland is a small piece of tissue. How does a piece of tissue consisting of cells identify the calcium atoms in the bloodstream flowing before it? How do cells with no eyes, ears or sensory organs identify calcium atoms from among thousands of different substances in the blood—salt, glucose, fat, amino acids, proteins, hormones, enzymes, lactic acid, carbon dioxide, nitrogenous wastes, sodium, potassium, urea, uric acid, iron and bicarbonate? How does the cell recognize this one element, calcium, out of all these others? How does it know the ideal level of calcium there needs to be in the blood? By what consciousness does it measure that level? How does it decide whether there is too much or too little?

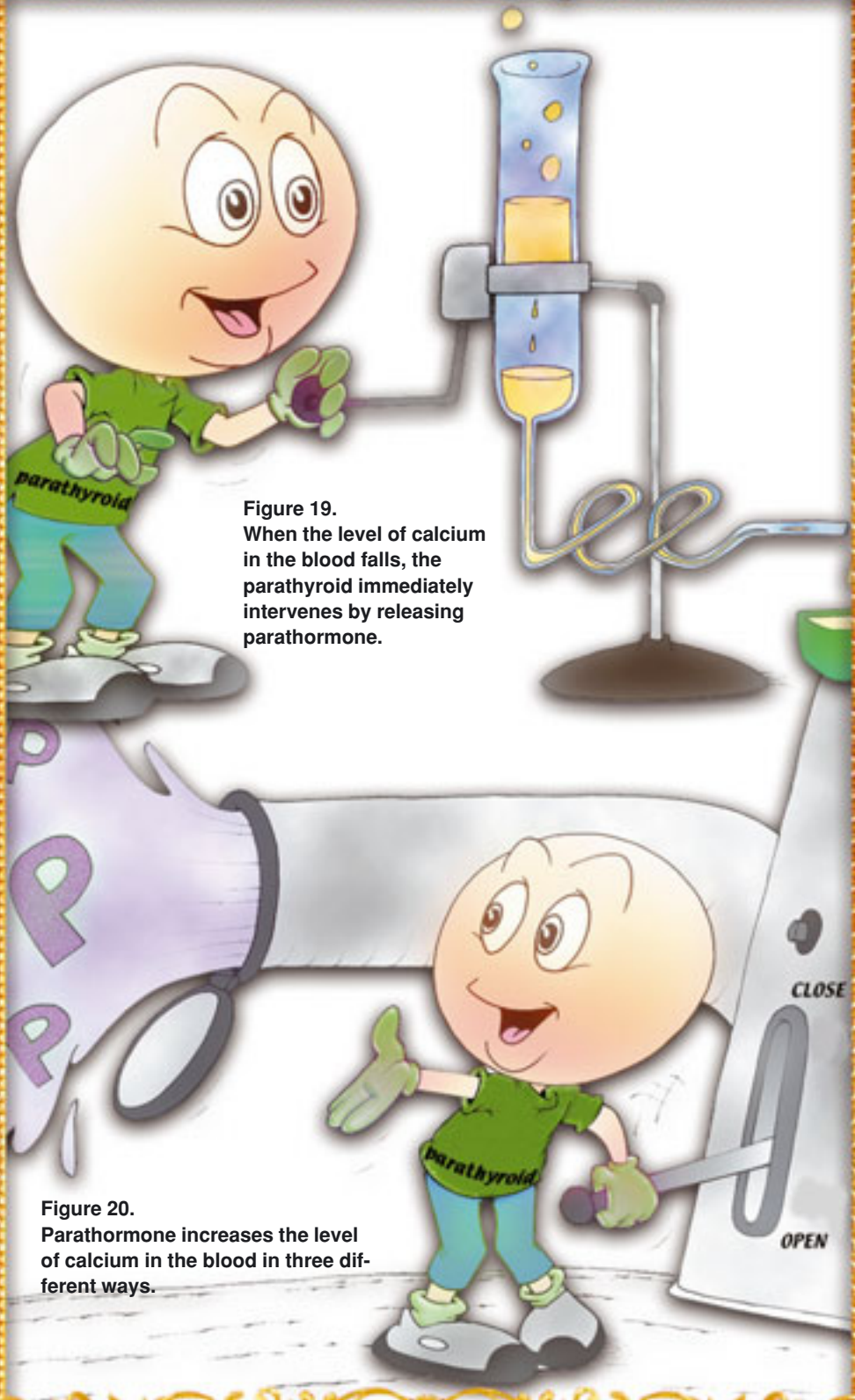
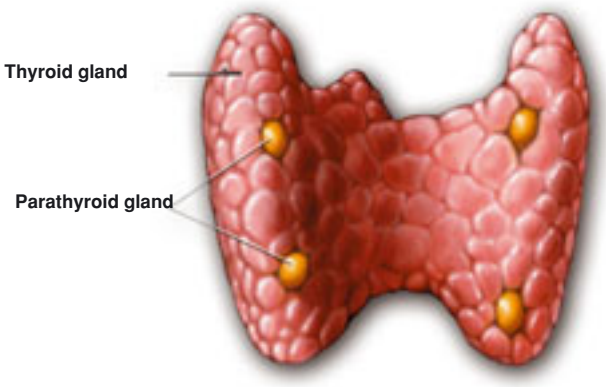


Figure 19.
When the level of calcium in the blood falls, the parathyroid immediately intervenes by releasing parathormone.

Figure 20.
Parathormone increases the level of calcium in the blood in three different ways.

Parathyroid glands identify calcium from among the millions of molecules in the blood and take the appropriate precautionary measures to maintain the ideal level of calcium in the blood.



Remember that these parathyroid cells have no intelligence or consciousness, and are only 1% of a millimeter in size. That they are able to successfully measure the level of calcium in our body on our behalf is just one of the proofs of the creation of the Omniscient and Almighty God.

If, as a result of their measurements, the parathyroid cells determine that the calcium level has fallen, they immediately secrete parathormone. But how is the level of parathormone raised, and how is this tiny molecule able to locate stored calcium? Parathormone finds sources of calcium to replenish the blood from three different sources, each of which requires a sophisticated biological knowledge:

1. There are high levels of calcium in the bones. Parathormone borrows some calcium from the bones. The bones, under normal conditions, are reluctant to release the calcium. When they encounter the parathormone formula, however, they naturally release a small quantity of calcium *(Figure 20)*.

2. A certain quantity of the calcium in the blood is expelled from the body through urine. This calcium needs to be re-combined with the blood once again. To accomplish this, the kidney cells need to capture the calcium molecules in urine and to return them to the bloodstream.

This time, parathormone issues this command to the kidney cells. The cells obey the command and extract the calcium molecules *(Figure 21)*.

3. New sources of calcium enter the body through the food we eat. That calcium in is mixed with the blood in the small intestine. However, in

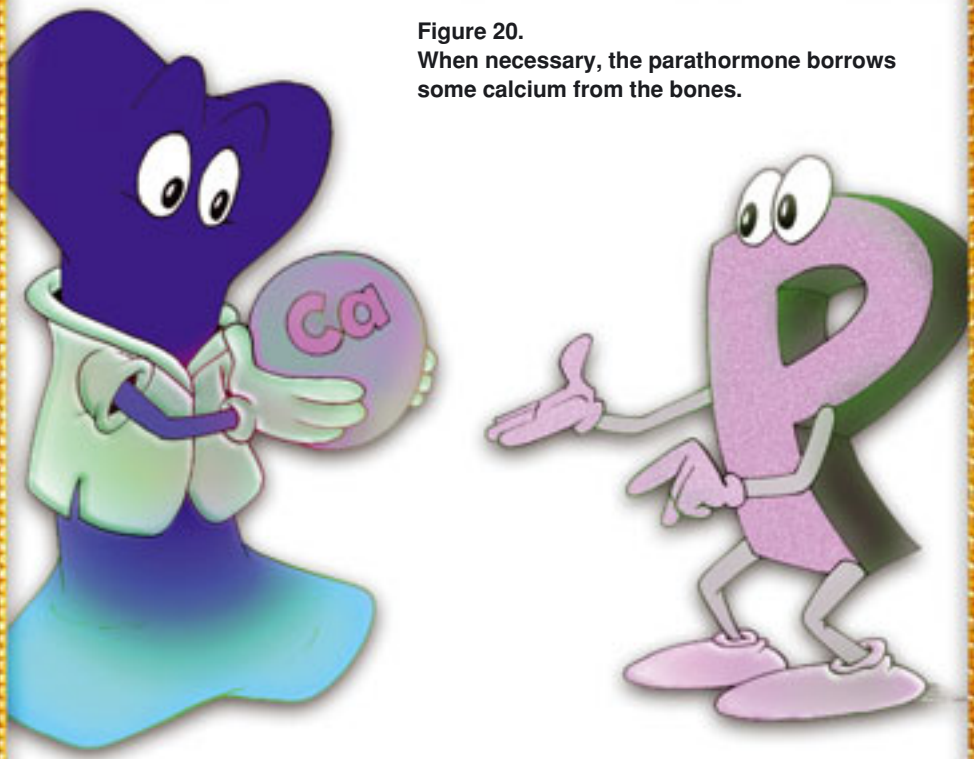


Figure 20.
When necessary, the parathormone borrows some calcium from the bones.

Although under normal circumstances, the bones are reluctant to release calcium, they do release a specific amount when they come into contact with parathormone.

order not to re-absorb the calcium, the intestine cells need activated Vitamin D. But the Vitamin D obtained through food is not in an active state[4] And so, at this point, a major problem emerges that must be resolved in order for the intestine to absorb more calcium, and thus to raise the level of calcium in the blood. In other words, a very special molecule is needed to alter the chemical structure of the non-activated Vitamin D. This molecule that activates Vitamin D, once again, is parathormone *(Figure 22)*.

We now need to reflect with great care. There are three different ways of raising the level of calcium in the blood, yet the key that starts these three very different systems is the same in each case. This key turns the three systems on. Even more amazingly, when these three systems, with their very different structures and methods of operation, are turned on, the result is exactly the same: a rise in the level of calcium in the blood.

How did the parathyroid cells arrive at the formula for this triply-ef-

Figure 21.
You would need to be an expert with considerable training and technology to locate the one chemical you were looking for in a river containing many chemical substances. Yet hormones successfully achieve this feat on their own, with no special equipment.

fective hormone? How do they know that this molecule will affect the bones and kidneys as well as Vitamin D in the intestines? How is it that the parathyroid glands of all the humans who have ever lived have—except in cases of illness, managed to produce this correct formula? How do parathyroid cells know that the bones store calcium, that there is calcium in urine in danger of being excreted from the body, and that the small intestine cells require activated Vitamin D in order to absorb passing calcium? How did they find the *single* chemical formula to make these three systems work? How can unconscious cells display this kind of intelligence that confounds even knowledgeable human beings?

It is of course God, the Compassionate and Merciful Lord, Who manifests this intelligence and planning in the cells, Who created the cells, and the calcium, and human beings from nothing, Who created human beings in need of the calcium molecule, and who then established this immaculate

system in order to meet that need. Certain it is that God's glory is very great.

> **God, 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)**

Figure 22.
When the need arises, parathormone activates the non-activated Vitamin D by changing its chemical structure. It awakens the vitamin, almost as if it had been hibernating.

5.

The Sugar Factory

If you eat more sweets than you need, then an exceedingly detailed and flawless system in your body goes into action to prevent your blood-sugar level from rising:

1- First, the pancreas cells detect sugar molecules from among the millions of molecules in the blood and separate them from the others. Moreover, they decide whether there are too many of these molecules or too few, literally counting their number. How can invisibly small cells without eyes or a brain possess criteria for the proper level of sugar molecules in the blood? That's a matter requiring reflection. *(Figure 23).*

2- If the pancreas cells determine that there's more sugar in the blood than needed, they move to store this surplus sugar. However, they do not perform this storage themselves, but order it to be carried out by other cells at a considerable distance away.

3- These distant cells do not normally store sugar until they receive a command to do so—when the pancreatic cells emit a hormone that instructs them to begin storing sugar. The formula for this hormone, known as insulin, has been recorded in their DNA since the instant when pancreas

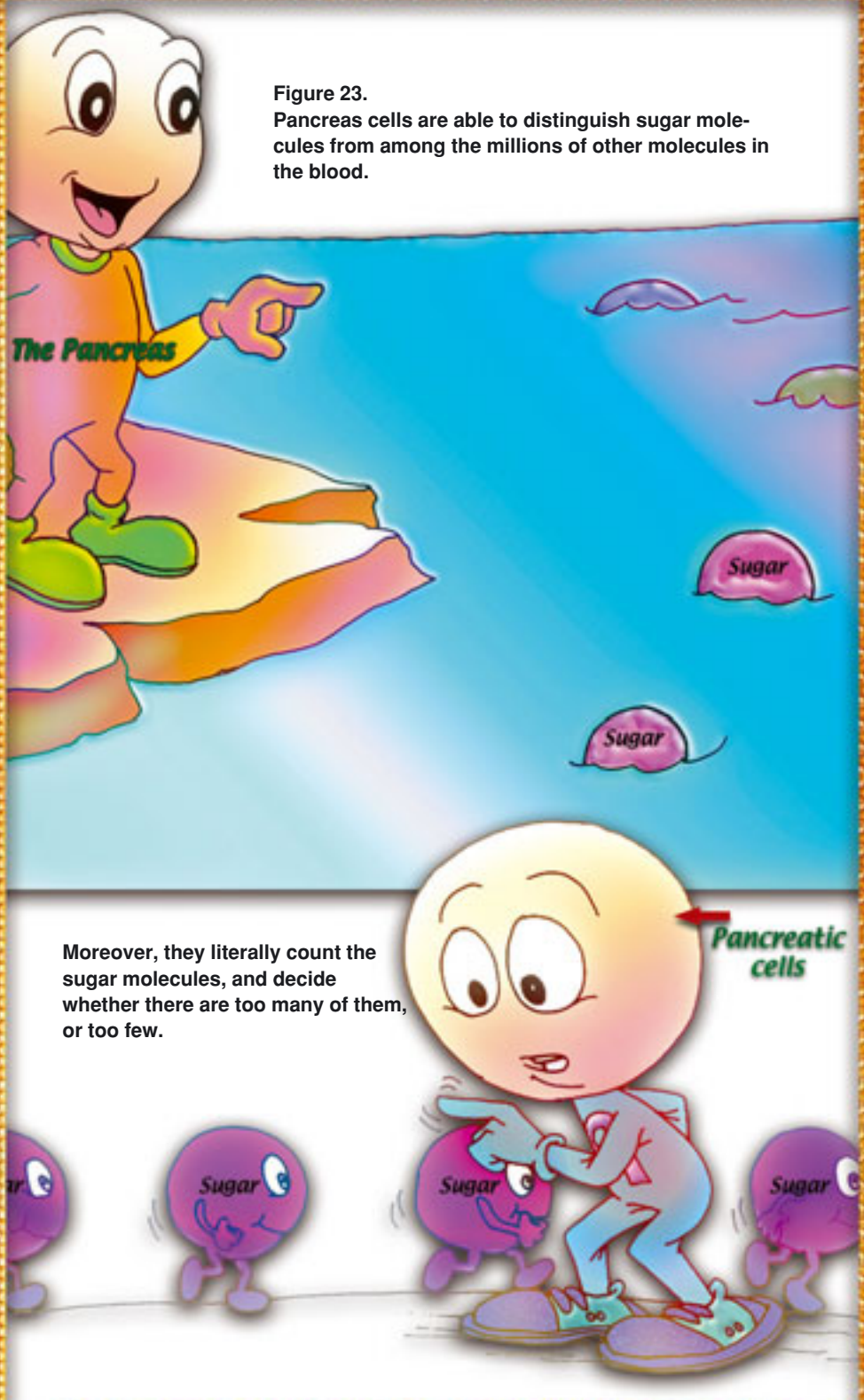


Figure 23.
Pancreas cells are able to distinguish sugar molecules from among the millions of other molecules in the blood.

Moreover, they literally count the sugar molecules, and decide whether there are too many of them, or too few.

cells first came into existence *(Figure 24)*.

4- Special enzymes (or "worker proteins") in the pancreatic cells decipher this formula and produce insulin in line with its instructions. Hundreds of enzymes, each with different jobs, work together in its production.

5- The insulin produced is sent to the target cells by way of the blood, the body's most reliable and fastest transportation network. Some of these target cells lie in the liver.

6- The liver cells receive the insulin's command to store sugar and

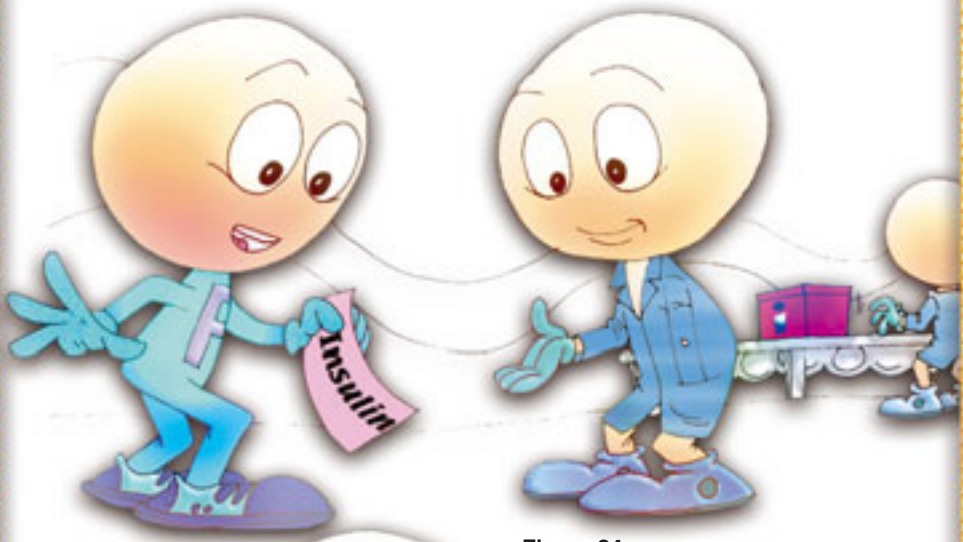


Figure 24.
Pancreas cells send a hormone telling the relevant cells to start storing sugar.
This hormone is known as insulin.

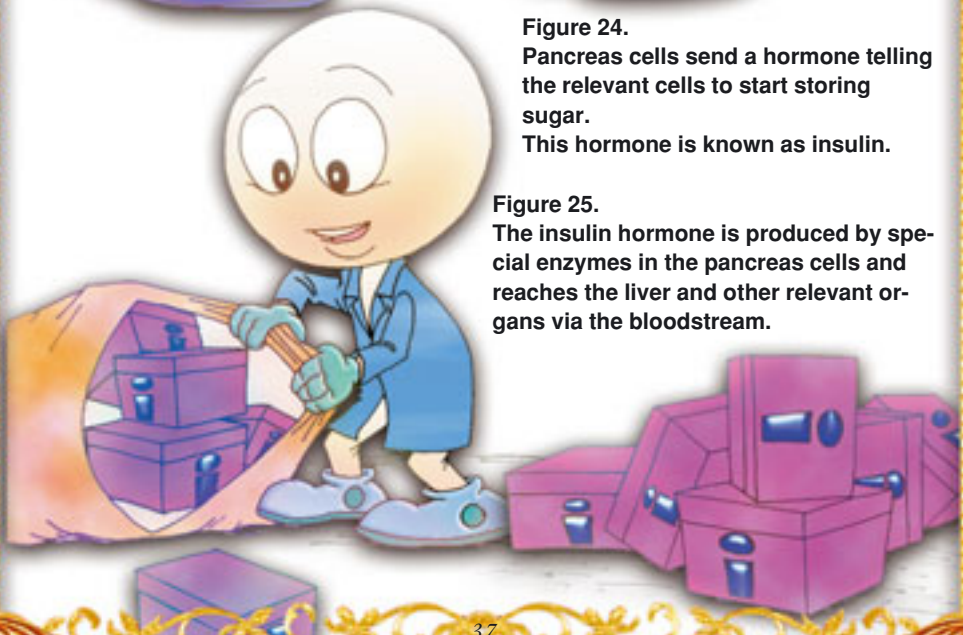
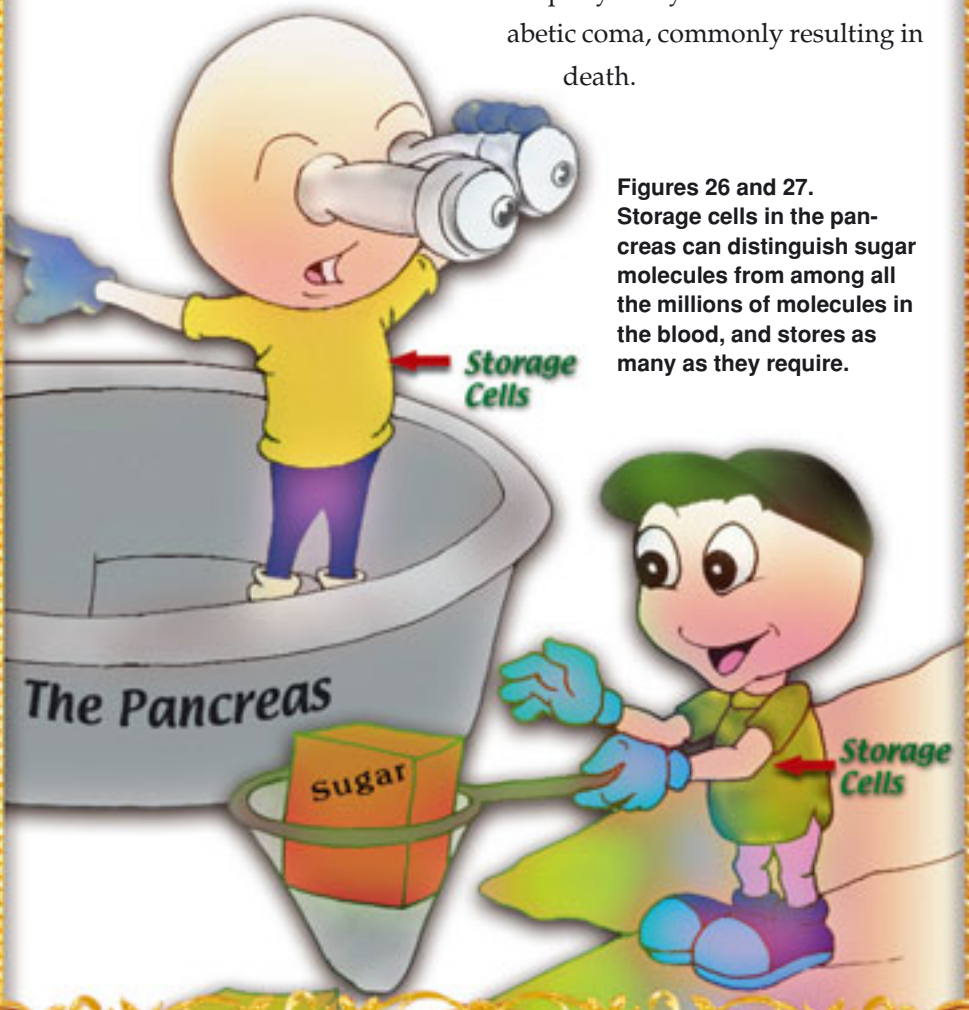


Figure 25.
The insulin hormone is produced by special enzymes in the pancreas cells and reaches the liver and other relevant organs via the bloodstream.

obey unconditionally. Chemical "gates" that permit the sugar molecules to enter the cells are opened *(Figure 25)*.

7- However, these gates do not open at random. The storage cells in the liver distinguish only sugar molecules from among hundreds of different molecules in the bloodstream, and then catch and imprison them inside themselves *(Figures 26 and 27)*.

8- The liver cells never disobey a command reaching them. They never misinterpret that command, or trap the wrong substances, or store excessive sugar. They work with enormous discipline and self-sacrifice. Therefore, when you drink a cup of tea with too much sugar in it, this extraordinary system goes into action and stores the surplus sugar in your liver. If this system did not function properly, then your blood-sugar levels would rise rapidly and you would enter a diabetic coma, commonly resulting in death.



Figures 26 and 27. Storage cells in the pancreas can distinguish sugar molecules from among all the millions of molecules in the blood, and stores as many as they require.

9- This is such a perfect system that it can also work in the opposite direction when necessary. If the sugar in your blood falls below normal levels, the pancreas cells produce another hormone, known as glucagons, which tells the cells that were formerly storing sugar to release it. The cells obey this command, and release the sugar they had stored *(Figure 28)*.

How can cells with no brains, nervous systems, eyes or ears flawlessly come up with such complex calculations and functions? How can these unconscious assemblages of protein and fat molecules perform tasks that are beyond the capability of educated human beings? What is the source of this awareness exhibited by unconscious molecules? Of course, these events are just a few of the countless proofs of the existence and might of God, Lord of the universe and of all living things.

In verses God states:

God—Him from Whom nothing is hidden, either on earth or in heaven. It is He Who forms you in the womb however He wills. There is no deity but Him, the Almighty, the All-Wise. (Surah Al 'Imran, 5-6)

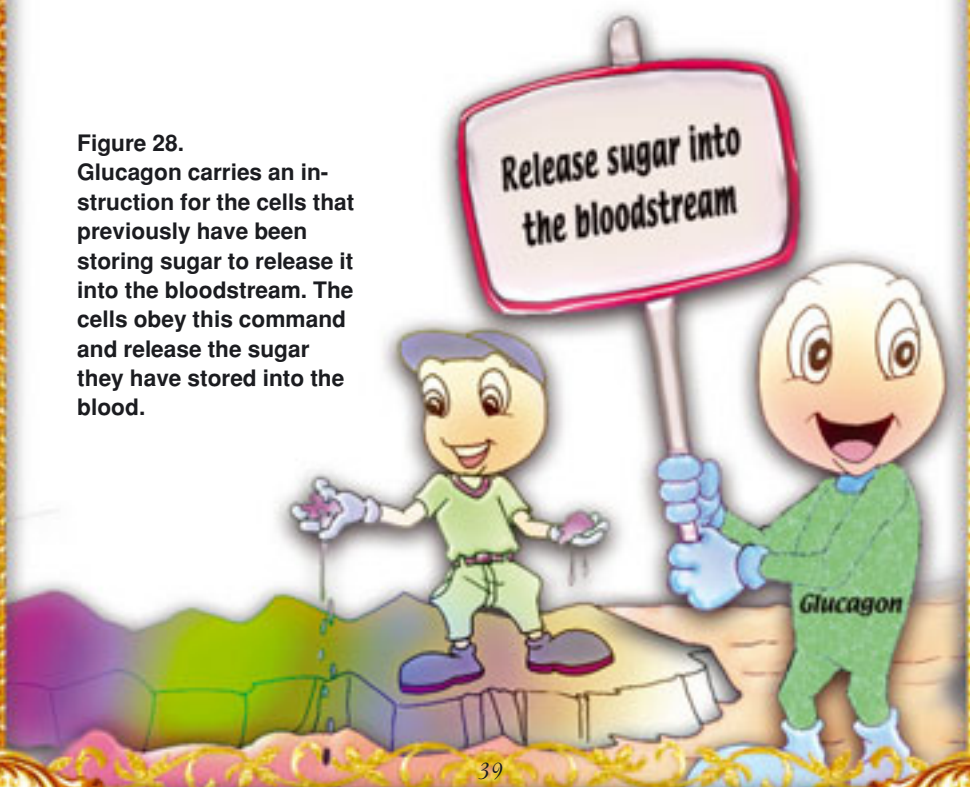


Figure 28.
Glucagon carries an instruction for the cells that previously have been storing sugar to release it into the bloodstream. The cells obey this command and release the sugar they have stored into the blood.

6.

Emergency Assistance: The Hormone Adrenaline

In times of fear or danger, there is a molecule that helps every human being: adrenaline. For example, this hormone puts the brain of a pilot whose plane has engine trouble into a state of alarm. It sends more blood and sugar to his brain cells, enabling the pilot to exercise greater care and attention. At the same time, it raises his pulse and blood pressure, enabling him to be more alert and react more quickly. It gives the muscles extra strength, raises the level of sugar in the bloodstream and thus enables the pilot to generate the extra energy he needs.

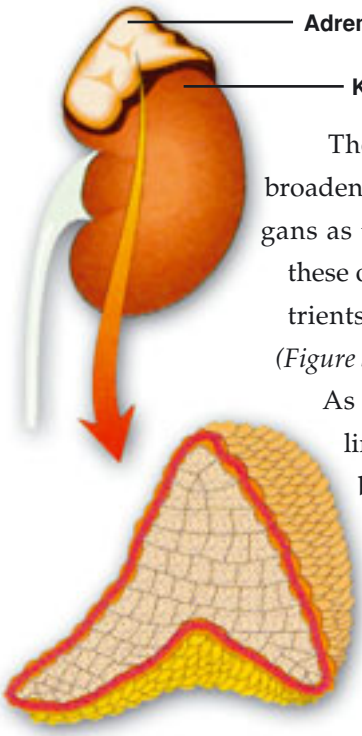
This miraculous hormone produced—and stored—by the adrenal glands possesses many properties and is a proof of God's sublime knowledge and immaculate creation.

How does adrenaline give rise to these effects? When danger arises, the equivalent of an alarm button is pressed in the body. The brain issues a lightning-fast command to the adrenal glands. Cells inside the gland enter a state of activation and secrete adrenaline molecules. Entering the bloodstream, these molecules are distributed to various regions of the body. *(Figures 29 through 32).*

Figure 29.
At times of fear or excitement, the brain quickly sends a signal to the adrenal glands.

Figure 30.
Cells in the internal part of the adrenal gland immediately go to action status.

Figure 31.
And the hormone adrenaline is secreted in quantity.



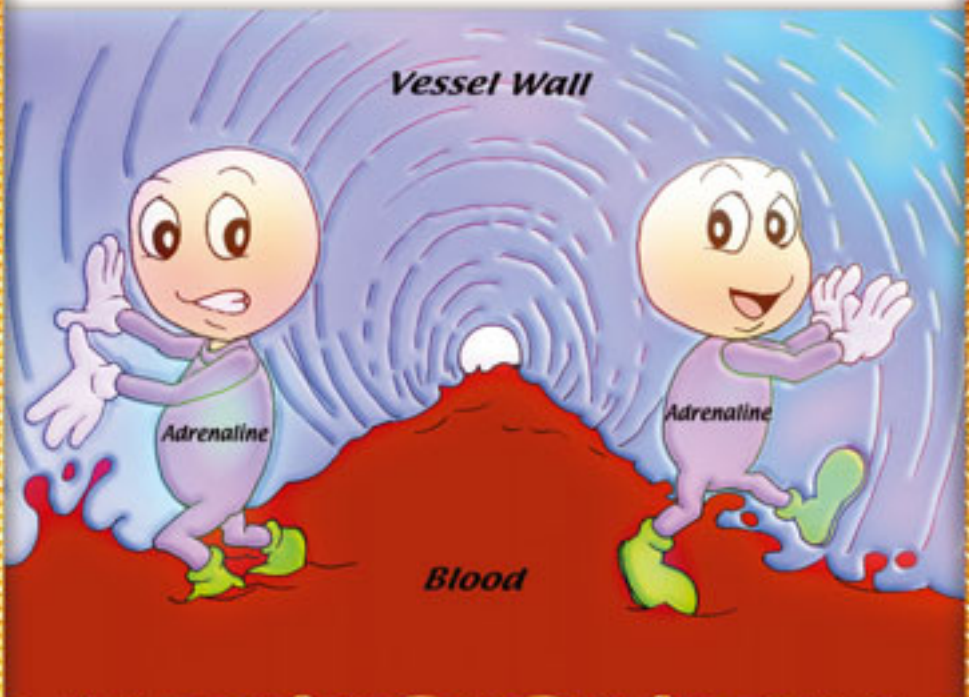
The adrenaline molecules thus released broaden the blood vessels, leading to such vital organs as the brain, heart and muscles. In this way, these organs thus obtain the extra oxygen and nutrients they require to cope with an emergency.[5] *(Figure 32)*

As the adjustments performed by the adrenaline widen blood vessels leading to the heart, brain and muscles, they also narrow those going to the liver and skin *(Figure 33)*.

The body is thus given the support it needs in the best possible manner.

There is another reason for the skin to receive less blood: This way, any risk of

Figure 32.
The hormone adrenaline widens the arteries leading to such vital organs as the brain, heart and muscles, and thus increases the flow of blood to these organs.



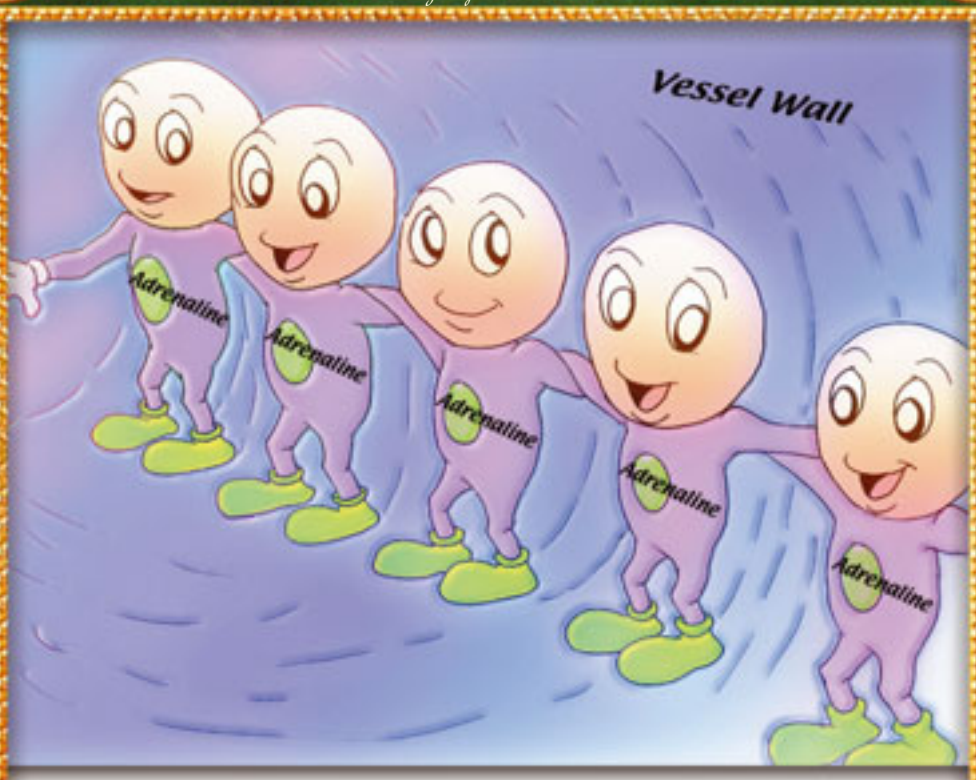


Figure 33.
By narrowing the blood vessels leading to the liver and skin, adrenaline prevents blood from flowing to organs where it will not be needed, for the time being.

blood loss in the event of injury is reduced to a minimum. The pallor appearance of someone who is terrified or extremely excited arises from less blood being pumped to the skin at that moment.[6]

The vessels leading to the heart or brain are never narrowed by mistake, and those leading to the liver or skin are never expanded. The adrenaline molecule does its job very well. The diameters of the hundreds of blood vessels in the body and the amount of blood transmitted by these, and to where, are all regulated by a hormone, in quantities too small to be detected with ordinary senses.

Adrenaline has a different significance for every organ it encounters. When going to the blood vessels, it expands them, and when it goes to the heart, it accelerates the contraction of the muscle cells there. In this way, the heart beats faster, and the muscles obtain the extra circulation they need to produce extra strength *(Figure 34)*.

When the adrenaline molecule reaches muscle cells, it enables them to

Figure 34.
Thanks to adrenaline, the human body gains extra strength and resistance at times of stress.

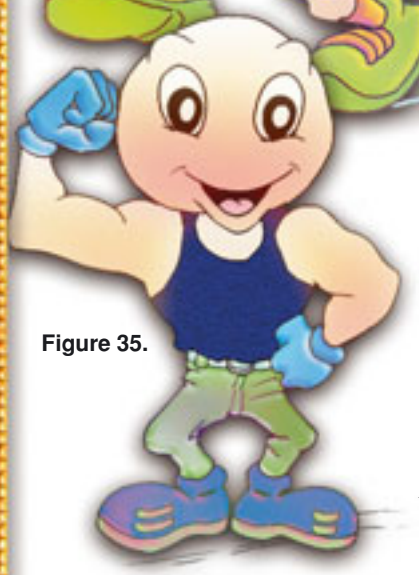


Figure 35.

contract more powerfully *(Figure 35)*. Adrenaline molecules arriving at the liver, command cells there to release more sugar into the blood. The level of sugar in the bloodstream thus rises, and the muscles obtain the extra fuel they require *(Figure 36)*.

This very small adrenaline molecule knows very well what it has to do, and when, and never places the human body into a state of alarm so long as it perceives no need. In addition, it never forgets what kind of command it must issue to the different cells it encounters. Moreover, this all goes to show that this hormone is very well acquainted with the cells and organs and their functions. Nor does it ever make a mistake over when the state of alarm needs to come to an end, or the body might suffer irreparable damage due to overstimulation.

However, this tiny molecule functions in apparent knowledge of this

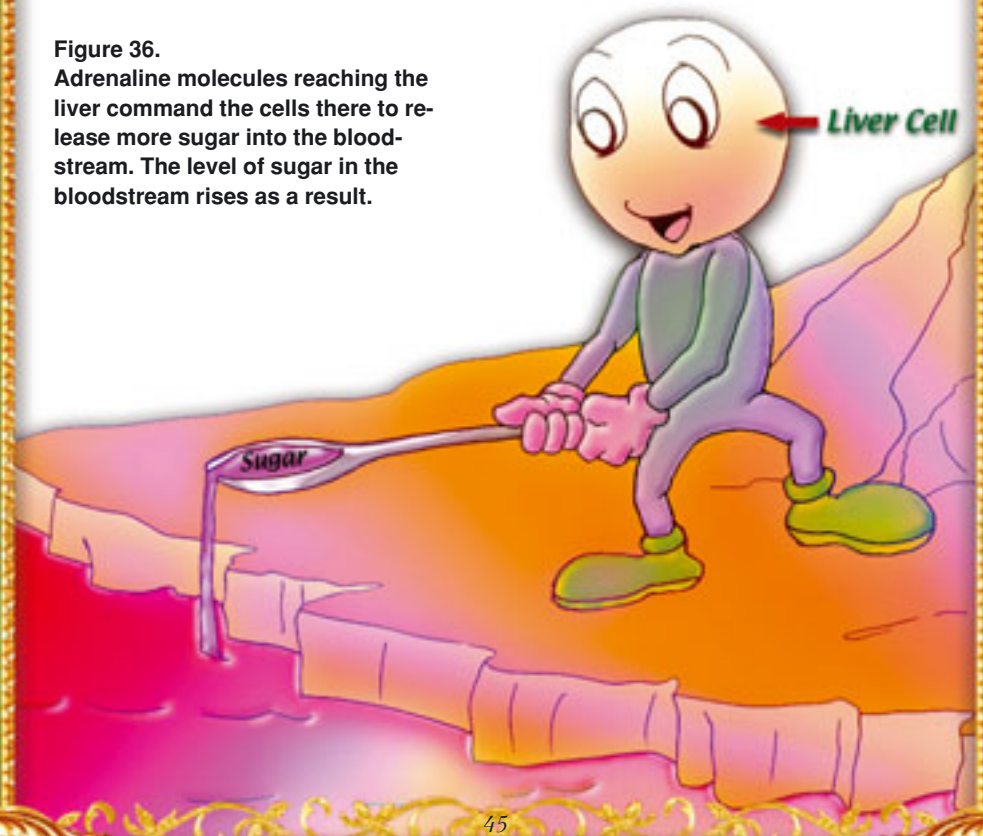
responsibility. How can a molecule consisting of a few atoms combined in a specific sequence—which is inanimate, unconscious and possesses no brain or eyes—exhibit such intelligent, organized and rapid behavior? Is it possible for all these actions to take place through the intelligence and will of a quantity of fluid too small to be seen with the naked eye? Of course not!

Everything we have described here is simply evidence that proves that God has created every molecule in our bodies, which molecules act according to the power, will, control and command of Almighty God at every moment, throughout the course of our lives. Almighty God manifests His might, power, and the sublime knowledge and intelligence in His creation at all times and in all places.

As God reveals in the Qur'an:

What is in the heavens and in the earth belongs to God. God encompasses all things. (Surat an-Nisa', 126)

Figure 36.
Adrenaline molecules reaching the liver command the cells there to release more sugar into the bloodstream. The level of sugar in the bloodstream rises as a result.



7.

The Lysosomal Enzymes That Purify the Body

Over the course of a day, many processes of which we are totally unaware take place in our bodies. Our cells carry out these processes flawlessly. Inside these 100 trillion or so cells, there are many structures that know their duties very well. Some generate energy, others proteins, while still others engage in transportation or are used as storage depots.

One of these structures in the cell is the lysosome, which can be described as the cell's grinding machine. Thanks to the enzymes given off by this organelle, a number of *degradation* processes take place in the body. The enzymes released by lysosome destroy cells that no longer serve any purpose. Besides breaking down or puncturing the membrane surrounding a cell's structure, they also destroy down certain cells that constantly grow inside the body.

This degradation process that lysosome performs is of enormous importance to the body *(Figure 37)*. As the baby develops in a pregnant woman, for example the womb expands many times larger than its original, normal size. This is essential for a healthy baby to be born. However, after the baby is born there is no further need for the womb to be so capa-

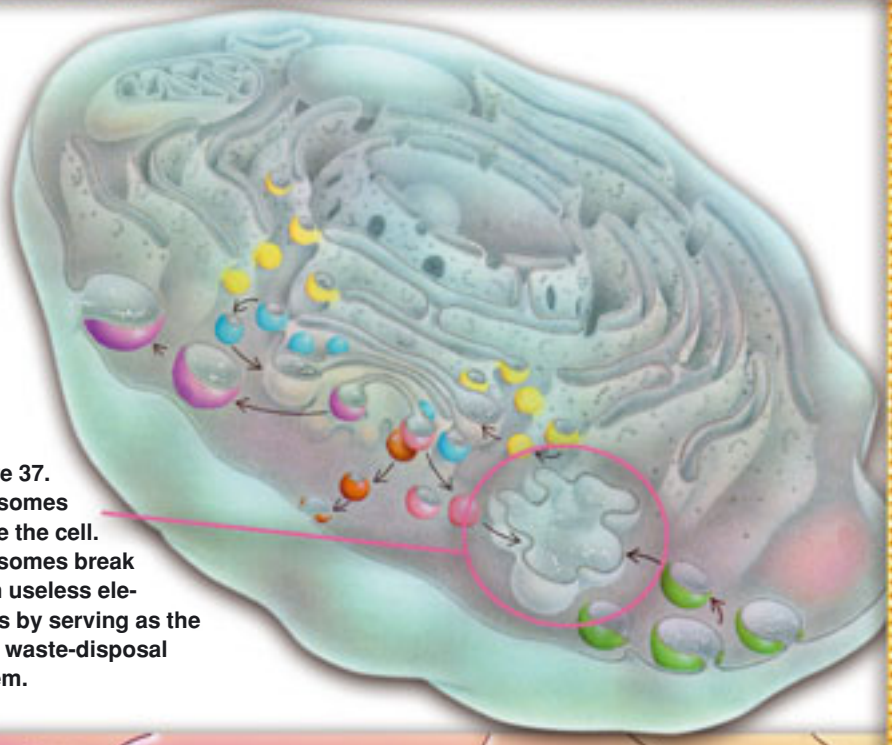
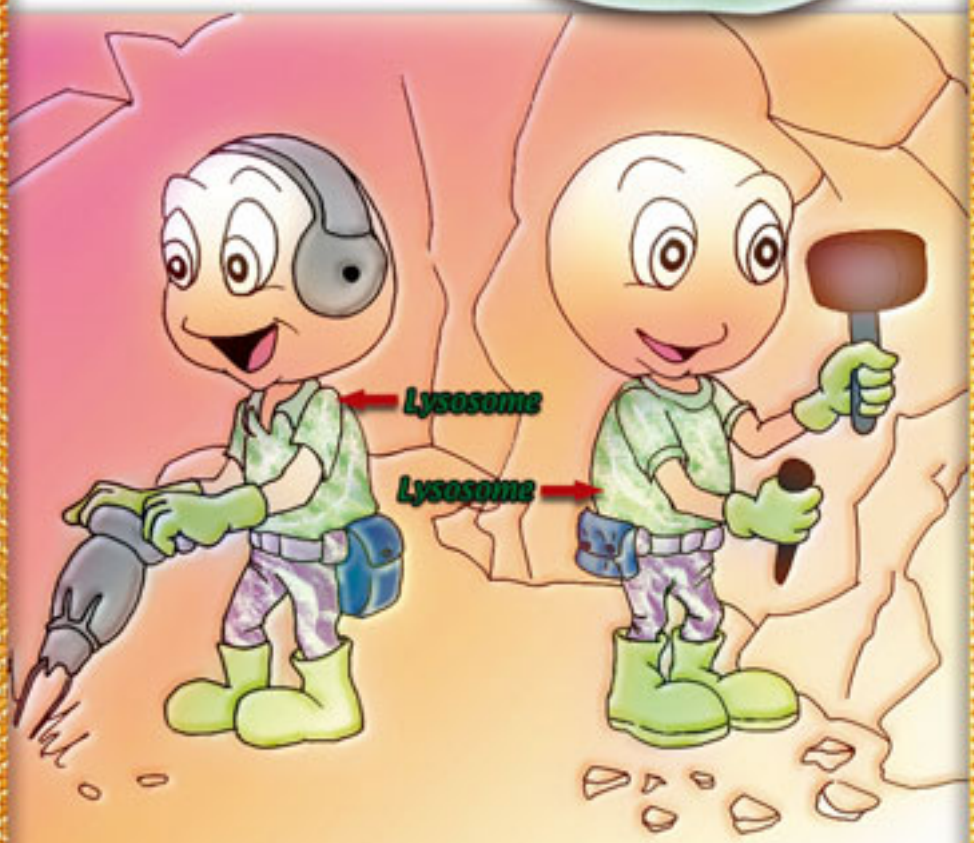


Figure 37. Lysosomes inside the cell. Lysosomes break down useless elements by serving as the cell's waste-disposal system.

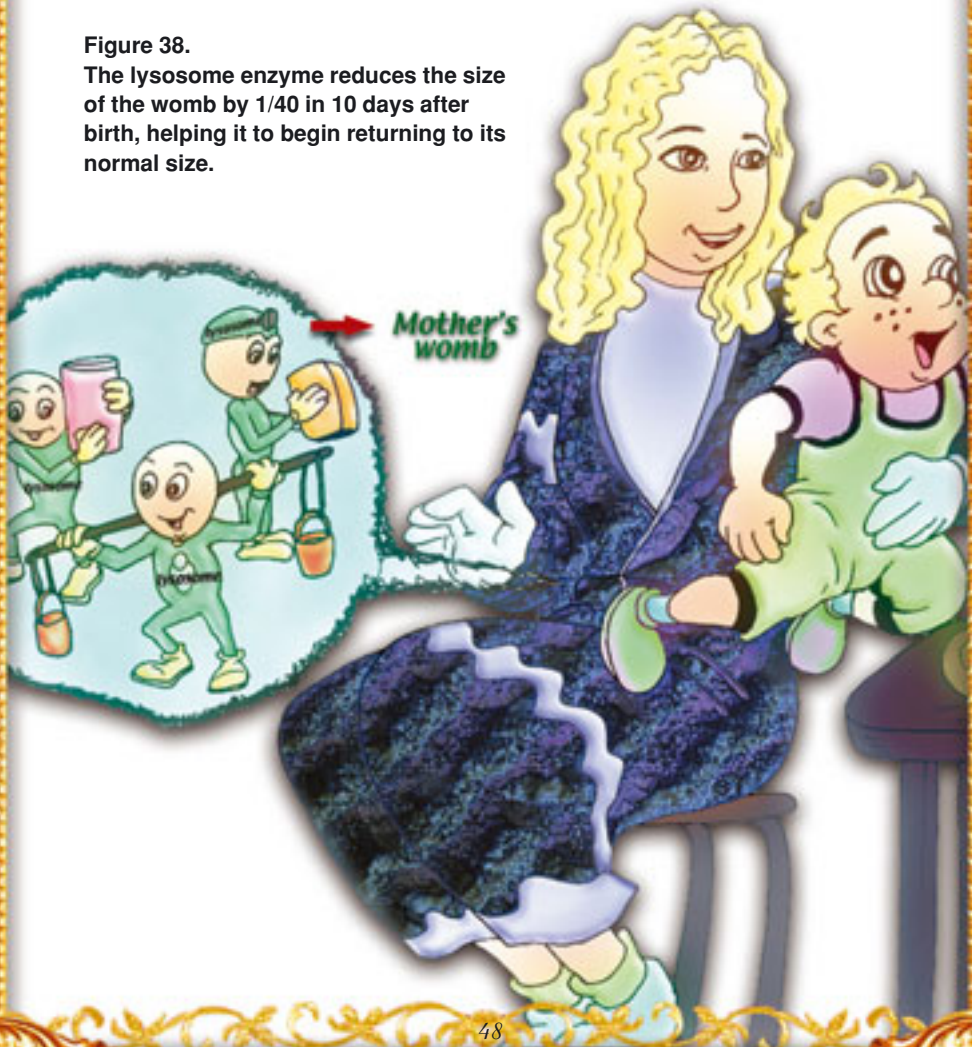


cious, this excessively expanded organ now needs to be returned to its former size for the health of the body. The lysosome enzymes help carry out this process. When the birth process is finished, certain cell lysosomes are alerted and, since they have an excellent knowledge of their jobs, they immediately begin secreting the necessary enzymes, which rapidly shrink the womb to 1/40th of its former size in ten days following the birth. The womb thus begins to revert to its former dimensions *(Figure 38).*

There are also lysosome enzymes in the head portion of sperm cells. Sperms use these enzymes to degrade—and thus, to pierce—the microscopic protective sheath surrounding the egg, and allow the sperm to enter in and achieve fertilization.

As can clearly be seen from these examples, every mechanism in your

Figure 38.
The lysosome enzyme reduces the size of the womb by 1/40 in 10 days after birth, helping it to begin returning to its normal size.



body works in such a way as to complement the others. In addition to the system that permits the womb to grow and swell during pregnancy, there is also another one that returns it to its former state. Similarly, an enzyme that can dissolve the sheath protecting the egg has been especially located inside the head of each sperm.

Yet Darwinists have become so far removed from reason and logic that they can even claim that this interconnected system arose as the result of various coincidences—and then continued to function in its perfect manner. That these mechanisms, with their perfect workings, function in harmony with the systems in the body as a whole is just one of the proofs of the flawless nature of God's creation.

In Surat al-An'am God states that:

That is God, your Lord. There is no god but Him, the Creator of everything. So worship Him. He is responsible for everything. (Surat al-An'am, 102)

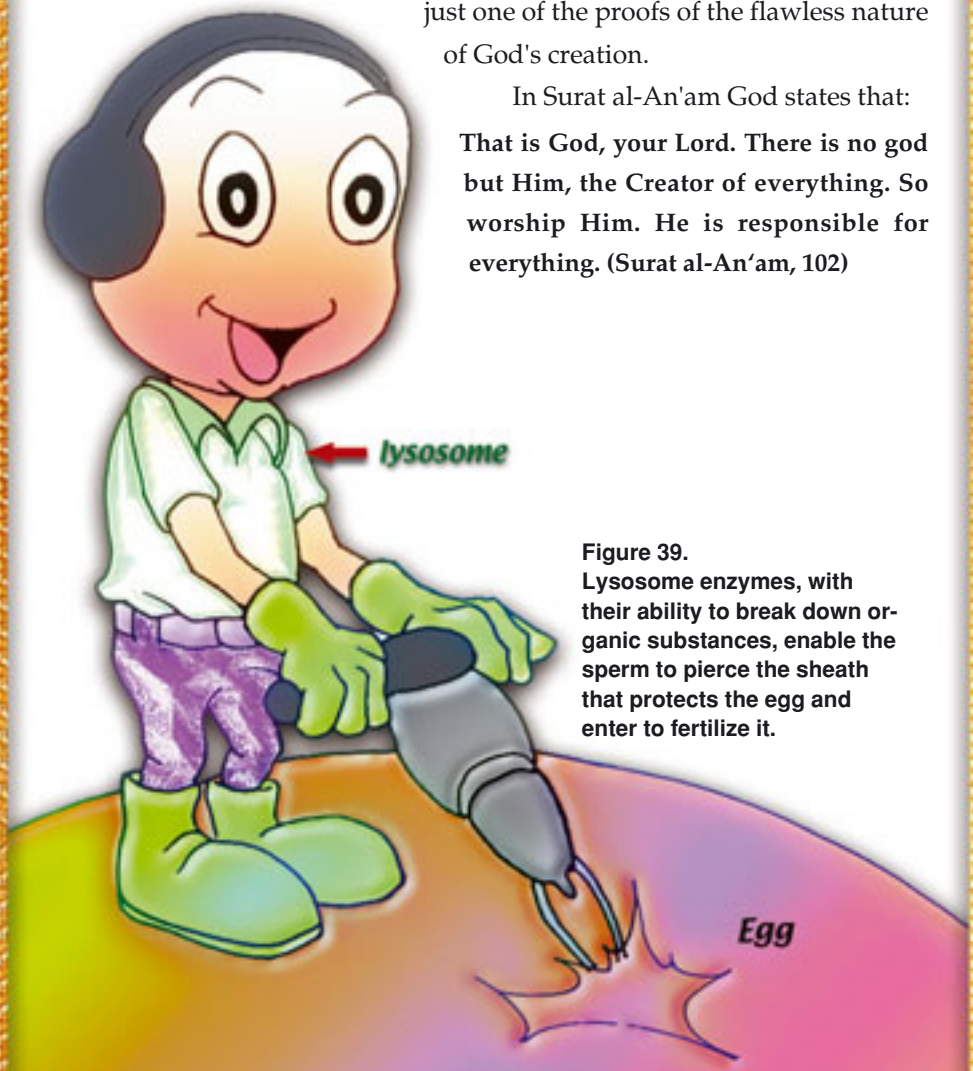


Figure 39.
Lysosome enzymes, with their ability to break down organic substances, enable the sperm to pierce the sheath that protects the egg and enter to fertilize it.

8.

The Flawless System That Regulates Blood Pressure

The moment blood pressure falls, a flawless system in your body goes into action. In the same way that smoke detectors are specially designed to recognize the particles emitted by fire, this "alarm" system goes into operation only when there is a drop in blood pressure.

Low blood pressure may give rise to a very dangerous state of affairs. Therefore, the moment such a drop is detected, a series of measures need to be taken in order to raise it back up again. These measures can be detailed as follows:

1. *Blood vessels must be constricted.* (This, in turn, will raise blood pressure, in rather the same way that water emerges under higher pressure when a garden house is squeezed.)

2. *More water must be absorbed from the kidneys and released into the bloodstream.*

3. *The individual must be made to drink water as quickly as possible.*

But how does all this happen? Yet another matchless system has been located in the depths of the human body.

The moment that blood pressure (or the level of sodium in the bloodstream) falls, certain cells in the kidneys take notice. These cells that sound the alarm are the juxtaglomerular (JGA) cells, which secrete a special substance called *rennin*[7] *(Figure 40)*.

The way that cells are able to determine that blood pressure or sodium levels have fallen is a miracle in itself. More important, however, is the cells' secretion of rennin, because that is the first stage in a long chain of production.

In blood plasma, there is a protein that normally has no effect as it circulates around in the bloodstream. This is *angiotensinogen*, which is produced in the liver. Here begins the first stage of an utterly amazing plan. That is because angiotensinogen and rennin—which serve no purpose on their own and by themselves—have been specially designed to combine with one another, in the same way that the components of a machine are often designed so as to be able to be linked to one another *(Figure 41)*.

Figure 40.
The moment that blood pressure falls (or when the level of sodium in the blood decreases), cells in the kidneys known as juxtaglomerular cells (JGA) enter a state of alarm and secrete a special substance known as rennin.

Figure 41.
Just like the components of a jigsaw puzzle, angiotensinogen and rennin have been created to be able to wrap around one another.

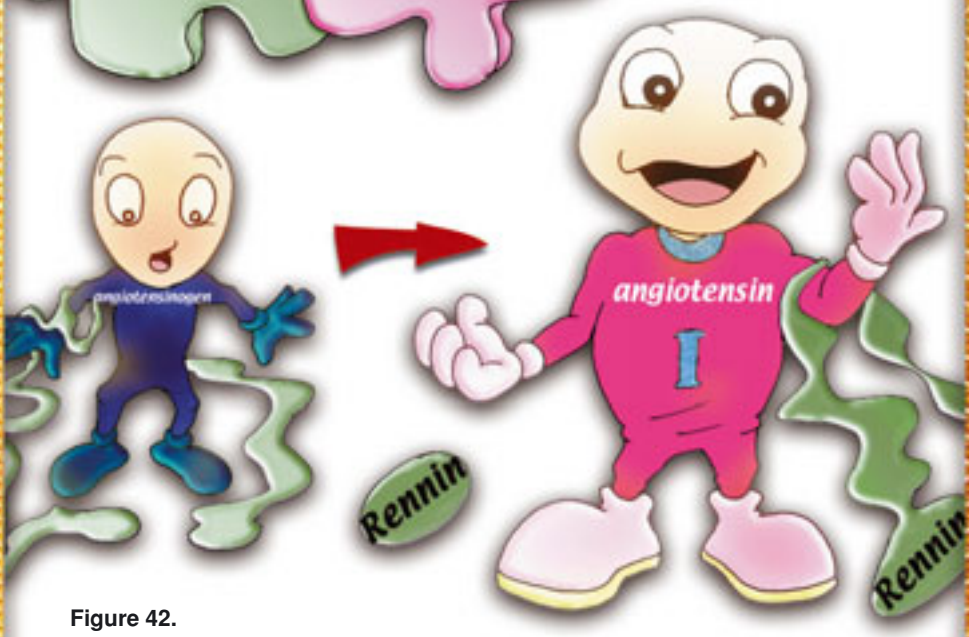


Figure 42.
Rennin changes the structure of the angiotensinogen molecule, and a brand-new molecule emerges—angiotensin I.

Another point here calls for reflection—and astonishment. Kidney cells and liver cells are far distant from one another in the body. How is it that in producing one element of a compound (rennin), another organ will produce the other element of the compound (angiotensinogen) to fit it—and how is it the two will be mutually complementary? It is definitely impossible for this to happen by chance, as evolutionists would have us believe. No doubt that each has been created under the inspiration of Almighty God.

Rennin alters the structure of the angiotensinogen molecule, as a result of which an entirely new molecule emerges—*angiotensin-I (Figure 42).*

Rennin + Angiotensinogen = Angiotensin-I

But this newly emerging molecule has no effect, because the chain of production is not yet complete. An enzyme by the name of *ACE*, found in the lungs and serving solely to break down the angiotensin-I molecule, now enters the equation. Thanks to this enzyme, angiotensin-I turns into yet a different molecule, *angiotensin-II (Figure 43)*.

Angiotensin-I + the ACE enzyme = Angiotensin-II

Once again, we need to step back and reflect. Two different molecules produced by the kidney and liver cells have combined with each other, and a new molecule has emerged. Lung cells, which are totally unconnected to the kidney and liver cells, produce another enzyme that will perfectly attach to this new molecule. In addition, they produce this enzyme long before the molecules in question have combined together. But how do lung cells produce the most appropriate enzyme for an event that has not yet

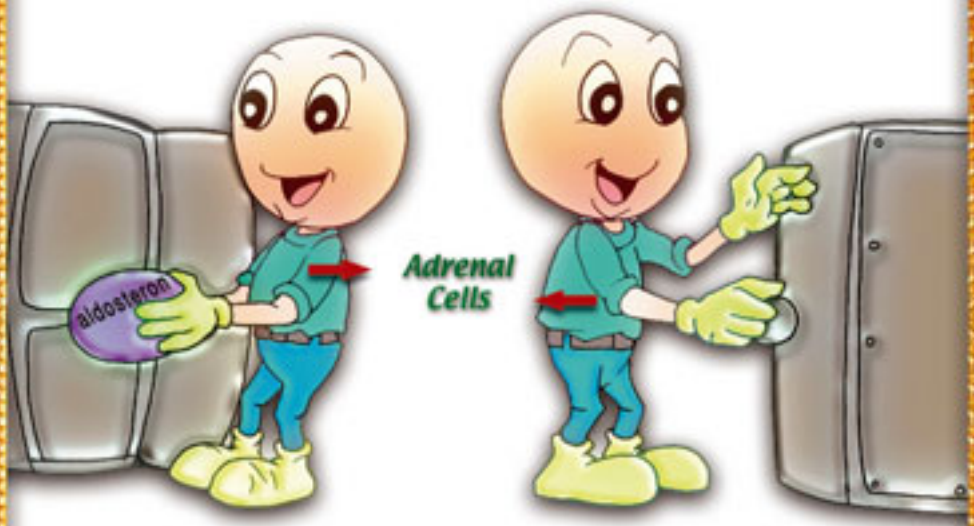
Figure 43.
The enzyme ACE turns angiotensin I into yet a different molecule, angiotensin II.

taken place—to bind with a substance that has not yet been manufactured? How do they know the formula for an enzyme that will convert one molecule into another? No doubt is the incomparable God Who inspires this knowledge in the lung cells.

The enzyme angiotensin-II has two vital functions; first, to ensure the constriction of the blood vessels. Angiotensin-II stimulates the muscles around the blood vessels and sets the mechanism that provides the contraction—yet another proof of flawless creation. The muscles are thus contracted, the diameter of the blood vessels is reduced and blood pressure is elevated. This is the first intended outcome.

The second major duty of angiotensin-II is to call to duty the miraculous hormone *aldosterone*. When the angiotensin-II reaches the adrenal cells, it commands them to secrete aldosterone. This is yet further proof of the flawless nature of the allover blueprint, because the aldosterone will affect the kidneys, causing them to re-absorb the water in urine and release that water back into the bloodstream. In this way, the volume of blood will

Figure 44.
Angiotensin II reaches the adrenal cells above the kidneys and commands them to secrete aldosterone. This affects the kidneys, causing them to re-absorb water from the urine and release it back into the bloodstream. This results in an increase in blood pressure. This magnificent plan functions absolutely flawlessly and is a manifestation of the omniscience of God.

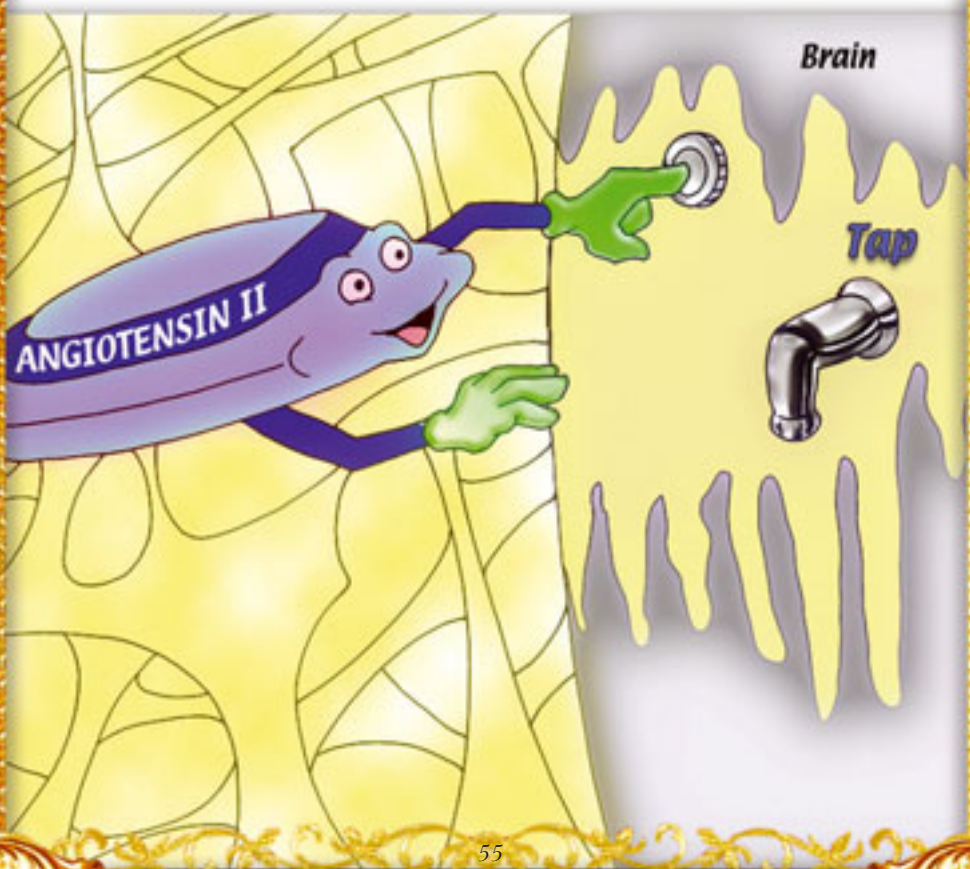


rise, together with blood pressure, which is the second desired outcome *(Figure 44)*.

Angiotensin-II, produced as a result of communal labor among the kidney, liver and lungs, has another very important function: to stimulate into action a special region of the brain known as the *thirst region*.

However, there is a major obstacle facing angiotensin-II. That is because in order to protect the brain, a very selective system that makes passage from the blood to the brain tissue difficult, known as the *blood-brain barrier*. But there are one or two points in the brain in which this system is not present, one being the thirst center. Thanks to this special creation, the *thirst center* is stimulated and the individual develops an urge to drink[8] *(Figure 45)*.

Figure 45.
Angiotensin II stimulates the thirst region in the brain, and a person thus feels the urge to drink.



The substances produced by the kidneys, lung and liver—jointly, and in accord with a rearranged blueprint—are combined in a regular manner, as a result of which they ensure the secretion of a hormone that causes blood pressure to rise. To achieve this, the cells of the kidneys, lungs and liver have to join forces and establish a coalition.

When blood pressure falls, this consortium of organs must investigate what needs to be done. Then, as a result of this investigation, the coalition has to decide on the ideal solution: which is *narrowing the diameter of the blood vessels and also ensuring the secretion of the hormone aldosterone*.

Then, these organs again must cooperate to carry out lengthy research and analyze the anatomies and working systems of the adrenal glands and muscle cells around the blood vessels. They then must determine a molecular project to contract these vessels and for the miraculous formula of angiotensin-II to stimulate the adrenal glands to secrete aldosterone.

The last job that needs to be done is determining how this final molecule is to be produced. During the production stage, each organ must assume a responsibility. Duties must be shared out in a three-stage assembly plan within the framework of the production plan already drawn up in advance. The renal cells must decide to produce rennin, the liver cells to produce angiotensinogen, and the lung cells to produce ACE; and the task of distribution must be completed. Finally, the process must be brought to an end and the cells must return to their original locations *(Figures 46 and 47)*.

Every part of this system is full of marvels calling for further consideration. Every cell in the human body has been created for a particular task, equipped with special attributes and specially positioned exactly where it needs to best carry out its task. Our Lord has created all the events that take place in the human body, and every detail in that body is just one of the proofs of His infinite knowledge.

As Almighty God has revealed in the Qur'an:

Any mercy God opens up to people, no one can withhold, and any He withholds, no one can afterwards release. He is the Almighty, the All-Wise. (Surah Fatir, 2)

Figure 46.
Unknown to the individual concerned, the liver, kidney and lung cells literally hold a conference and distribute tasks among the cells.

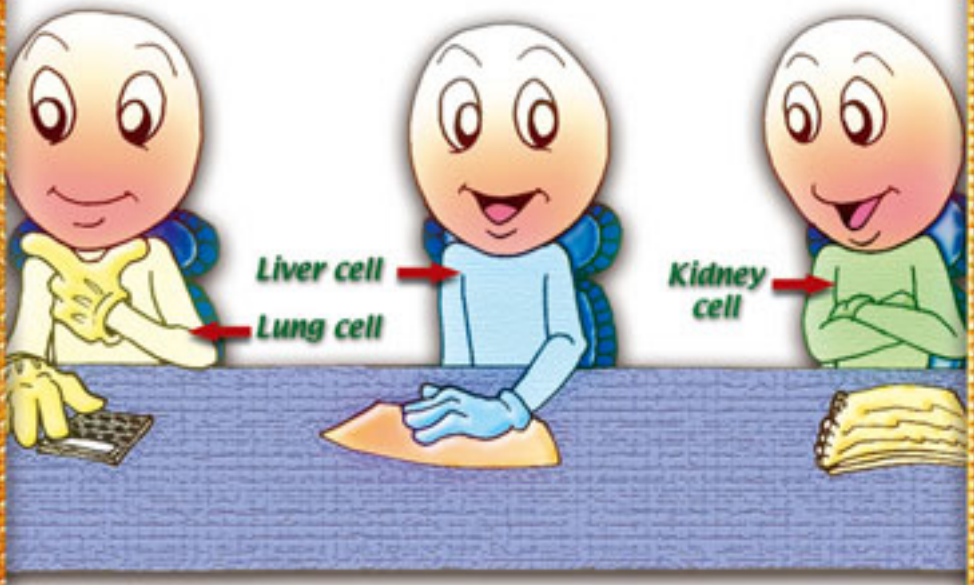
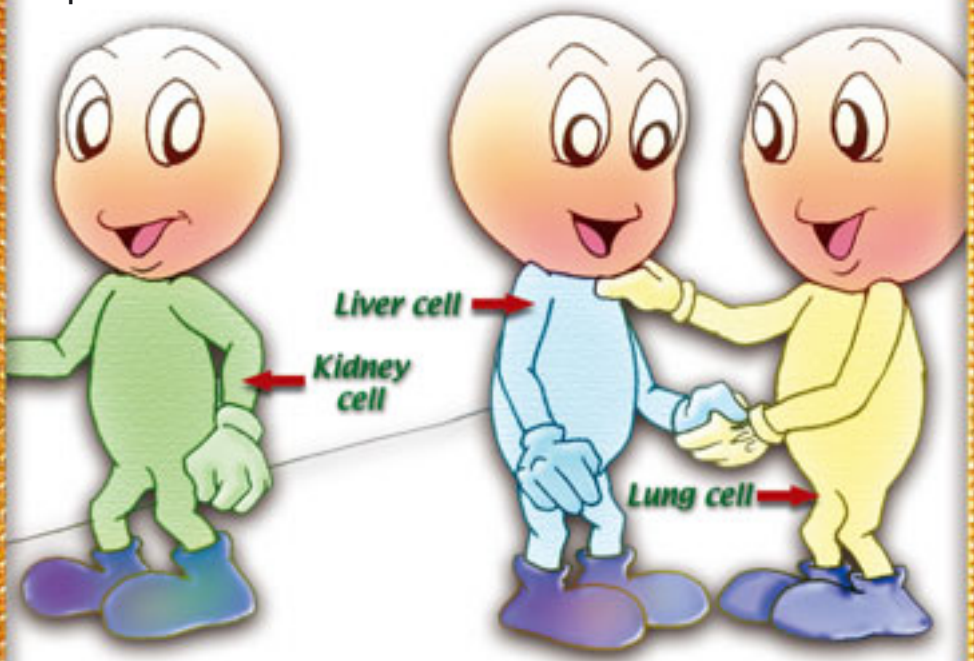


Figure 47.
In the wake of that meeting, all the cells' duties have been set out, and each one knows what it has to do. By means of God's inspiration, these entities, all of them too small to be seen with the naked eye, keep blood pressure under control at all times.



9.

Growth Hormone

What is it that helps a newborn baby weighing 3 kilograms (6 pounds) and only 50 centimeters (19 inches) tall to turn into an adult weighing around 80 kilograms (176 pounds) and some 1.80 meters (6 feet) tall over 20 to 25 years?

The answer to that question lies hidden in growth hormone, a miraculous molecule secreted by the pituitary gland.

Growth in the body takes place in two different ways. Some cells simply increase their volume, while others divide and multiply, creating more of themselves. But growth hormone directs and brings about both of these processes.

Growth hormone affects all the body's cells. Every cell knows the meaning of the message secreted by the pituitary gland. If it needs to grow, it does so, and if commanded to divide and multiply, it does so.

For example, the heart of a newborn baby is about 1/16 the size of an adult's. Yet it contains the same number of cells as an adult heart. Growth hormone affects the heart cells one by one during their developmental stage. Every cell develops to the extent commanded by the growth hormone. Thus it is that the heart grows and eventually reaches an adult size *(Figure 48)*.

Figures 48 and 49.
The heart of a newborn baby is only 1/16th the size of an adult's heart. Yet both contain the same number of cells.

While the baby is still in the mother's womb, at the end of the sixth month of gestation, the multiplication of nerve cells in the heart comes to an end. From this stage on, from birth and until adulthood, the number of cardiac nerve cells remains fixed. Growth hormone commands the nerve cells to grow in volume, not in number, and the nervous system thus achieves its final state with the end of the growth phase *(Figure 49)*.

Other cells in the body—those of muscle and bone cells, for instance—divide and multiply throughout the developmental stage. Once again, it is growth hormone that informs these cells how much they need to grow *(Figures 50 and 51)*.

That being the case, we have to ask the following question:

How does the pituitary gland knows the requisite formula for cells to

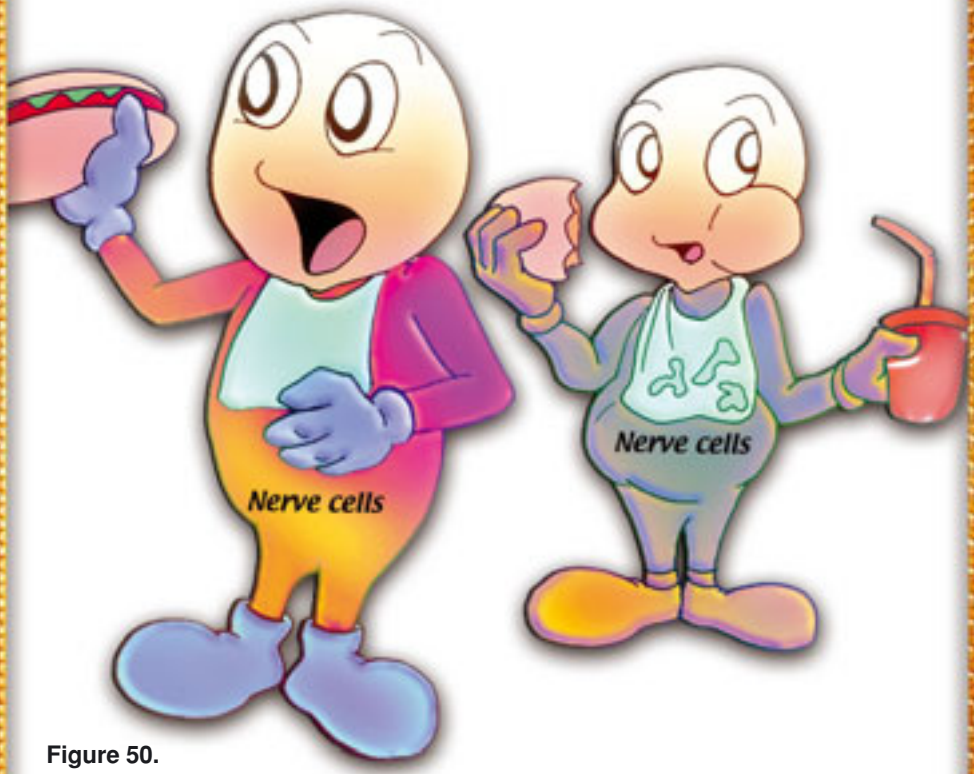


Figure 50.
Growth hormone instructs the nerve cells to grow in volume. At the end of their growth stage, nerve cells assume their final form.

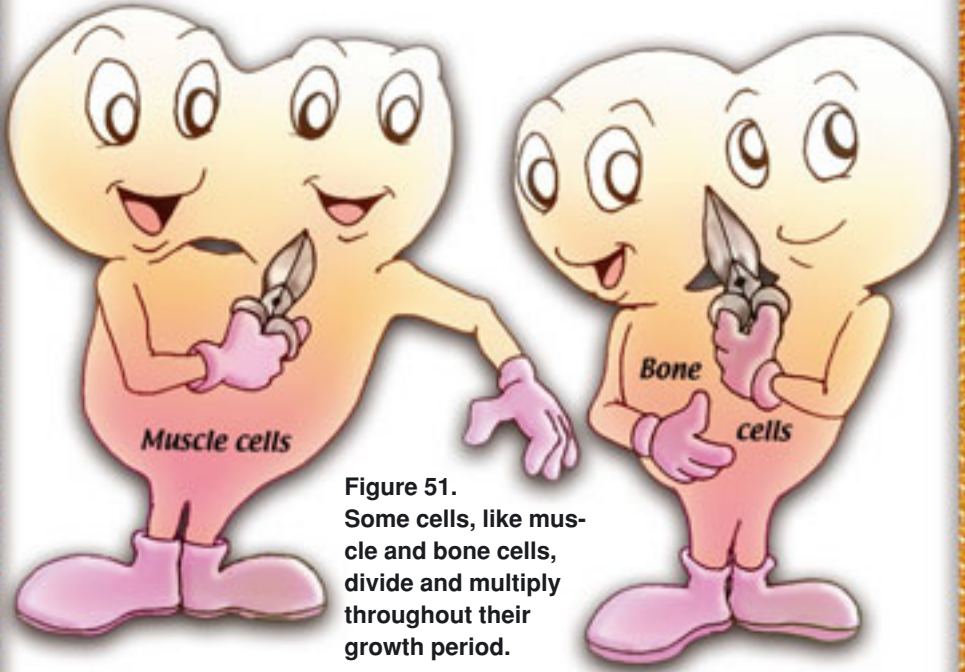


Figure 51.
Some cells, like muscle and bone cells, divide and multiply throughout their growth period.

divide or grow? This is a very miraculous phenomenon, because a parcel of tissue no larger than a chickpea governs all the cells in the body and provides for the growth of these cells, either by expanding their volume or by dividing and multiplying.

Another question we need to ask ourselves is this: why does this piece of tissue perform this task? Why do these cells spend their entire existence sending messages telling other cells to divide?

At this point, the perfection of God's creation once again reveals itself. Cells in one tiny region ensure that trillions of other far-flung cells divide and grow within a regular order. Yet these cells have no way of perceiving, seeing the human body's symmetry from the outside, nor of knowing how much the bones and muscles still need to grow, nor what stage of the developmental process has been reached. These unconscious cells produce growth hormone inside the darkness of the body, without even knowing what they are doing—and yet, also halt the process when the appropriate time comes. The system has been created so flawlessly that every phase of growth and the secretion of this hormone is kept under control at all times.

The way that growth hormone commands some cells to increase their volume and others to multiply through division is an entirely separate miracle—because the hormone that reaches both types of cell is exactly the same. However, the way that the cell receiving the hormone is to behave is encoded in its genes. Growth hormone issues the command to grow, but the way in which this process is to take place is written inside that cell. This once again demonstrates the might and majesty of creation in every point in the human body.

Another very important detail here is yet another great miracle: the way that growth hormone affects *all* the body's cells. If some cells obeyed the growth hormone while others ignored or rebelled against it, then undesirable, even catastrophic consequences would result. For example, if cardiac cells were to increase in size, in the manner that growth hormone commands while bone cells in the ribs refused to multiply and increase their number and mass, then the expanding heart would be trapped in the narrow ribcage and slowly be crushed to death.

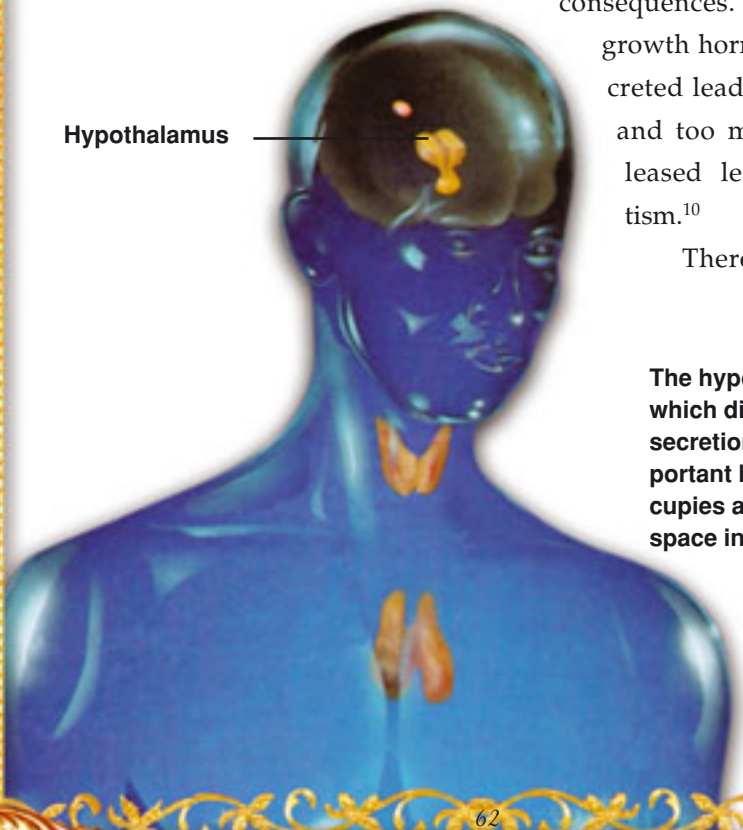
Or if the nasal bone continued growing while the skin stopped, the

nasal bone would break through the skin and come to the surface. The harmonious growth of muscles, bones, skin and other organs is ensured by the obedience of each individual cell to the growth hormone.

The growth hormone also gives the command for the development of cartilage at the ends of the bones. This cartilage is like a template for the newborn baby's body. So long as it does not grow, neither can the baby.[9] The cells in a bone lengthen it, but how can the cells know that this is necessary? If this bone thickens and only grows in diameter, then the legs will not grow longer, and the femur bone may even stretch the skin and erupt at the surface. However, our Almighty God has installed the information and all details regarding the human body inside the nucleus of every cell. Thus the bones lengthen and grow.

Another miracle manifested by growth hormone concerns the time and the quantities in which it is released. Growth hormone is secreted in just the appropriate amounts and at those times when growth is most intense. This is vitally important, because if slightly more or slightly less hormone than necessary were released, it would give rise to most unwelcome consequences. Too little growth hormone being secreted leads to dwarfism, and too much being released leads to gigantism.[10]

Therefore, a very



The hypothalamus, which directs on the secretion of vitally important hormones, occupies a very small space in the brain.

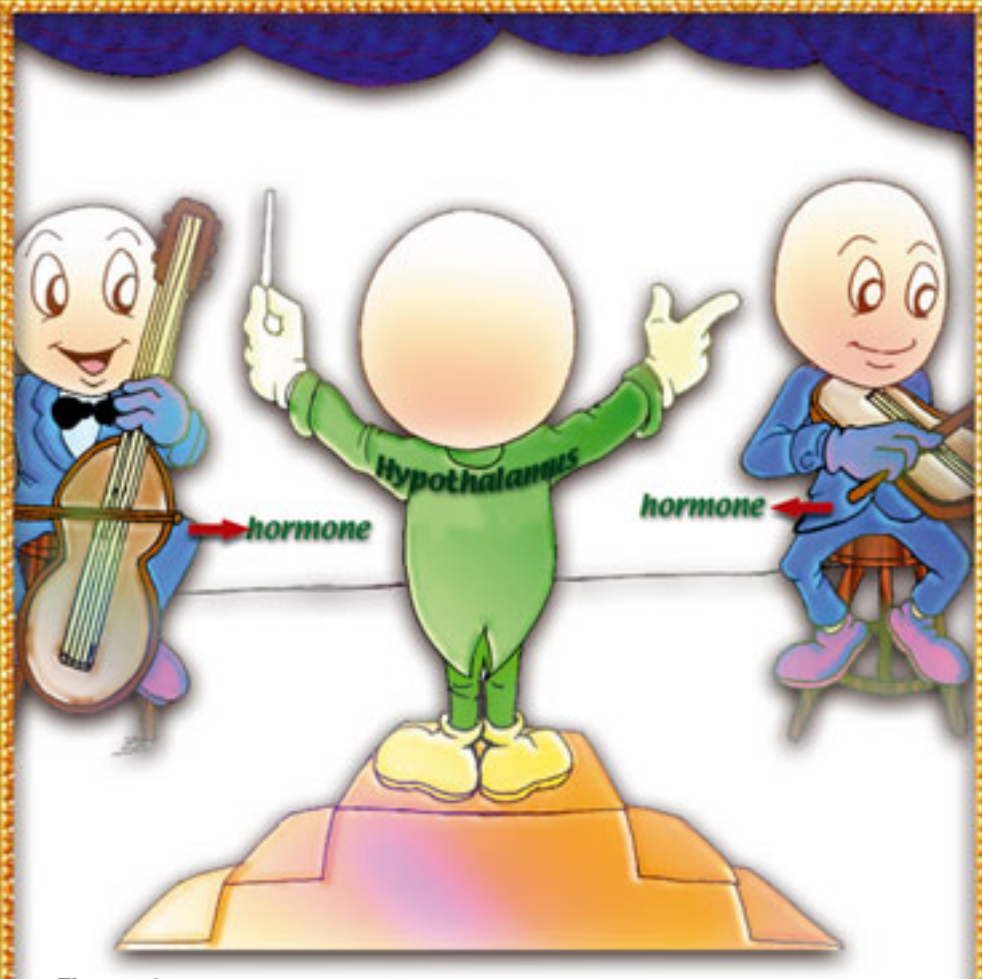
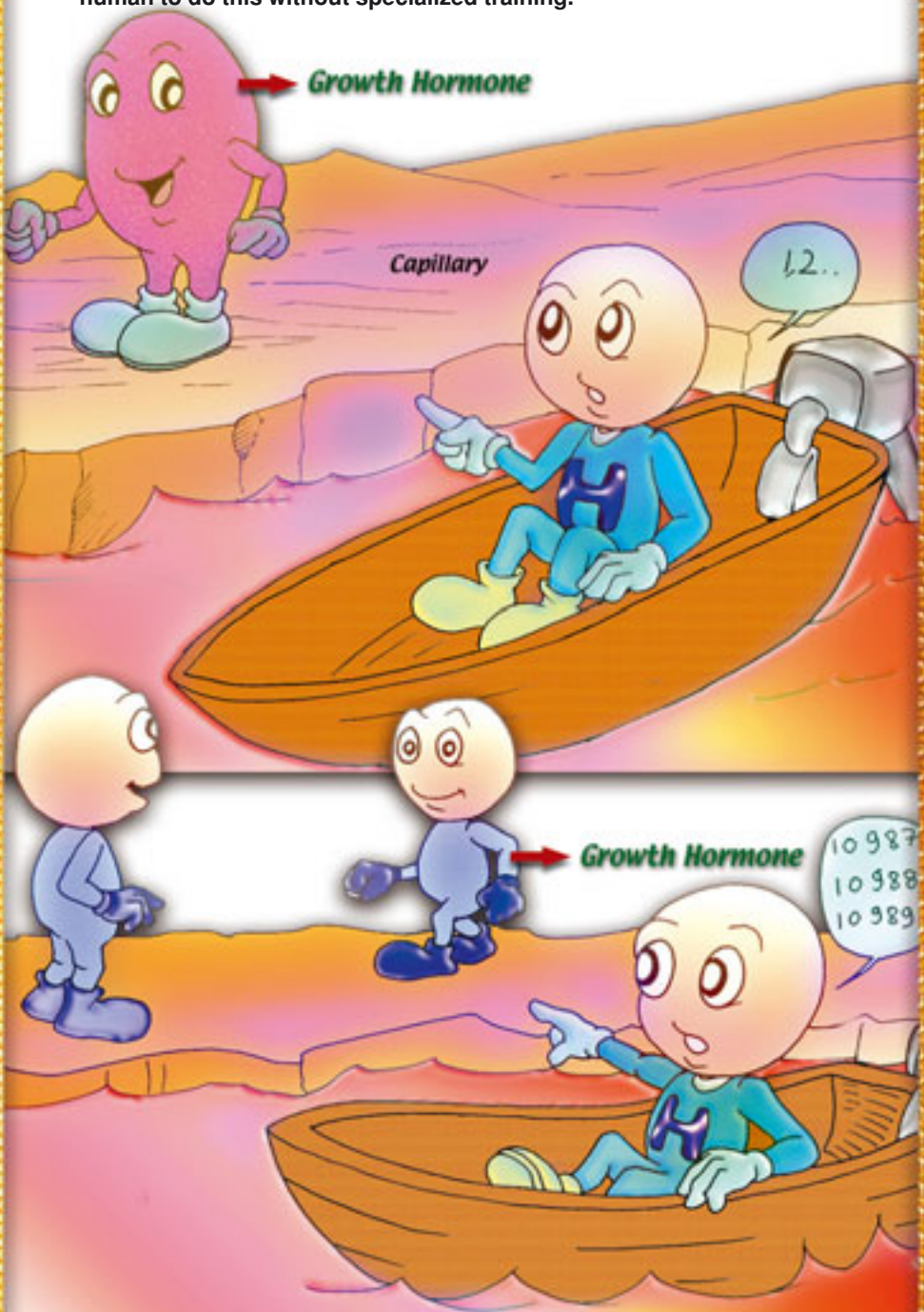


Figure 52.
Just like the conductor of an orchestra, the hypothalamus regulates the body's hormonal balance.

special system has been created to regulate the amount of growth hormone released in the body. The hypothalamus, regarded as the decision-making part of the pituitary gland, decides how much of the hormone should be secreted. When the time comes for growth hormone to be secreted, it sends a growth- hormone-releasing hormone (known as GHRH) to the pituitary gland. When too much growth hormone accumulates in the bloodstream, the hypothalamus sends another message (via the hormone somatostatin) to the pituitary gland, slowing its release of growth hormone[11] *(Figure 52)*.

How do the cells composing the hypothalamus know how much growth hormone there should be in the blood? How do they measure the

Figures 53 and 54.
The hypothalamus performs an important task that no human being ever could do consciously. It distinguishes growth hormones in the capillary vessels and counts them. It is out of the question for any human to do this without specialized training.



levels of growth hormone there and take the appropriate decisions accordingly?

In order to appreciate what a great miracle this actually is, consider the following analogy:

Assume that using special technology yet to be invented, we have shrunk an entire human being down to the size of a cell. This tiny person has been placed inside a special capsule and inserted next to one of the cells in the region of the hypothalamus.

This individual's job is to count the number of growth-hormone molecules inside the capillary vessels before him. He must also determine whether their number has risen or fallen. It is well known that, there are thousands of different substances flowing past in the blood. Bearing in mind the structure of molecules, (unless this lone individual has received special, expert biochemical training). it will be impossible for him to determine whether or not the compounds flowing past him belong to growth hormone. Yet it is essential that the person installed in the hypothalamus recognize every growth hormone molecule from among all the other thousands of molecules, because he must monitor the levels of growth hormone at all times *(Figures 53 and 54)*.

How do hypothalamus cells perform a task which would be extremely difficult even for a human being of any size? How can they measure the amount of growth hormone, which is always present in the blood, even after skeletal growth stops, to maintain the division of cells? How do they distinguish between growth hormone and the countless other molecules? These cells have no eyes with which to recognize molecules, nor brains with which to analyze the results. Yet they carry out the task given them within the system established by God in a flawless manner. Thanks to this immaculate system, human beings have perfectly proportioned and aesthetically pleasing organs and bodies. God has created all things with perfect features:

> **He is God—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)**

10.

The Clock in Our Bodies That Never Goes Wrong

As everyone is well aware, during adolescence—the transitional stage between childhood and adulthood—the body undergoes a large number of changes, many simultaneously. But what mechanism so accurately regulates the timing of and initiates these changes inside the bodies of billions of people? It is as if there were an alarm clock in the human body, and when the clock rings, certain hormones are awakened and go into action.

There is no clock in the body, of course. But as we shall be seeing shortly in some detail, certain cells in the hypothalamus region of the brain go into action after a delay of some 12 to 13 years, just as if they had heard an alarm clock going off. At a specific age, cells in the hypothalamus begin secreting a hormone known as GnRH. This hormone issues a command to the pituitary gland to begin producing two hormones known as the *follicle stimulating hormone* (FSH) *and luteinizing hormone* (LH).

These two hormones have very important duties and miraculous abilities. Both initiate the process of diversification and maturation in both the male and female bodies—.a very important detail, because FSH and LH

have each been designed to be compatible with the separate regions of the anatomy in which these respective changes are brought about. Both hormones also act as if they were well aware what they have to do.

In the female body, FSH ensures the maturation and development of egg cells in the ovaries. Another of its duties is to ensure that the ovaries begin to secrete increased quantities of another very important hormone, estrogen.

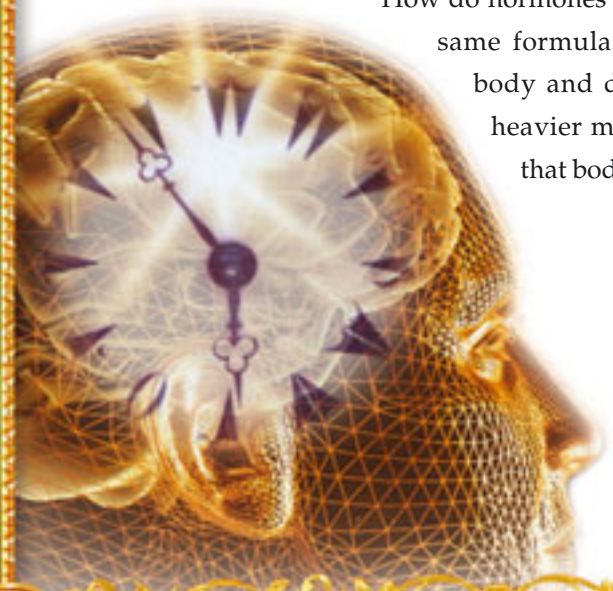
The hormone FSH is also secreted in the male body, according to the same formula. There, however, it has entirely different effects, stimulating the growth of the testes and initiating sperm production.

In the female body, the task of LH is to ensure the release of the maturing egg. In addition, it ensures the secretion of another female hormone, progesterone.

In the male body, of course, LH does a different job. It stimulates the so-called Leydig cells in the testes, which in turn ensures the secretion of the hormone testosterone.

It is of course a great marvel that these same hormones should be produced according to the same formula, and yet have entirely different effects in the bodies of each gender. How do the hormones "know" the difference between the male and the female body? How is it that a hormone with the same formula stimulates different organs—and ensures the production of testosterone in males and of progesterone in females?

How do hormones produced according to the same formula recognize the masculine body and develop a deep voice and heavier musculature appropriate to that body, while producing charac-



Thanks to the invisible clock in the hypothalamus region of the brain, the hypothalamus realizes when an individual has reached adolescence.

teristic changes and chemistry in the female body? How was this perfect genetic program that causes different effects and the formation of two different genders by way of the same hormone installed within the cell *(Figure 55)*?

All these phenomena are clearly independent of coincidence, the cell, or the atoms that constitute the cell. These arrangements—in forms specifically and individually tailored to men and women, reveal the existence of intelligent creation and in-depth planning. There can be no doubt that this creation belongs to God, the flawless Creator of the universe and all things within it.

Everyone who reflects on the perfection in creation must give thanks by calling on our Lord, Who created us from nothing:

> **O Humanity! Worship your Lord, Who created you and those before you, so that hopefully you will guard against evil. (Surat al-Baqara, 21)**
>
> **Praise be to God, the Bringer into Being of the heavens and earth, He Who made the angels messengers, with wings—two, three or four. He adds to creation in any way He wills. God has power over all things. (Surah Fatir, 1)**

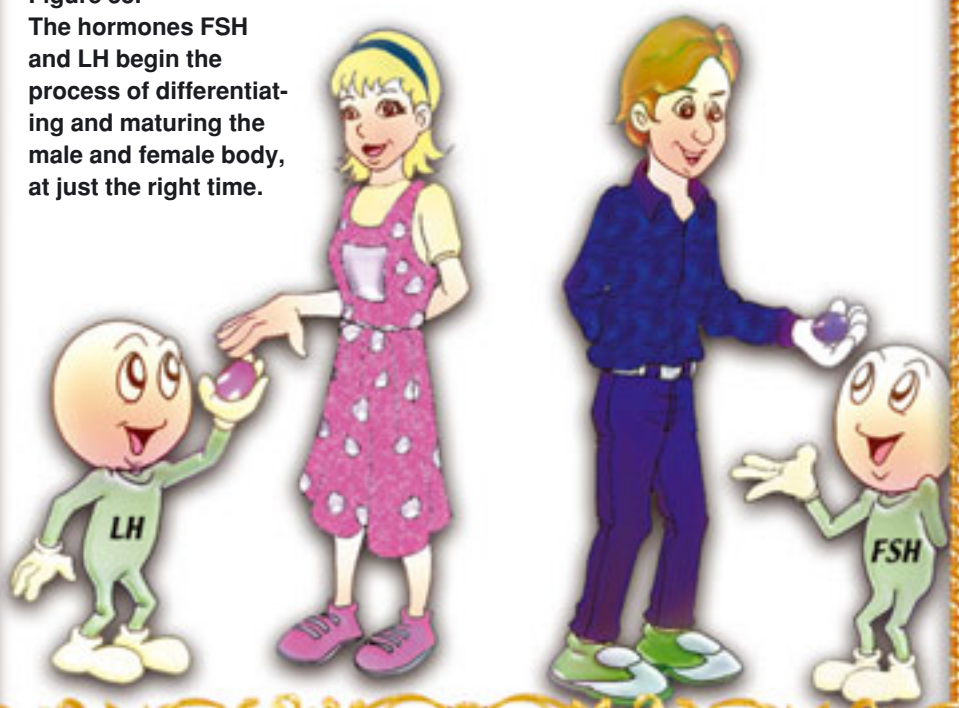


Figure 55.
The hormones FSH and LH begin the process of differentiating and maturing the male and female body, at just the right time.

11.

The Miraculous Molecule That Regulates Body Temperature

As you'll know, the normal body temperature for all human beings is between 36.5 to 37 degrees Celsius, or 96 to 98.6 degrees Fahrenheit. But have you ever wondered about the source of your body temperature and what maintains it at that constant level?

Central heating systems are generally employed to keep our homes warm, with thermostats that regulate the temperature. The householder warms his home by turning the thermostat up to the desired level. But what exactly is the human body's central heating system? And how is that "thermostat" adjusted?

The source of body heat is the 100 or so trillion cells in the human body. During the course of their activities, the cells emit a certain amount of heat, which causes the body to warm up. But it is the hormone thyroxin, a tiny molecule that regulates—with God's inspiration—how much heat each of these micro-heaters should give off. In other words, thyroxin acts as a thermostat *(Figure 56)*.

The way a cell generates a specific level of heat as it operates, and that the total amount emitted by those roughly 100 trillion cells reaches the

exact level required for healthy human life is a miracle all by itself. Somehow, thyroxin molecules know how much heat each cell should give off, and how that heat is to be increased—in itself this is a miracle of creation *(Figure 57)*.

The secretion of the thyroxin is another miracle of creation. The moment the need for the hormone is felt, the hypothalamus—in effect, the "brain" of the hormonal system—sends a command (via the *thyroid-stimulating hormone* or TSH) to the pituitary gland, the conductor of the nervous system. Receivings this command, the pituitary gland realizes that the thyroid gland needs to go into action. And so, it immediately dispatches a command in the form of *thyrotropin* (or thyroid-gland stimulating hormone) to the thyroid gland. The thyroid, the final link in this chain of command, immediately produces the hormone thyroxin in accord with the chemical instruction reaching it, and distributes it throughout the entire body by way of the bloodstream *(Figure 58)*.

It is not only the duty of the hormone thyroxin that is so very important, but also the level at which it is secreted. But how is that level determined? How is it that neither too much nor too little of this hormone is secreted into the blood (apart from in times of sickness and fever)? What determines the level at

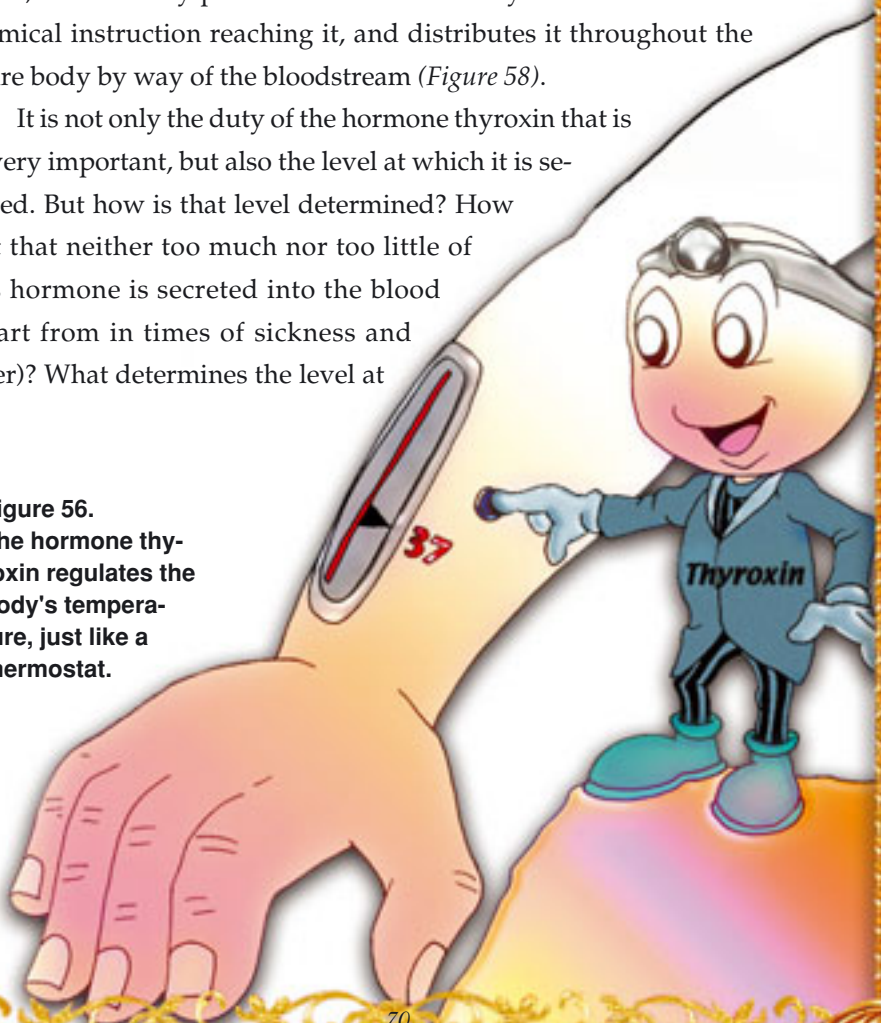


Figure 56.
The hormone thyroxin regulates the body's temperature, just like a thermostat.

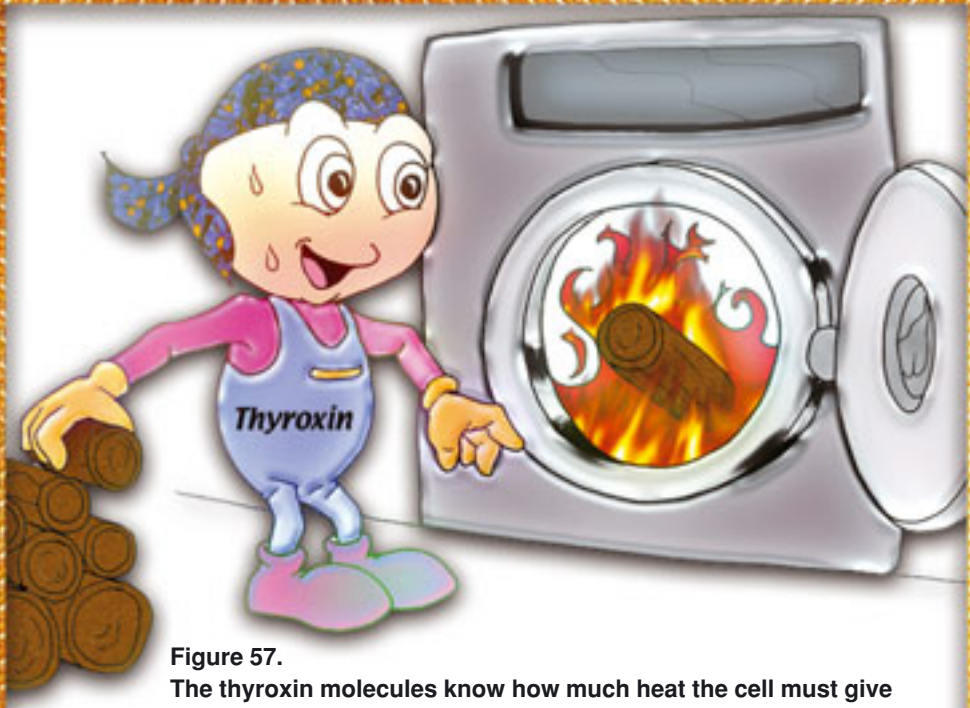


Figure 57.
The thyroxin molecules know how much heat the cell must give off and how that heat is to be increased—yet another miracle of God's creation.

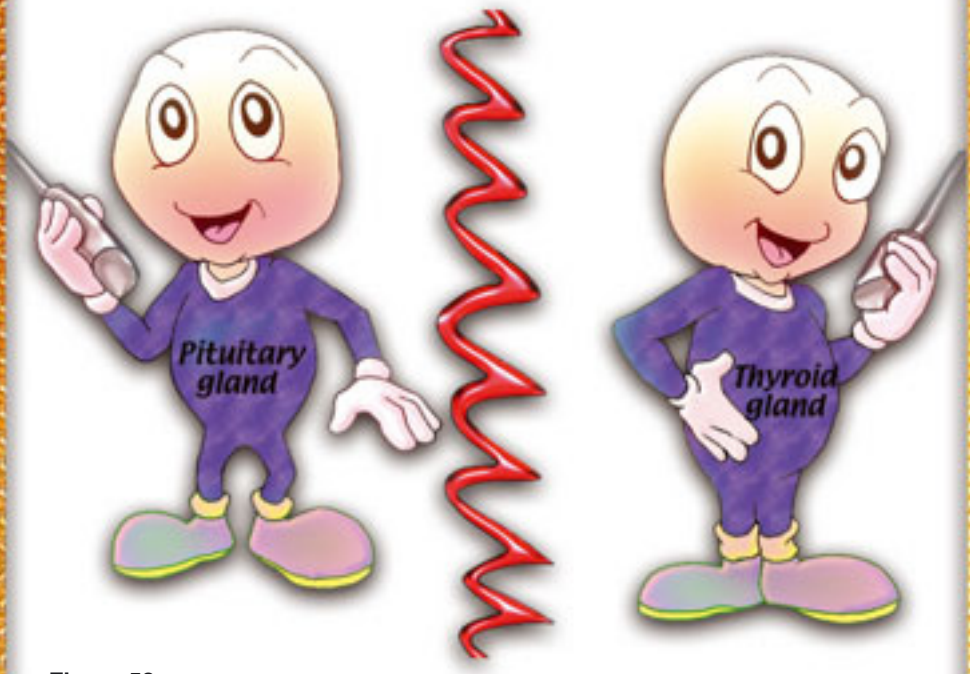


Figure 58.
When the pituitary gland sends a command to the thyroid, the thyroid immediately begins producing thyroxin and distributes this hormone to the entire body via the bloodstream.

which thyroxin is secreted is a special system created by God with His infinite knowledge, consisting of two separate measurement and feedback mechanisms. Both mechanisms are the result of matchless engineering design.

When the level of thyroxin in the bloodstream rises above normal, thyroxin produces a very significant effect on the pituitary gland: It reduces the pituitary gland's sensitivity to TSH, the thyroid secretion hormone *(Figure 59)*.

If you think about it, a most marvelous structure is plain to see. The hormone TSH's task is to set the pituitary gland in action and send a message to the thyroid gland—which represents the second link in the chain of command established for the production of the hormone thyroxin.

The system has been planned in such great detail that the increased thyroxin takes a most intelligent measure to prevent any excess production of itself, and so interrupts the chain of command responsible for that production. Thus it is automatically able to slow down the production of thyroxin when the level of thyroxin in the bloodstream rises above normal *(Figure 60)*.

There's a second system that also determines the level of production of thyroxin. Increased thyroxin affects the hypothalamus cells, which then reduce the production of TSH—and thyroxin production is slowed accordingly.

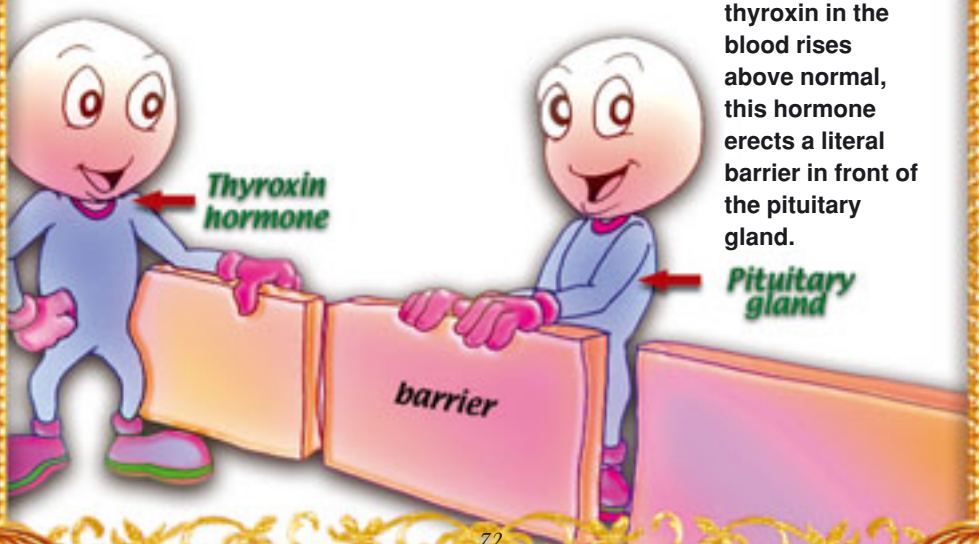


Figure 59. When the level of thyroxin in the blood rises above normal, this hormone erects a literal barrier in front of the pituitary gland.

Figure 60.
When the level of thyroxin in the blood rises above normal, the production process is automatically halted.

When the level of thyroxin in the blood decreases, the system works in the opposite direction. Aware that the level of thyroxin has gone down, the hypothalamus produces more TSH, which increases thyroxin production.

We now need to ask the following questions: how does thyroxin know that the chain of command for thyroxin production must be interrupted? How do the hypothalamus cells know that hormone secretion must be interrupted when thyroxin rises, but that they need to produce more when the thyroxin levels decline? How did this precisely efficient system first come into being?

To imagine that such a finely-planned procedure arose by chance is even more irrational than to claim that a computer and all its programs came into existence by chance. That is because just as with a computer, in order for this system to function, literally hundreds of other specially planned details—which we have not gone into here—must take place at the molecular level.

It is obvious that it is Almighty God, with His sublime intelligence and might, Who has created this system. God's knowledge pervades all places:

> **... My Lord encompasses all things in His knowledge so will you not pay heed? (Surat al-An'am, 80)**

12.

An Extraordinarily Delicate Balance

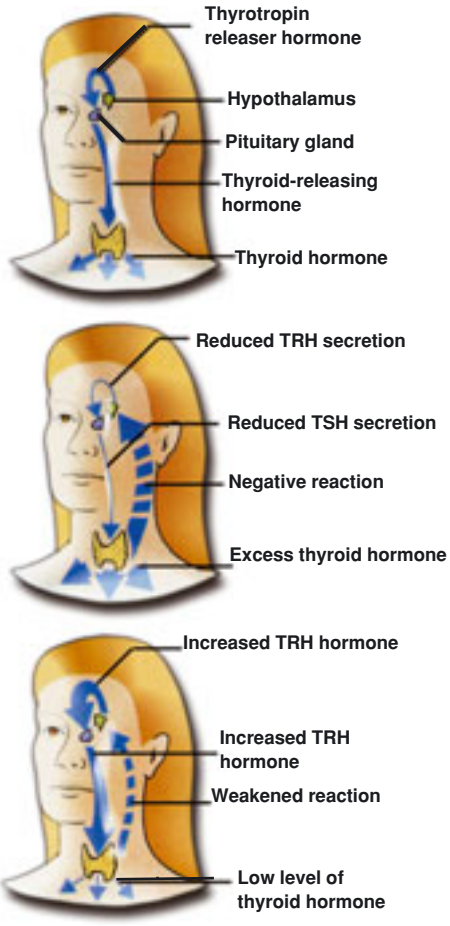
Thanks to the amazing systems we examined in the preceding chapter, the hormone thyroxin is secreted at a guaranteed level. In addition, however, yet another extraordinary system maintains the level of thyroxin in the blood stable, in the face of any emergency situation.

The molecules of thyroxin that the thyroid gland releases into the bloodstream are attached to a transporter molecule specially created for that task alone. Traveling through the bloodstream in that form, they are unable to perform their function so long as they are bonded to the transporter molecule. Out of any 10,000 thyroxin molecules in the blood, only four will be present in an unattached form. These are the four molecules of thyroxin that affect cells' metabolic rates.[12]

When these free thyroxin molecules enter the cells, new thyroxin molecules separate from the transporters to replace them. Thus the thyroxin molecules attached to the transporter molecules serve as a kind of storage depot, and the requisite thyroxin is always kept ready for immediate use *(Figures 61 and 62).*

Figure 61 and 62. When free thyroxin molecules enter the cells, they are replaced by new thyroxin molecules separating from the transporters. Thus thyroxin molecules bonded to transporters are used as a reserve, and the requisite thyroxin is always ready to hand.

This level of thyroxin necessary to affect the cells is based on a very delicate balance, to avoid the possible consequences if the amount of thyroxin acting on the cells increases or decreases beyond the level of 4 in 10,000. Inevitably, therefore, we should ask the following questions: By what mechanism are these trillions of molecules counted? How was it determined that a proportion of only 4 molecules in 10,000 is ideally suited to human health? How was it calculated that the remaining 9,996 molecules need to remain in a bonded, inactive state? How can the body determine that those four thyroxin molecules circulating in the blood vessels have declined in number and that other molecules need to be released to replace them?



When the need arises for the hormone thyroxin, the hypothalamus sends an instruction to the gland. Realizing that the thyroid has to be activated, the pituitary gland immediately sends a command to the thyroid, which produces the hormone thyroxin and distributes it throughout the body.

How have these extraordinary mathematical calculations—and the system based on those calculations—functioned to perfection for thousands of years in all the human beings who have ever lived?

This example is without doubt just one of the countless proofs that Almighty God rules all worlds, whether visible to our eyes or not, and enfolds all things:

... He encompasses what is in their hands and has counted the exact number of everything. (Surat al-Jinn, 28)

13.

Hormones That Prepare the Way For the Baby - Part 1

Every four weeks, a healthy woman's body makes broad preparations in order for an egg to be capable of fertilization. Once again, hormones effect the main elements of those preparations.

At the very beginning of this four-week period, the woman's pituitary gland produces LH. After setting out from its origin in the brain, this hormone travels a considerable distance through the bloodstream before reaching the ovaries. Hormones are exceptionally minute molecules, and for them, movement through the human body represents a journey equivalent to many kilometers. However, every LH hormone reaches the ovary directly, never getting lost, with full apparent knowledge of its destination, and without being diverted toward any other organ. LH's arrival signals that it's now time for the ovaries to go into action *(Figure 63)*.

Each ovary contains thousands of immature egg cells. Under the influence of the LH arriving from the pituitary gland—which possesses a special formula to set these cells in action *(Figure 64)*—a few of them begin to mature. There are a great many substances in the blood, yet apart from LH, none of these possesses the ability to activate ovulation. In other

Figure 63.
Just as if it had consulted an anatomy chart, the hormone LH knows just where it has to go and reaches the ovaries without ever losing its way or deviating to any other organ.

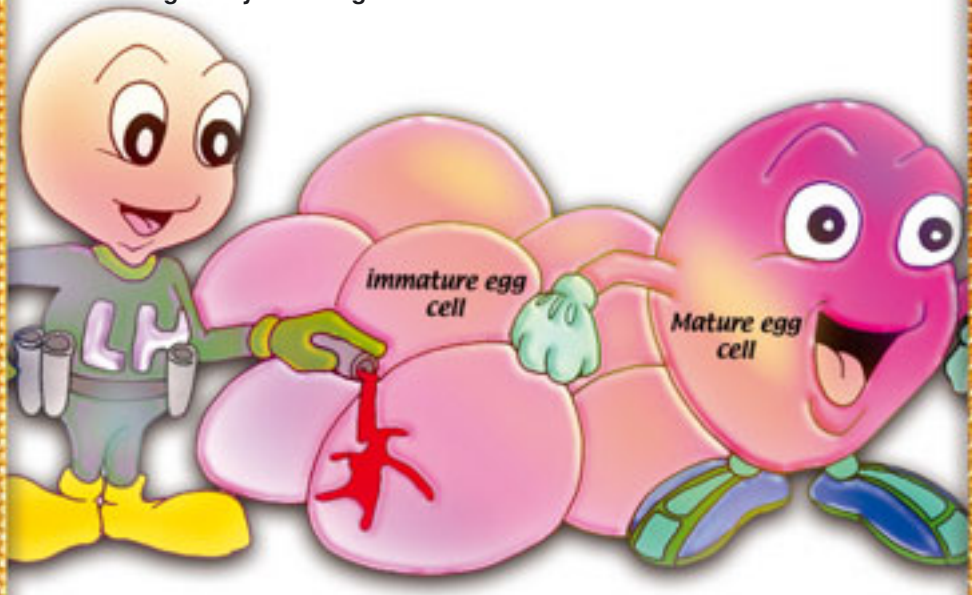


Figure 64.
The ovary contains thousands of immature egg cells. Under the effect of the hormone LH, some of these cells begins to mature. LH has a special formula that sets these cells in action.

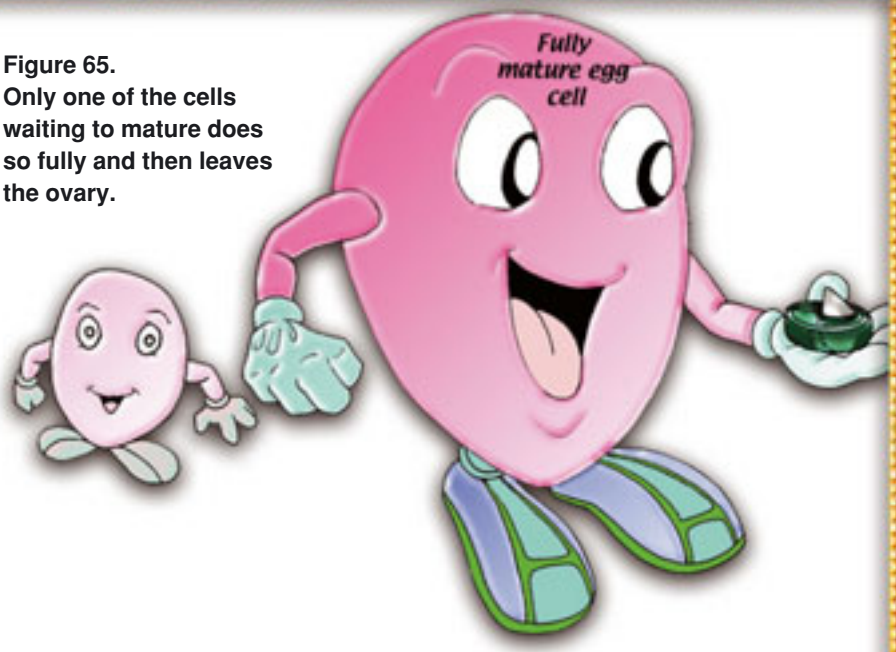


Figure 65.
Only one of the cells waiting to mature does so fully and then leaves the ovary.

words, LH must have been especially cr ated for this purpose.

Only one of the cells fully matures, and this is released from the ovary in the form of an egg cell *(Figure 65)*.

The developing egg cell and the nourishing layer around it are known as the *follicle*. FSH, another hormone sent from the pituitary gland, has a very interesting effect on the follicle, which suddenly starts producing another special molecule: the hormone estrogen.

How is it that the follicle, itself not yet fully developed, begins producing a hormone? How did it come to possess the mechanism and organization with which to make that production? What is the goal of that production?

It is certain that it is Almighty God, Lord of the worlds, Who does all these things. These systems are just one of the proofs of His infinite knowledge and sublime creation:

> **Does He Who created the heavens and earth not have the power to create the same again? Yes indeed! He is the Creator, the All-Knowing. His command when He desires a thing is just to say to it, "Be!" and it is. Glory be to Him Who has the Dominion of all things in His Hand. To Him you will be returned. (Surah Ya Sin, 81-83)**

14.

Hormones That Prepare the Way For the Baby - Part 2

The duties undertaken in the female body by molecules produced by the follicle—in other words the estrogen—reveal yet another of the miracles in God's creation. Let us briefly survey these duties: One of the organs affected by the hormone estrogen is the *uterus,* which is where the fertilized egg will implant itself and divide and grow. Under the influence of estrogen, preparations in the uterus are begun. The walls of the uterus increase in thickness three to five times and are enriched with capillary vessels *(Figure 66).* If fertilization takes place, then these vessels will meet the embryo's nutritional needs.

This is a true miracle, because the still-developing follicle literally considers the future of the egg cell inside it, takes the requisite measures for the egg's future nourishment, and ensures that the uterus is prepared to receive the egg it will harbor in the future.

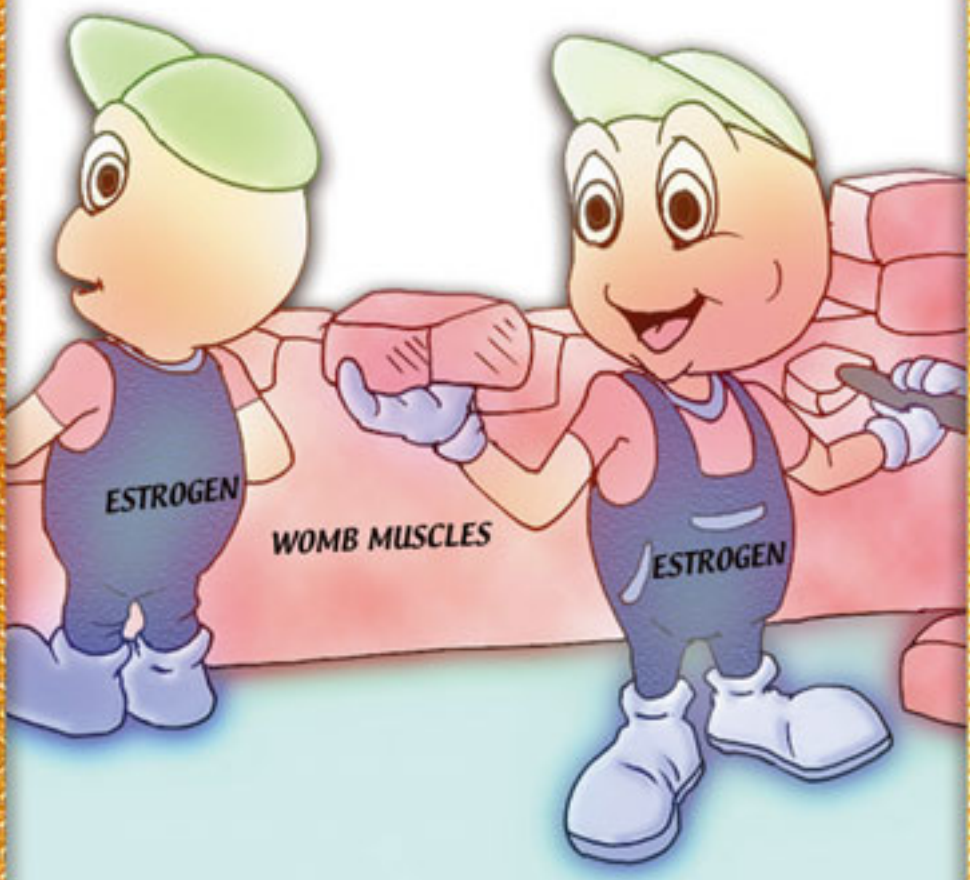
Of course, this raises a number of questions:

1. How does the follicle know that after being released, the egg cell will reach the uterus and remain there? How does it know that the uterus' capillary vessels will provide nourishment for the egg cell? How does it

learn the formula that will ensure the multiplication of the blood vessels? These are all, without doubt, manifestations of the creative artistry of God the Exalted.

2. Under the influence of estrogen, the uterus muscles begin to expand and increase in strength. This is a precautionary measure, to protect the uterus in the event that the egg settles there after fertilization.[13] The chemi-

Figure 66.
Under the effect of estrogen, the womb's muscles start to expand and muscle power increases. This precautionary measure protects the womb in the event that fertilization takes place and the egg settles there.



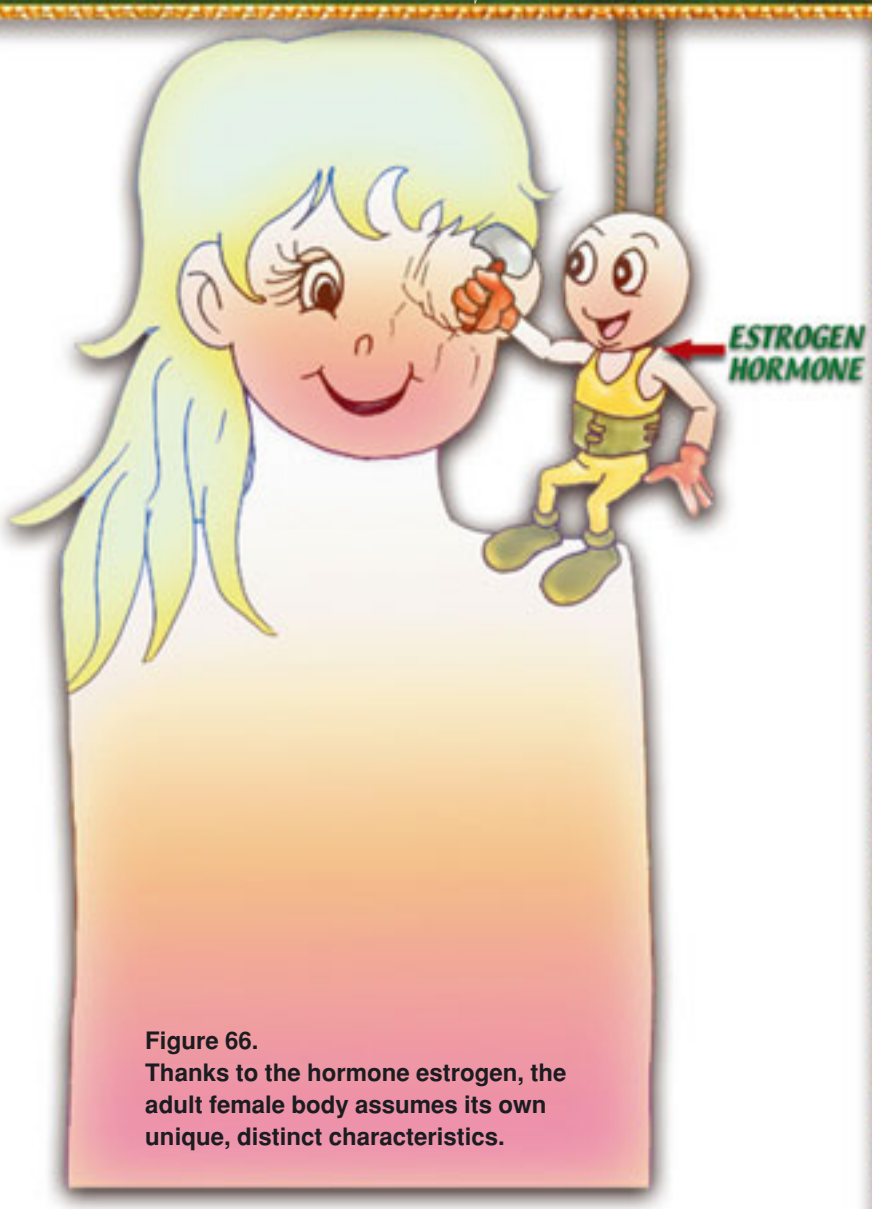


Figure 66.
Thanks to the hormone estrogen, the adult female body assumes its own unique, distinct characteristics.

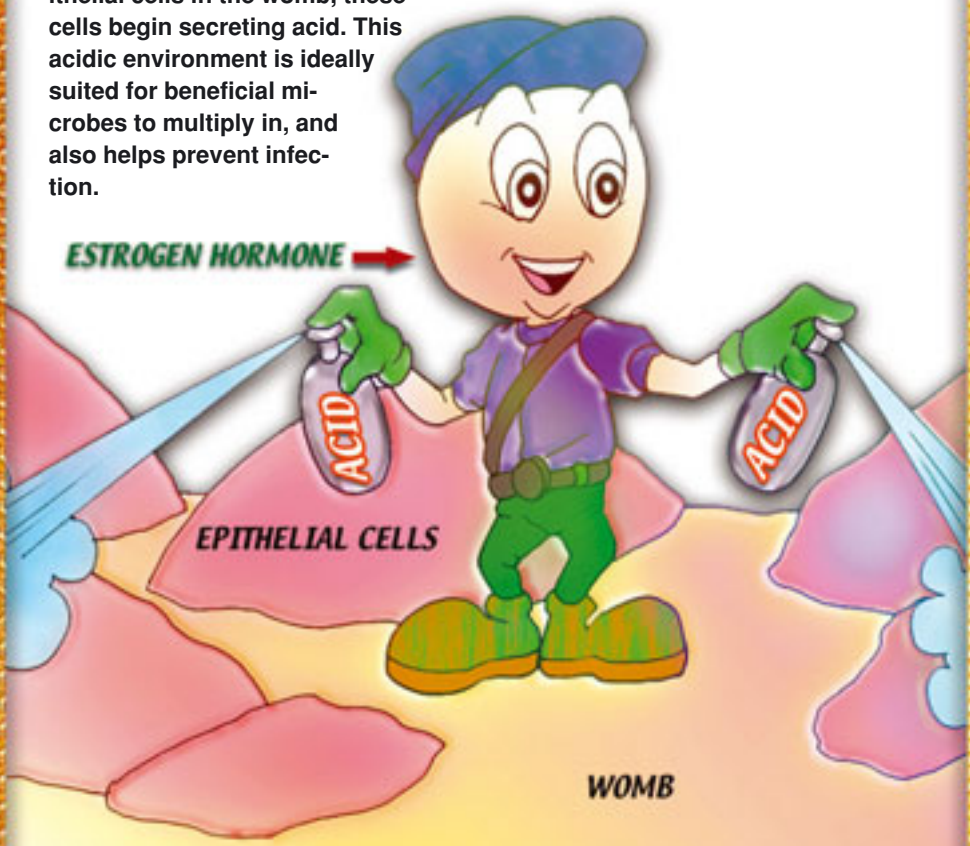
cal molecule produced by a tiny follicle shapes the human body from top to bottom, and at the same time causes the necessary arrangements to be made for the future birth of a healthy human being *(Figures 66 and 67)*. The hormone estrogen is an unconscious substance consisting of atoms arranged one beside the other, produced by unconscious cells and affects other unconscious cells. Yet all these events take place within a broad plan, as a result of which the human infants emerge fully formed.

From all this, the following fact emerges: Estrogen definitely cannot complete all these steps of its own accord. It is our Lord, Almighty God, Who inspires all the actions that it carries out. It is He Who created the universe out of nothing in an incomparable manner:

O humanity! Fear your Lord Who created you from a single self and created its mate from it and then disseminated many men and women from the two of them. Fear God in Whose name you make demands on one another and also in respect of your families. God watches over you continually. (Surat an-Nisa', 1)

That is God, 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)

Figure 67.
When estrogen molecules reach the epithelial cells in the womb, these cells begin secreting acid. This acidic environment is ideally suited for beneficial microbes to multiply in, and also helps prevent infection.



15.

The Hormones in the Male Reproductive System

Hormones also play a major role in the male reproductive system. Some 10 years after birth, with the beginning of adolescence, male hormones shift into full operation. Once again, the activation of these hormones takes place with a chain of command inside the body.

In this chain of command, the hypothalamus gland is the senior director.

In the years after birth, the hypothalamus secretes a hormone known as LHRH every three to four hours. Initially, however, the level at which this hormone is secreted is quite low. Some 10 years later the hypothalamus seems to recognize that the right time for the male body to be mature has arrived and it starts secreting LHRH at shorter intervals[14] *(Figures 68 and 69)*. After waiting for many years, this tiny gland in some way suddenly decides to secrete more hormone, as if there is a pre-existing system that begins functioning only after a delay of 10 years. It is Almighty God, Lord of the worlds, Who establishes this system, predetermines when it should be activated, ensures that it works smoothly and inspires all the other

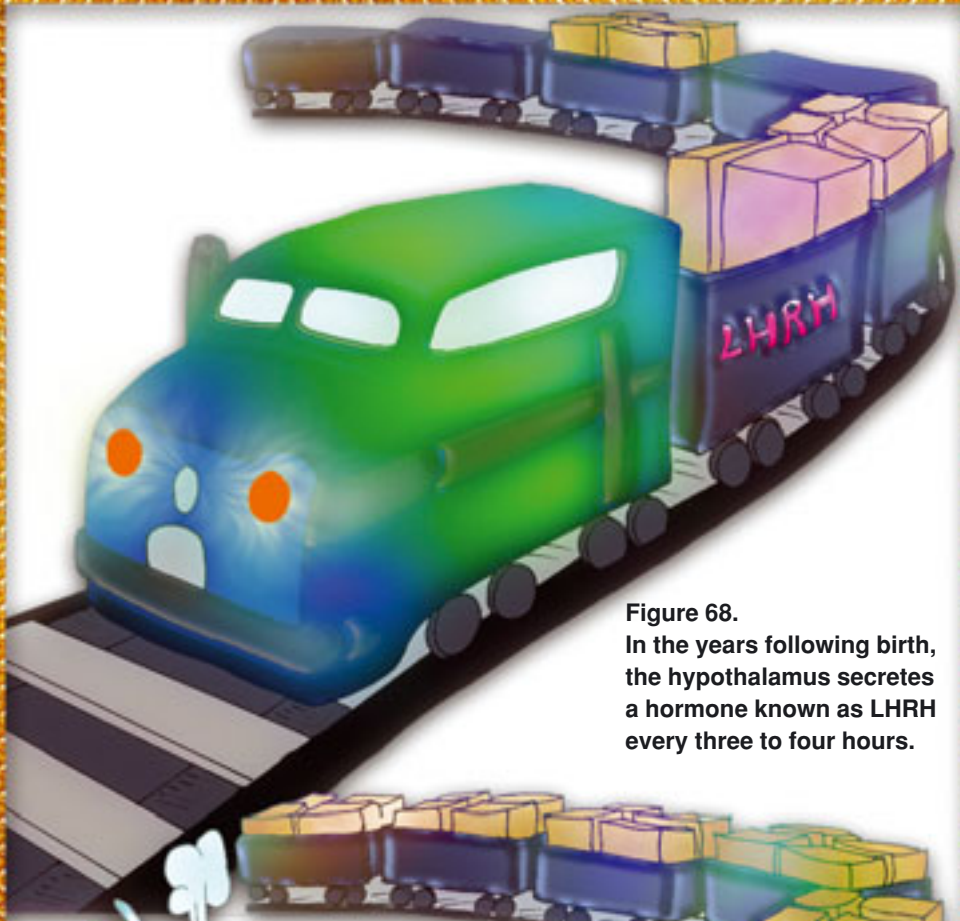


Figure 68.
In the years following birth, the hypothalamus secretes a hormone known as LHRH every three to four hours.

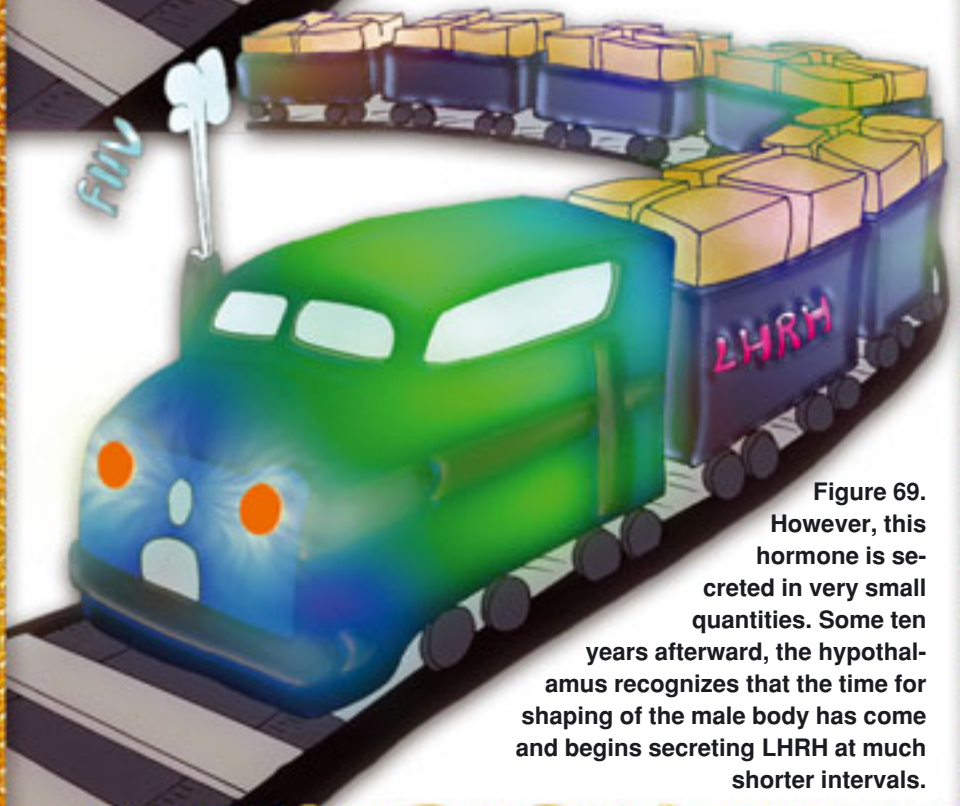


Figure 69.
However, this hormone is secreted in very small quantities. Some ten years afterward, the hypothalamus recognizes that the time for shaping of the male body has come and begins secreting LHRH at much shorter intervals.

processes associated with it.

LHRH, which begins being secreted more frequently when the right time comes, reaches the pituitary gland—the second stage in this chain of command. As soon as the pituitary gland receives this order, it secretes another hormone known as *Lynchford*, which issues an instruction for production of the male reproductive glands, the testes, to begin.

Why does it take years for all these processes to start up? And how is the timing of this mechanism determined? The answers to these questions remain a mystery to the world of science. Yet this system, whose secrets have still to be unraveled, has been functioning in the human body since our Almighty Lord first created it.

When LH reaches the testes by way of the bloodstream, the cells there start producing the hormone testosterone. The cells that manufacture the chemical formula of testosterone literally know that it is time for the body to assume a male appearance instead of a child-like one. That is because the testosterone they produce will turn a developing child into an adult male *(Figures 70 and71)*.

It is certainly astonishing that unconscious cells should do all this. The resulting molecule literally knows the characteristics of a male body and directs trillions of cells so that they alter the juvenile body's shape.

Figures 70 and 71. Thanks to the hormone testosterone, the male body takes on its adult shape. For example, testosterone molecules affect hair root cells, causing the male beard and moustache to grow, the hairline to retract, the voice to deepen and the body to become capable of fertilizing a female's eggs.

16.

Other Properties of the Hormone Testosterone

The plan behind the creation of the testosterone goes much further than this. An evident miracle of creation can be seen in the mechanism of this hormone's effects. In order to have the effects listed before, when the testosterone reaches the targeted tissue (the male genitalia) it enters the cells there. Inside the cells, it combines with an enzyme specially created for testosterone, which thus assumes a far more effective state.

The design and planning are still not finished. This newly formed hormone now combines with a receptor specially designed for it. The emergent molecular combination binds to the cell's DNA, and in the light of information it receives from the DNA, a new protein synthesis is created. This permits the determination of the difference between the male and female sexual characteristics, as well as the beginning of sexual functions.

This system is so perfectly designed that the mechanism—consisting of the testosterone, enzyme and receptor—locates the information encoded for it from among all the billions of pieces of data in the DNA and allows production to be made according to that information. For example, in order

for a man's beard to emerge, the hair roots must literally know which portion of their DNA has to be activated. In order for the male voice to deepen, hormones trigger the appropriate region of the DNA in the cells of the vocal cord.

This information is of crucial importance. Testosterone is a molecule consisting of various numbers of carbon, hydrogen and oxygen atoms, with the chemical formula $C_{19}H_{28}O_2$. How does this inanimate, unconscious compound know where to find the relevant information in the DNA? More importantly, how can it locate the few letters it seeks from among information consisting of 3 billion letters—sufficient to fill thousands of encyclopedias— at great speed and without ever going wrong? Naturally, this takes place with the inspiration of Almighty God, the one God *(Figure 72)*.

By now, hundreds of scientists have spent the last decade working on the Human Genome Project. They have succeeded in reading DNA only by using the most highly advanced technology. Yet they still do not know which region of DNA is concerned with which organ, protein or hormone in the body. Yet the hormones estrogen and testosterone know this very well, and have been acting on that knowledge for millions of years, without error, in the bodies of billions of human beings.

No doubt that this system by itself is a marvel of creation in which the artistry of Almighty God is revealed.

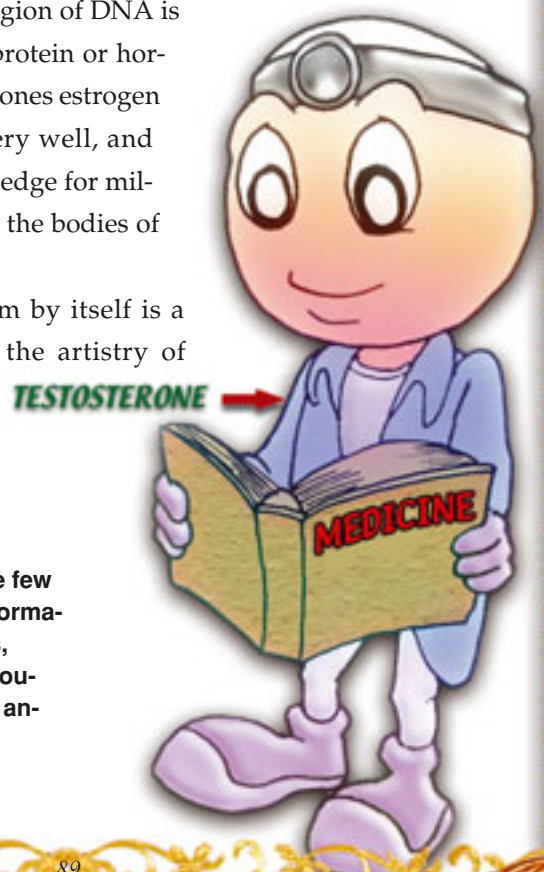


Figure 72.
Testosterone is able to locate the few "letters" it seeks from among information consisting of 3 billion letters, enough to fill an encyclopedia thousands of volumes in size. This is another miracle of the countless miracles in God's creation.

17.

Hemoglobin : The Miraculous Oxygen-bearing Molecule

The main purpose of respiration is the expulsion of the carbon dioxide (CO_2) from the body and its replacement by life-giving oxygen. These processes take place in a site far distant from the body tissues—in the lungs. That being so, the oxygen entering the body by way of the lungs needs to be carried to the tissues in some way, and the carbon dioxide forming in the tissues has to be removed from the lungs in the same way. How is that transportation carried out?

Erythrocytes, or red blood cells, are the tireless, indefatigable carriers of the oxygen and carbon dioxide in the blood. The erythrocytes that come into contact with the air in the lungs release their carbon dioxide—a waste product—they've brought from the cells into small sacs, and absorb the oxygen in those sacs. This process takes place along a very special membrane. One side of this membrane receives oxygenated air in the sac or alveolus, while on the other side, there are capillary extensions of such narrow width as to permit only one erythrocyte to pass. In this way, oxygen molecules has no difficulty in making contact with the erythrocytes.

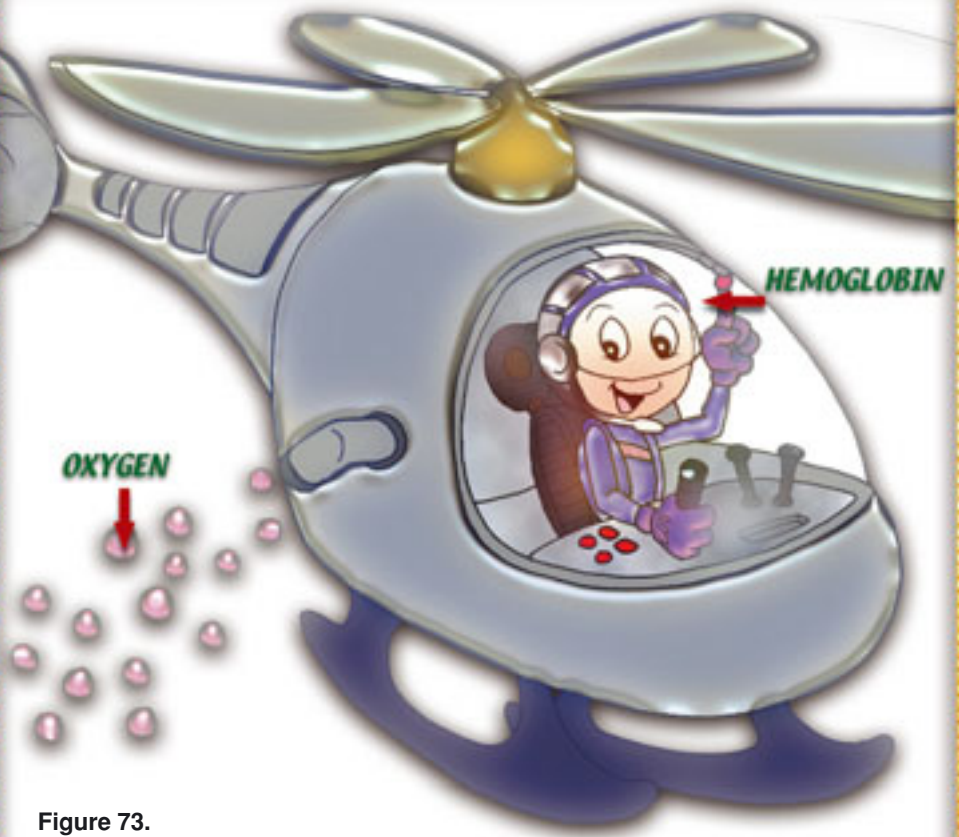


Figure 73.
Hemoglobin in the red blood cells releases the oxygen the cells need .

The oxygen molecule is transported to the cells by a molecule inside the erythrocytes known as hemoglobin, which possesses a very special creation. In external appearance, it resembles a kind of donut with a thick membrane covering the central hole and is ideally suited to carrying both oxygen and carbon dioxide. Bonding to the oxygen molecules in the lung, hemoglobin sets out for the farthest parts of the body by way of the bloodstream. When it reaches the tissues that need oxygen, another miracle takes place. The hemoglobin molecule's very special design is affected by its chemical environment, and the chemical bond between it and the oxygen breaks. As a result, the hemoglobin deposits the oxygen molecules it is carrying, which permit life to continue in the surrounding cells *(Figure 73.)*

The duties of hemoglobin do not end here. It also plays an essential role in transporting the carbon dioxide that needs to be removed from its

immediate surroundings. This phenomenon can be summarized thus:

The carbon dioxide produced by cell respiration passes from the cell to the tissue fluid, and from there to the capillary vessels. Part of the carbon dioxide combines with the hemoglobin in the erythrocytes and is transported away in the form of *carbamino hemoglobin*. The other part combines with water, under the influence of the enzyme carbonic anhydrase, to form carbonic acid, which later separates into bicarbonate and hydrogen ions. The emerging hydrogen ion is caught by the hemoglobin *(Figure 74)*.

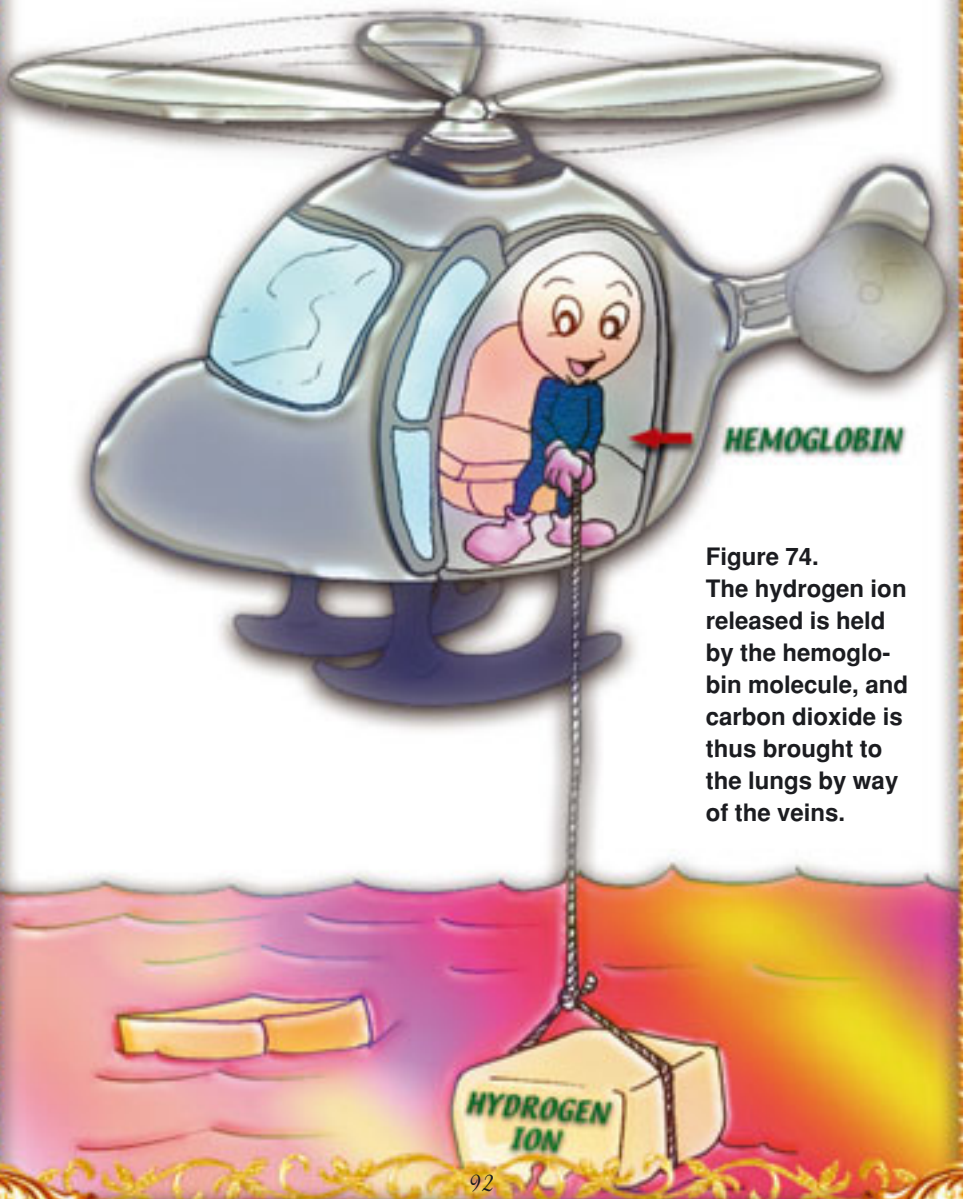


Figure 74.
The hydrogen ion released is held by the hemoglobin molecule, and carbon dioxide is thus brought to the lungs by way of the veins.

Carbon dioxide is thus carried from the capillary vessels through the larger veins and finally to the heart *(Figure 75)*. From there, it is transported to the lungs. Following various processes that take place in the lungs, the carbon dioxide is expelled during normal exhalation, several times a minute *(Figure 76)*.

There is another noteworthy feature in hemoglobin's structure. As well as being able to transport oxygen, it can also release the oxygen it carries at the right moment. The secret behind this ability lies in the chemical bond established between the oxygen molecules and hemoglobin.

To help you fully understand the importance of this property of hemoglobin the following analysis should be useful: If the bond established between hemoglobin were even slightly weaker, hemoglobin would not attach to the oxygen. Then oxygen molecules would fail to be carried to the

Figure 75.
Carbon dioxide reaching the heart is pumped from there to the lungs.

tissues. This would mean inevitable death for any living thing. Were the exact opposite to occur—were the bond between hemoglobin and oxygen to be even slightly stronger—then the hemoglobin and oxygen would be unable to separate from one another upon reaching the tissues. The cells would again be deprived of oxygen, and the living thing would die within a matter of minutes.

These two facts represent evident proof of a special design inside hemoglobin—a perfect system that has been created for transporting oxygen inside the human body. Every detail within this system is just one of the countless proofs that display the infinite nature of the knowledge and might of God.

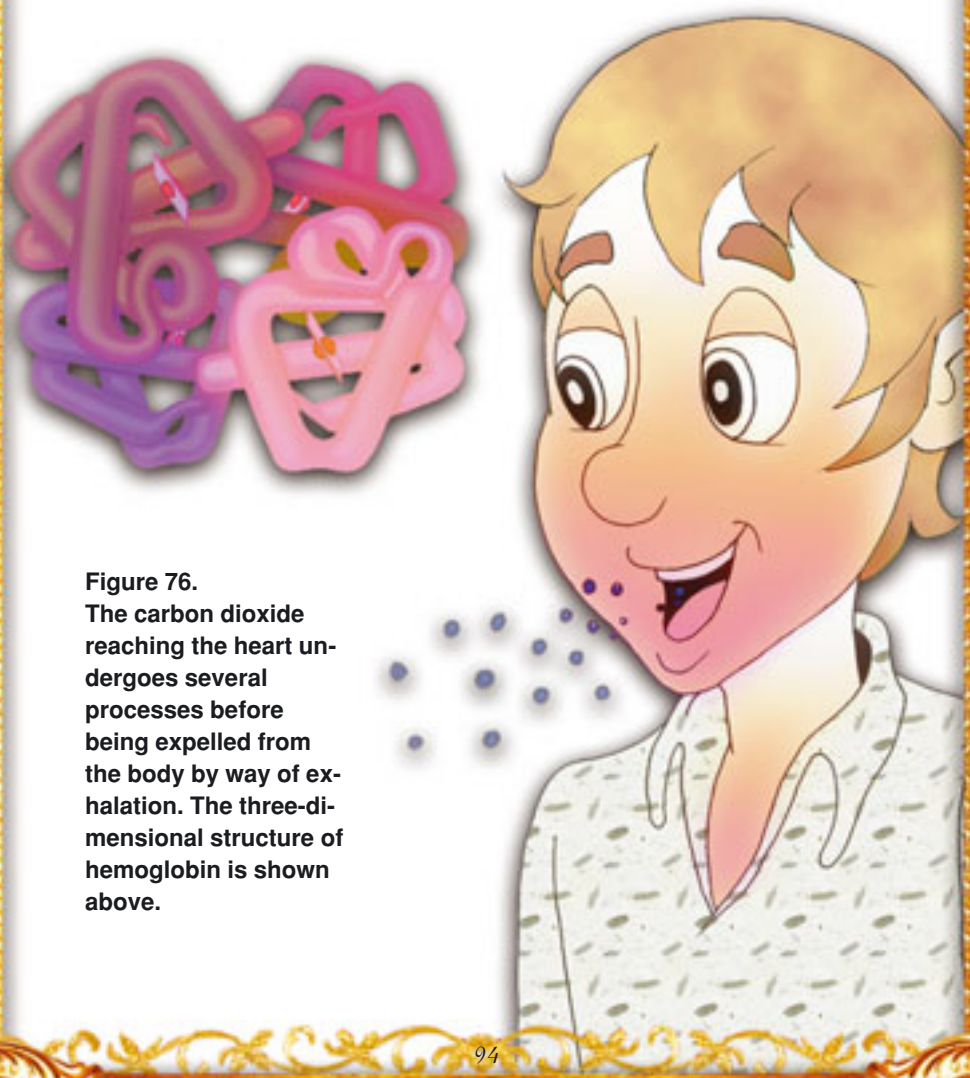


Figure 76.
The carbon dioxide reaching the heart undergoes several processes before being expelled from the body by way of exhalation. The three-dimensional structure of hemoglobin is shown above.

18.

The Communications System in the Cell

Modern-day telecommunications systems have been set up using electronic and mechanical equipment and the most advanced technology. Yet the communications systems inside the cell, whose secrets have still not been unraveled, employ devices composed entirely of protein. Instead of electronic circuits or semiconductors, as in our mechanical devices, organic proteins contain carbon, hydrogen, oxygen and nitrogen atoms.

Even so, the communications system established among cells resembles those used by human beings in many respects. For example, there are sensors analogous to antennas on the cell membrane that permit them to understand the messages reaching them. Immediately beneath these antenna are structures analogous to switchboard that decode the messages arriving at the cells *(Figure 77)*.

The "antennas" in question are located on the cell membrane, 1/100,000 millimeters thick, which surrounds the cell. Each receptor, known as *tyrosine kinase*, consists of three basic sections, the head, body and tail.

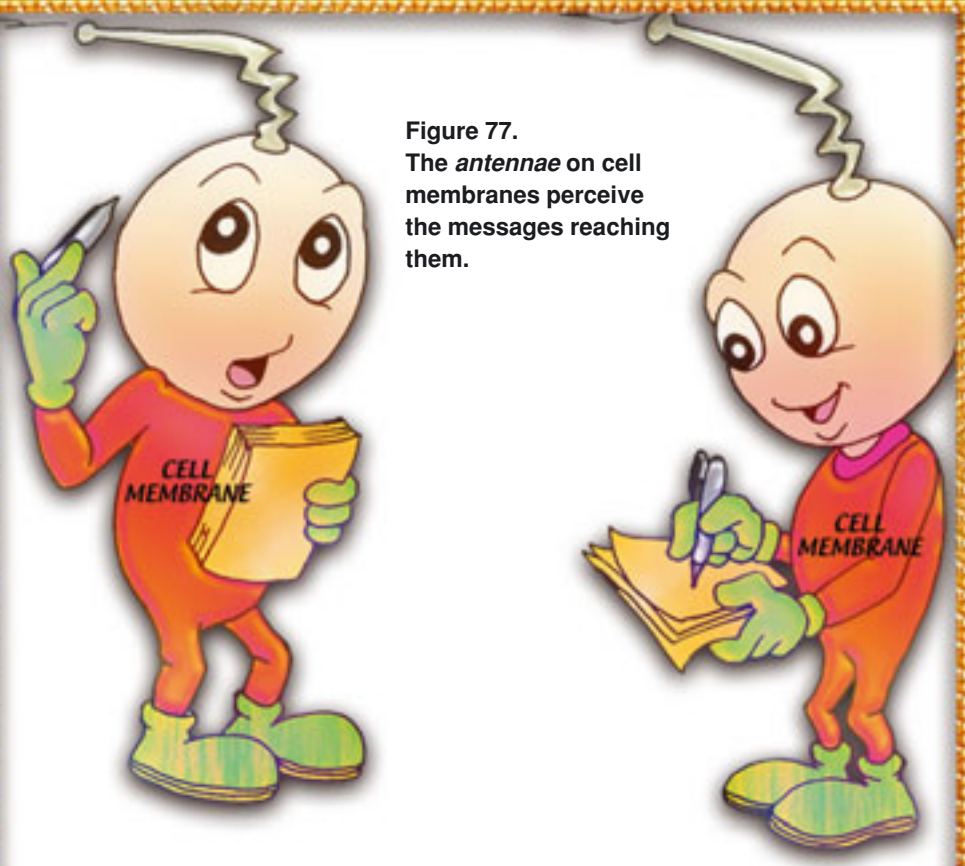


Figure 77.
The *antennae* on cell membranes perceive the messages reaching them.

That part of the antenna that protrudes from the cell membrane is shaped somewhat like the dishes used to collect satellite broadcasts. In the same way that each satellite dish is directed towards the emissions of a given particular satellite, so different antennae understand the languages of the messages carried by different hormonal messengers.

Messages from other cells—in the form of hormones—make contact with the antennas along the cell membrane. However, each antenna has been designed in such a way as to perceive only one chemical message. This is the work of a very special creation. In this way, one message sent does not erroneously set another cell into action *(Figure 78)*.

Both the hormones and corresponding antennas have been created in such harmony with one another that almost all biology textbooks describe this relationship as resembling that between a lock and a key. Only the right key can open the lock; in other words, only the right antenna can address the message sent, which message meaning nothing to any other antenna *(Figure 79)*.

Figure 78.
Each antenna has been created in such a way as to perceive only one single message. Thus a given message does not mistakenly stimulate another cell.

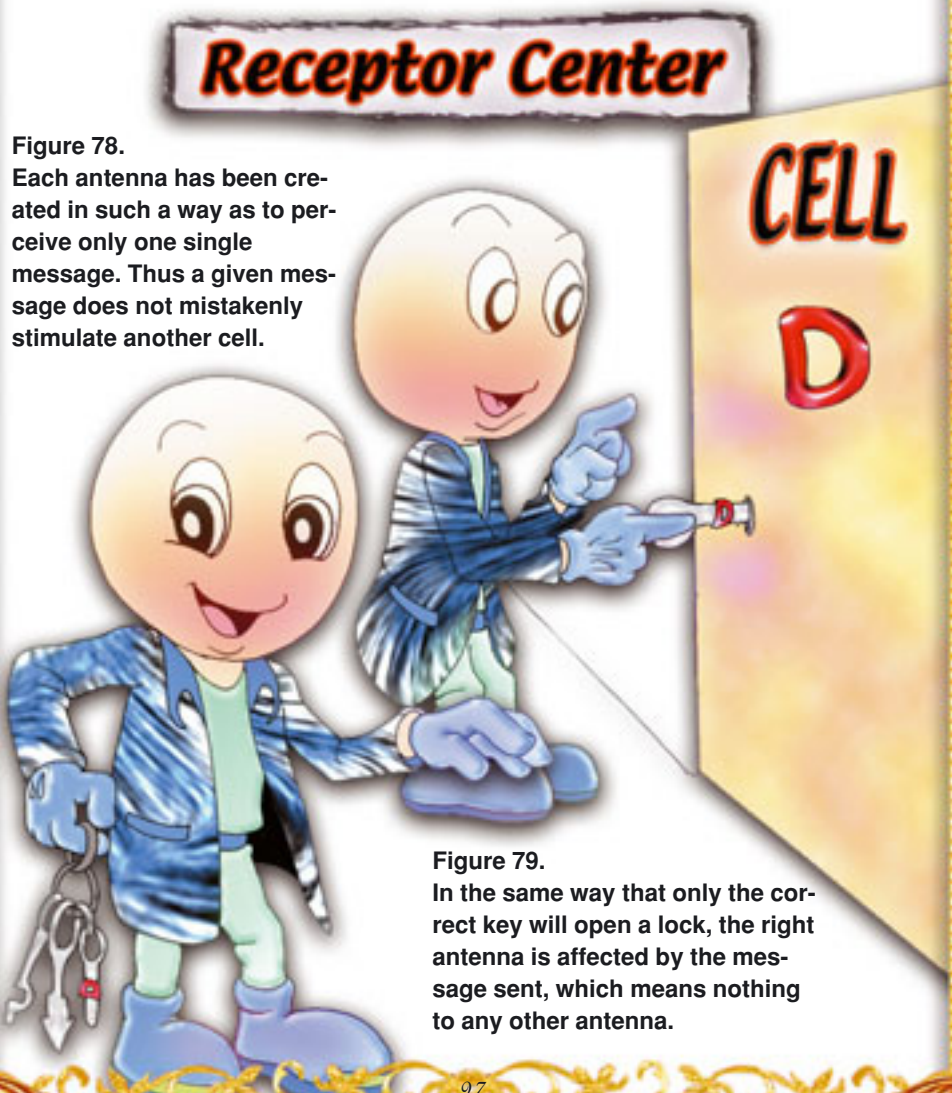
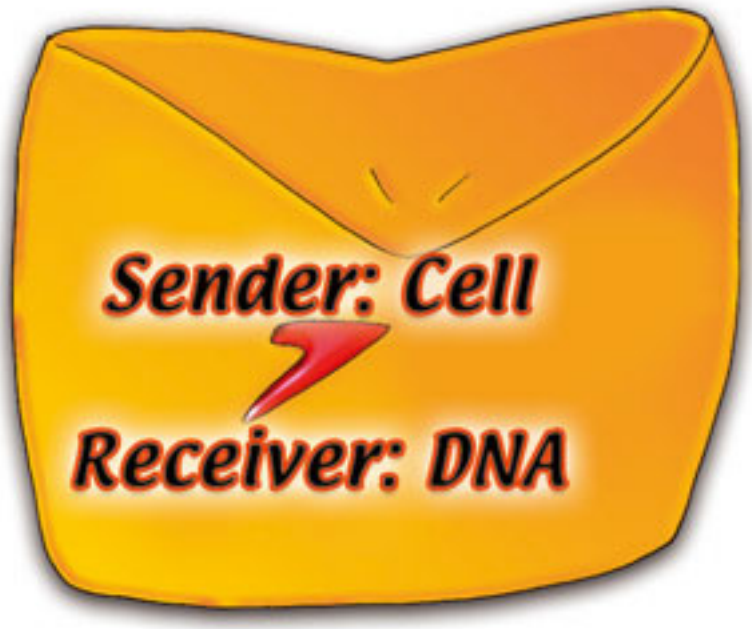


Figure 79.
In the same way that only the correct key will open a lock, the right antenna is affected by the message sent, which means nothing to any other antenna.

The moment the hormone reaches the cell, an amazing system inside the cell goes into operation. The hormonal signal arriving at the cell is transferred onto its DNA by a very special communications system, and in light of that message, the cell is set in motion *(Figure 80).*

The message reaching the cell antennas is forwarded to the cell's nucleus at great speed, and during the course of this communication a most superior technology is employed. Both of these facts are great miracles, because the cell is an inanimate entity consisting of unconscious molecules—and the human body in turn consists of combinations of these cells. In the human body there are some 100 trillion cells each with its own highly advanced communications system. Even this information by itself, just one of the countless examples in the human body, is proof of the infinite knowledge of Almighty God, the Creator of humanity and the entire universe.

Figure 80.
The message reaching the cell is transmitted to the cell's DNA by very special communications systems, and in light of that message, the cell is set in motion..



19.

The Messenger Hormone's Journey within the Cell

When any organ wishes to produce a given protein, it sends a message to the cells. When the "messenger" molecule reaches the cell, it attaches to the antenna on the cell membrane. During this bonding, it transmits the message it carries by its very presence to the antenna, which then forwards the information it has received to its "tail" in the interior of the cell. The antennas, which at the outset were in a single state, now come together in paired groups. Enzymes in the body region alter the shape of the tail section by adding phosphate to it, in a process known as *phosphorylation*. All these processes are to summon the proteins in the cell known as communication molecules *(Figure 81)*.

Several molecules and proteins provide technical support for this system. At this stage, molecules known as GTP—and those proteins referred to as G for short—have an important effect. If the system is to function effectively, it is vital that several factors all enter into play at the right moment *(Figure 82)*.

It is evident that this communication system, whose first stage is described here in general terms, could hardly have come into being spontaneously, and that the unconscious atoms comprising the cell could not have thought up such a system. It is Almighty God Who created this perfect system from nothing. God is He Who inspires all living things with what they need to do and Who keeps them under His control at all moments.

Figure 81.
Communications inside the cell begin with molecules such as hormones that bear messages. Receptors in the cell membrane receive the message and forward it to the molecules inside the cell responsible for communications. This leads to the activation of various genes in the DNA and the production of whatever protein the message specified.

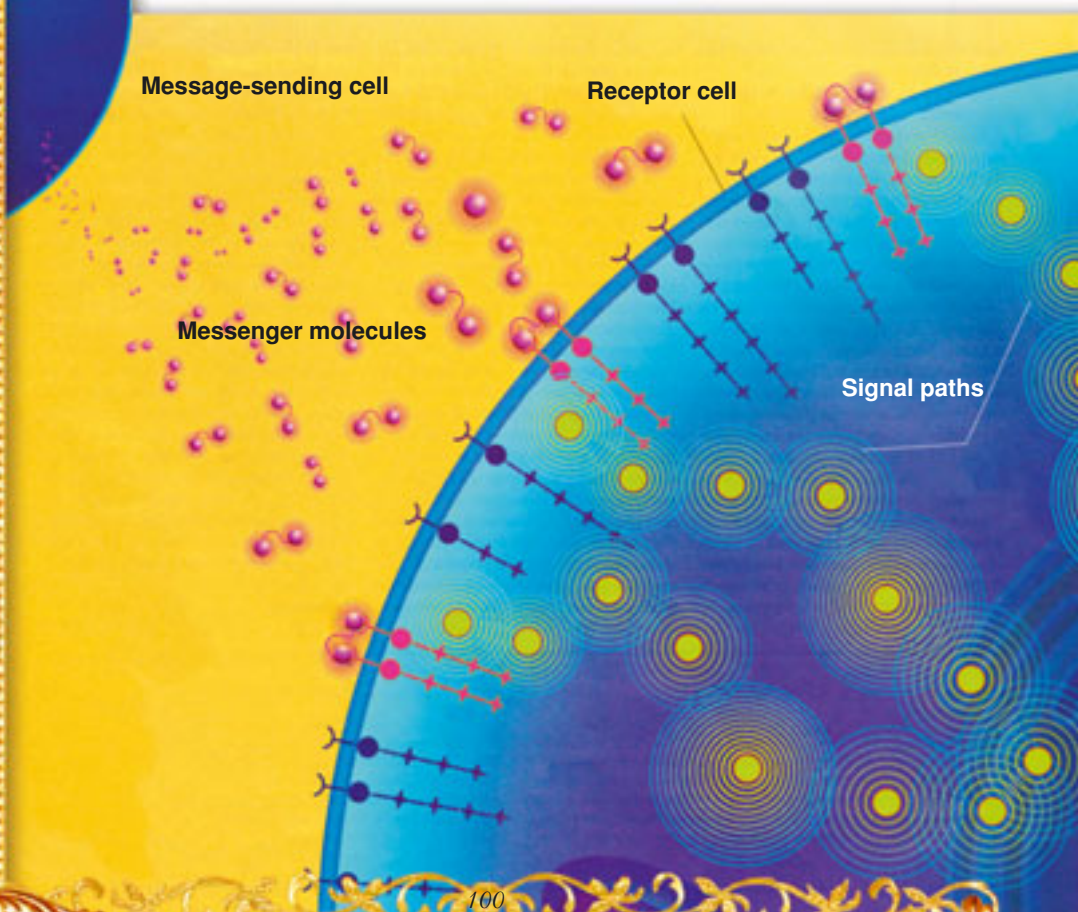
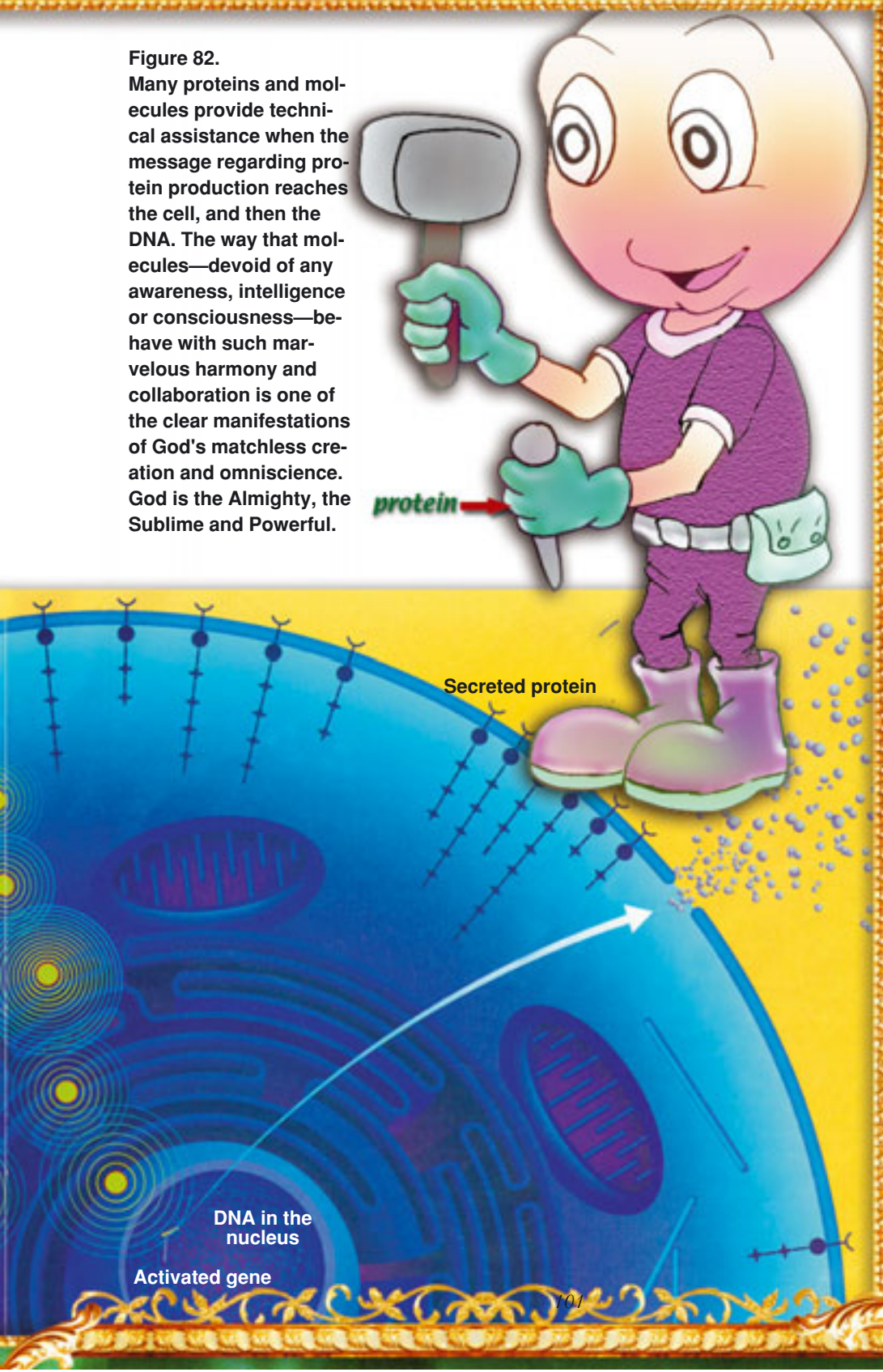


Figure 82.
Many proteins and molecules provide technical assistance when the message regarding protein production reaches the cell, and then the DNA. The way that molecules—devoid of any awareness, intelligence or consciousness—behave with such marvelous harmony and collaboration is one of the clear manifestations of God's matchless creation and omniscience. God is the Almighty, the Sublime and Powerful.



20.

Communication Control in the Cell

Different hormones give rise to their own particular effects on the cells comprising the relevant organs. For example, the messages carried by the insulin and glucagons—which regulate the level of sugar in the bloodstream—have exactly opposite structures. For that reason, each hormone sets in motion different communications channels inside the cell. Receptors working like a communications switchboard locate the communication molecules, to which they will forward reports without fail *(Figures 83 and 84)*.

At this phase, any wrong choice will damage the communication network and give rise to serious diseases that could even prove fatal. Yet the literally expert behavior of the receptors in the cell membrane maintains perfect communication.

This leads us to some important questions: How do the receptors stimulated by different hormones select, without error, the messenger proteins they need to combine with? How do these receptors manage to fulfill their duties without ever causing fatal errors?

Recent scientific research has helped us find the answers to these

Figures 83 and 84. Receptors working like a communication switchboard find communication modules to which they will transmit reports.

questions. The cell's flawless communication stems from its perfect design, a manifestation of Almighty God's extraordinary creation.

Let us consider SH2, the module about which we possess the most information. This protein particle consists of two main sections. One part of SH2 bonds tightly to the receptor tail; it is the second section that gives the SH2 particles their fundamental property, that of working like a code-reading device *(Figure 85)*.

The number and sequence of the amino acids in the receptor tail forms the coded message brought to the cell; only a form of SH2 module carries out the binding by resolving this code. In this way, a special line of chemical communication is established between the cell membrane and the nucleus. As you can now appreciate, all these complex processes are regulated according to a specific coding system, not haphazardly. This magnificent order is another sign that everything has been created in due measure, and to be compatible with everything else.

In order to show another example of this exquisite harmony, let us now consider the communications system that speeds into action to repair injury whenever—for example—a person cuts his finger. In that event, a messenger molecule called PDGF bonds to a smooth muscle cell receptor in the damaged blood vessel. As a result of this attachment, the arm of the receptor within the cell attracts to itself a protein known as Grb2, a messenger formed by the combination of SH2 and SH3 particles; it works like an adaptor to establish communication among proteins. In the wake of this, the Grb2 attracts a messenger protein called *sos*, already present in the cytoplasm inside the cell, which contains an enzyme to it. *sos* sets in motion another protein, *ras*. At the end of this sequence of processes, the command is transmitted to the relevant genes inside the cell nucleus, and the cell begins to divide, creating new tissue to heal the wound.

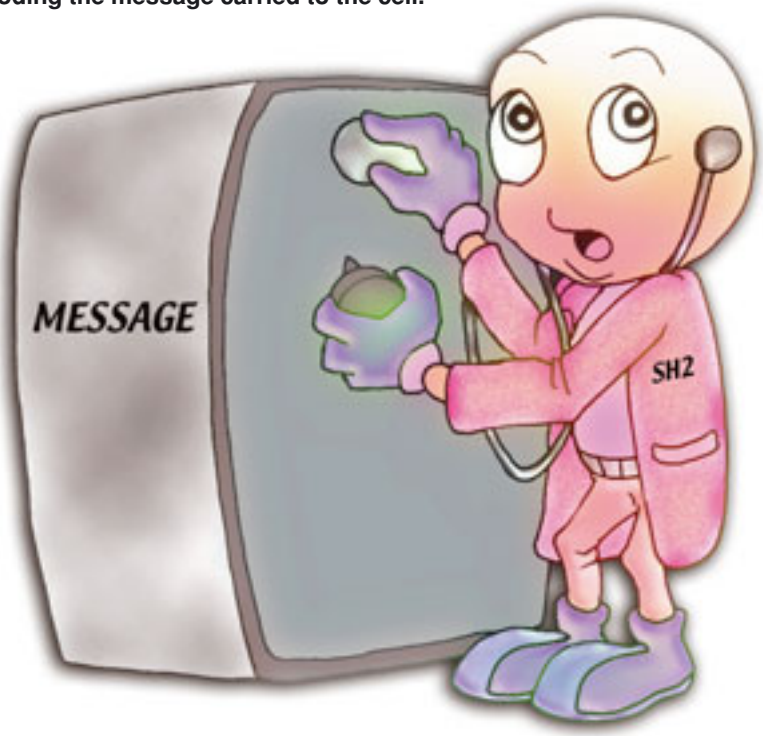
Based on the results of their research, scientists have arrived at the following interpretation: There exist mechanisms that automatically repair any possible flaws in the cell's communications system.[15] These mechanisms, the product of a superior creation, are far more advanced than any control systems used in modern technology. In this way, hormones, receptors, adaptors, proteins and microscopic particles have all been acting in harmonious cooperation even since human beings were first created.

It's impossible to claim that such a complex order emerged by chance. The complexity in this system is far more advanced and extraordinary than the internal networks established by any multinational company with branches, production and marketing offices all over the world. Moreover, it is tiny molecules that are invisible to all but the most powerful electron microscopes, that enable this splendid network. All of its components are bound up with one another, rather than conscious, informed, trained and intelligent human beings.

One cannot, of course, expect molecules themselves to set up such a sophisticated organization. It is Almighty God, Lord of the worlds, Who created this system from nothing and Who inspires their activities in all its components.

The kingdom of the heavens and the earth and everything in them belongs to God. He has power over all things. (Surat al-Ma'ida, 102)

Figure 85.
The SH2 module consists of two main parts, the second region of which works like a decoding device. This is responsible for solving the code and decoding the message carried to the cell.



21.

Protein Traffic within the Cell

Every cell in every human being contains more than a million protein molecules, of thousands of different kinds.[16]

In addition, these proteins are constantly renewed. Once every month, they are separated into the amino acids that comprise them and reproduced according to the cells' needs.[17] At the end of complex processes known as *protein synthesis*, they are combined together again within the cell.

Here, we wish to concentrate on the protein traffic flow that results from the newly produced proteins changing places inside the cell. Because the cell immediately begins using part of these proteins, they must be transported to the sites where they will be used.

One portion is sent to the cell's "protein warehouse," to be used at a later date. Proteins to be used outside the cell membrane are removed from it under the supervision of the cell membrane itself. At this point, proteins entering the cell from the outside—again under the cell membrane's supervision, represent a significant part of this heavy protein traffic. In short, there is considerable activity in the cell, despite its microscopically small size *(Figure 86)*.

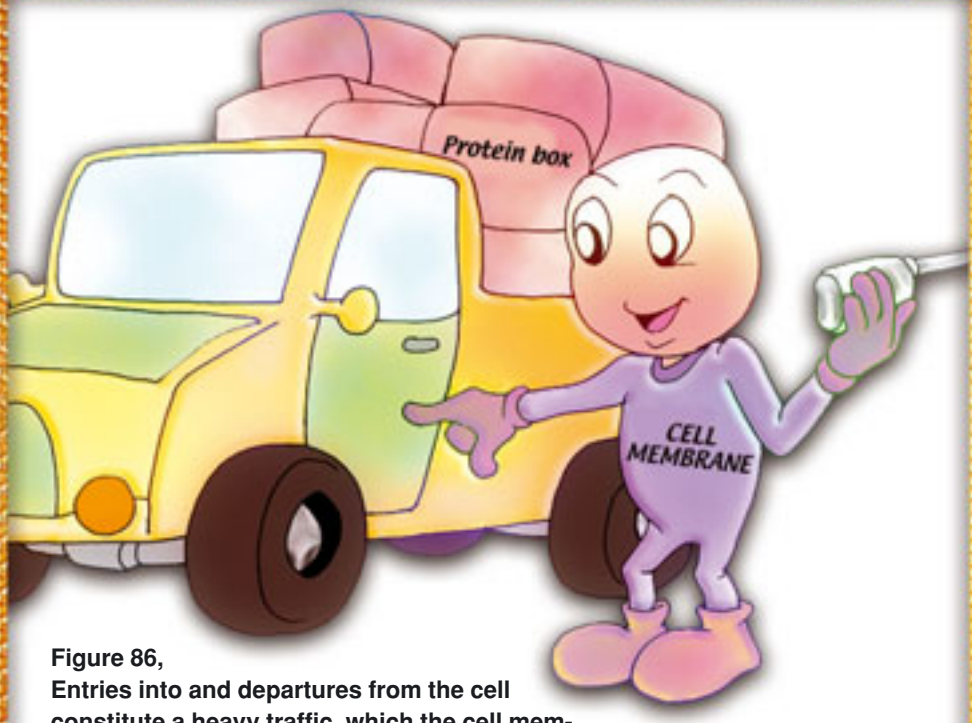
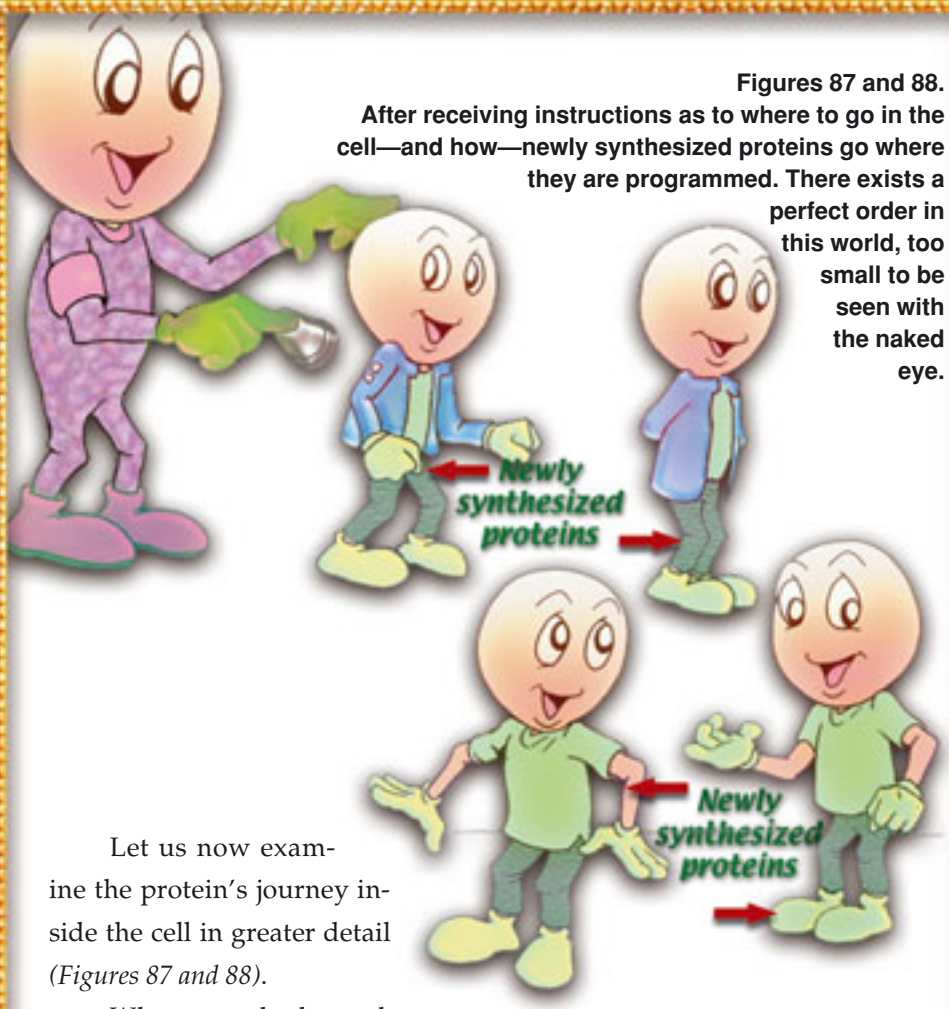


Figure 86,
Entries into and departures from the cell constitute a heavy traffic, which the cell membrane is responsible for supervising. The membrane admits essential and useful substances to the cell, while refusing entry to the others. Proteins are the main elements of that traffic.

This activity is managed by an extraordinarily organized system. As you know, the postal code was originated with the aim of sending mails quickly to the correct destination, with the fewest errors and in the most efficient way possible, thus increasing the efficiency of communications between individuals and corporations. But recent research has revealed that a similar mechanism exists inside the cell.[18]

Proteins are synthesized by hundreds of "original" proteins combining according to various predetermined plans. One significant, chain-shaped section that consists of between 10 and 30 amino acids comprises the protein's "postal code." To put this another way, the postal code written on any envelope consists of (depending on the country) a combination of numbers and/or letters, while the "code" in any protein consists of various amino acids. This code is located in one end of the protein molecule, or else inside it. Thus every newly synthesized protein receives instructions regarding where it should go, and how to get there.



Figures 87 and 88. After receiving instructions as to where to go in the cell—and how—newly synthesized proteins go where they are programmed. There exists a perfect order in this world, too small to be seen with the naked eye.

Let us now examine the protein's journey inside the cell in greater detail *(Figures 87 and 88)*.

When we look at how every new-synthesized protein is to pass to the endoplasmic reticulum region, for instance, we see the following: Firstly the code is "read" by a molecular component known as SRP—another protein with the best possible design for deciphering the code and helping the protein find a channel through which to pass. It solves the special information in the protein and then combines with it, acting just like a guide. Together, the SRP component and protein later attach to a special receptor that is waiting for them in the endoplasmic reticulum membrane, and the protein attaches to the entry channel. With the receptor being stimulated in this way, the channel in the membrane opens—at which point, the SRP separates from the receptor.

All these processes take place with flawless timing and in perfect harmony. But at this stage, the protein faces another problem. As we know, pro-

teins emerge through being shaped by the bending and folding of amino-acid strings. As a result, it is impossible for proteins to pass through the endoplasmic reticulum membrane, which is only 0.0000002 millimeters in diameter. Now, however, a flawlessly designed plan comes into play, because this problem has been already solved well in advance. The ribosome that produces protein does so in the form of an unfolded chain, whose chain structure permits the protein to pass through the membrane. Once the passage process has been completed, the channel closes until another crossing takes place.

After the protein has entered the endoplasmic reticulum region, the task of the "code" section comes to an end. Therefore, specific enzymes separate that section from the protein, which then bends and assumes its three-dimensional form. The situation in question is analogous to how the postal code no longer has any meaningful function once the envelope has arrived at its destination. The enzymes in question know which of the hundreds—and sometimes, even thousands—of amino acids on the protein they must break off, and act with that awareness. That is another miracle altogether, because if any of the amino acids constituting the protein itself are broken off, instead of the amino acids that comprise the code, then the protein will lose its function. As we have seen, a great many parts work together in perfect harmony at every stage. It is self-evident that this harmony does not stem from any feeling of awareness and responsibility originating in these tiny molecules.

The fact of the matter is that the cooperation among the proteins, the SRP molecule, the ribosome, receptor, protein-entry channel, enzymes, organelle membrane and molecules involved in a great many other processes not described here, is utterly flawless. Even taken alone, the "postal code" system in the cell is a proof of God's magnificent creation. A system that mankind has been using for only the last 40 years functions inside trillions of cells in the depths of billions of human bodies.

No doubt that God, Lord of infinite mercy and compassion, has created all things, from atoms to molecules and from proteins to cells, and that He has placed these at our service. That being so, our duty is to reflect deeply on the countless blessings of our Lord and to give proper thanks to Him.

22.

Chemical Communication in the Nerve Cells

The links between neurons, or nerve cells, are established both by electrical signals and by means of chemical signals. Both forms of communication contain significant marvels.

In this section we shall be concentrating on various aspects of chemical communication, established by messenger molecules that comprise the spinal *neurotransmitter*. These are produced in the body of the nerve cell, carried along the axons (the long arms of neurons), and stored in miniature "bubbles" at the axons' terminals. Each bubble contains some 5,000 messenger molecules.[19] And recent research has shown that every neuron produces different chemical messengers.[20] To put it another way, it resembles a chemical plant in which the various tools to be used in communication are produced *(Figure 89)*.

The neuron that transmits the signal may be described as the *transmitter* and the receiving neuron as the *receiver*. These two come face to face at the synapse junctions. The distance between them is approximately 0.00003 millimeters (1.1811 inches).[21] The electrical signal sets in motion the messengers at the end of the nerve-cell axons. Bubbles filled with chemical mes-

Figure 89.
Every neuron produces a different chemical messenger, unique to itself. To state that another way, every neuron works like a factory producing chemical messengers to be used in communication.

sengers attach to the cell membrane and release the molecules inside them into the spaces, or synapses between neurons. The message carried by the messenger is forwarded to receptors on the receiving neuron's membrane. There is a particular receptor with which each messenger molecule connects. Thus the message carried by the messenger molecule is perceived by the receiver neuron *(Figure 90).*

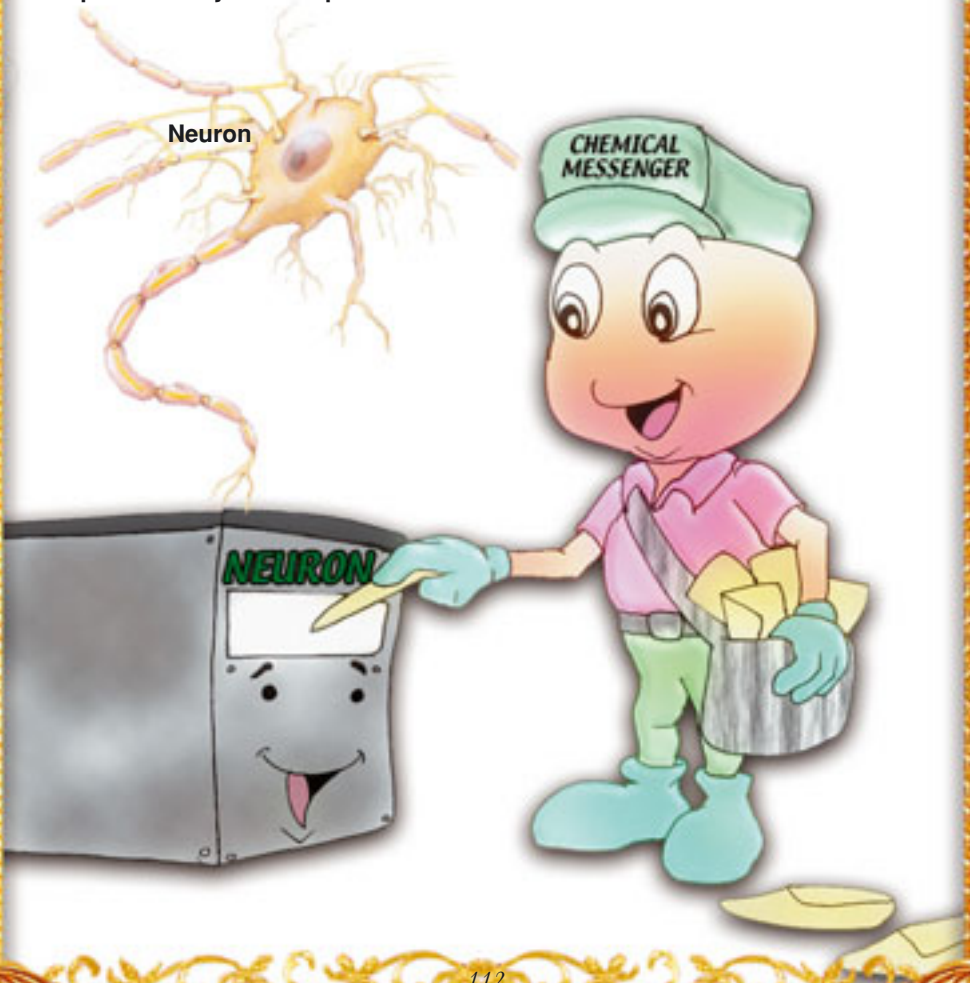
Every stage of the communication process described here in the briefest of terms involves processes not yet completely understood. Indeed, scientists state that their knowledge regarding the nerves' transmissions is still indistinct.[22]

Consider, for instance, just the fusion of the bubbles to the cell membrane. The event we describe as "fusion" in fact refers to a very special

bonding, analogous to adding of a single component or update to a highly advanced computer.

At this point, the following considerations come to mind: the addition of any part to a computer is preceded by highly complex engineering calculations. Otherwise, inevitably, the new part will be incompatible or may even damage the computer. Of course, fusion compatible with the cell membrane, far more complex than any computer, does not taken place haphazardly. No doubt all these complex processes take place under the control of God, Who created and regulates them.

Figure 90.
A chemical messenger molecule establishes a link with a different receptor. The message conveyed by the messenger molecule is thus perceived by the receptor neuron.



23.

Nitric Oxide: A Skilled Messenger

Nitric oxide (NO) is a colorless, but toxic gas obtained by the oxidization of nitrogen—a molecule formed by the combination of one nitrogen and one oxygen atom. Despite its toxicity, this molecule has an attribute of the greatest importance for human life. Over the last 20 years, intense research has revealed that this molecule undertakes a fundamental task in communication among cells. Results of this scientific endeavor have shown that nitric oxide is a hormone produced naturally in the human body, as yet another chemical messenger that plays a strategic role in the regulation of functions in the nervous, circulatory, immune, respiratory and reproductive systems.

One location where NO undertakes a most important duty is in the veins. The internal diameter of the veins is not fixed, but expands and contracts according to our activities, thus playing an important role in regulating our blood pressure. Thanks to this immaculate system, the body's needs are met, even while vary according to the surrounding environment. When you play sports, your blood vessels expand to supply the increasing demand for blood flow; and following injury they contract, reducing possible blood loss—all as a result of the ideal system in question.

So how is it that the veins know when to expand and when to contract? Research has revealed the presence of a chemical messenger: the NO molecule. It is this molecule, consisting of two atoms, that issues the command for blood vessels to expand and contract.

Let us now examine the splendid facilities that produce NO in the depths of your circulatory system.

Under an electron microscope, veins can be seen to have a perfect structure, in inverse proportion to their size. For example, 10 capillary vessels aligned side by side are no thicker than a human hair. These narrow vessels' internal walls are covered by a layer consisting of flat-muscle cells; expansion and contraction of the veins take place as a result of these muscles' activities. The muscle cells do not come into direct contact with the blood, because the endothelial cells form a membranous layer between the muscle cells and the blood flow.

Like links in a chain, these cells combine together to comprise the endothelial layer. Until the 1980s it was believed that these cells had no other effect than to facilitate the flow of blood in the veins. The truth emerged only later, when it was realized that one of the endothelial cells' responsibilities is to produce the messenger molecule NO *(Figure 91)*.

If we compare the endothelial cell to a factory, you can think of the NO molecules as its products. The life span of each NO molecule is about 10 seconds, but NO is created to transmit the messages it carries during that brief span—which it does in the most perfect manner. The messenger NO molecules secreted by the endothelial cells begin being carried by the blood in all directions at high speed. Those that move towards the flat-muscle cells enter these cells' membranes. The highly selective flat-muscle cell membrane

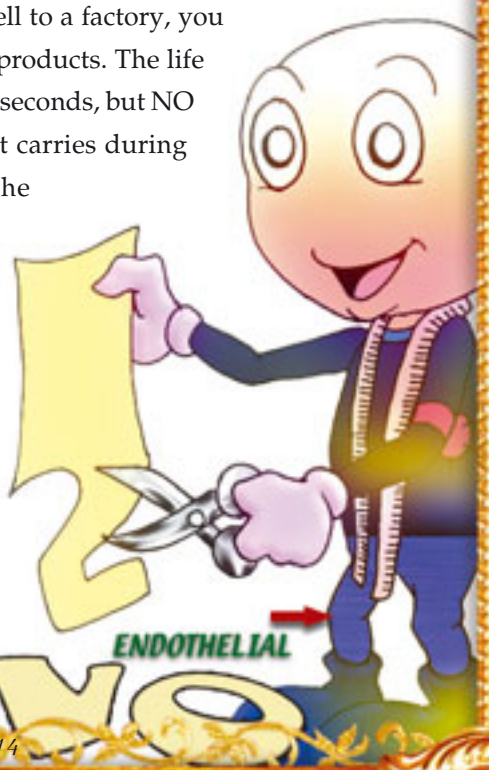


Figure 91.
The endothelial cell produces molecules of nitric oxide (NO).

recognizes the NO and permits it to pass through. The NO molecules entering the cell are immediately located by a special enzyme known as GC, and transmit their vitally important messages. A series of complex chemical reactions are thus initiated inside the cell *(Figure 92)*.

These proteins, which we referred to as messengers, are molecules, a mere 0.0000001 millimeter in size. These molecules work like a mail carrier, finding the enzyme GC to which the messages they carry are "addressed." The message is forwarded to the correct enzyme, every single time. In addition, these messenger molecules' lifespan is very limited, yet they never make any errors of timing. The message-bearing NO molecules have no compasses or other devices to help them find their way, yet they never become lost.

During this process, the speed of the NO molecule is reminiscent of communications established by Internet technology, or e-mail. NO acts just like an electronic postal system, transmitting a great many messages to their correct destinations at a very high speed.

The GC in the flat-muscle cells, receiving the messages carried by the NO, then goes into action. This worker enzyme's duty is to convert GTP, an energy-carrying molecule, into cGMP. The many reactions taking place during this process have not yet been fully understood *(Figure 93)*.

To explain it as simply as possible, as a result of the enzyme activities, the calcium concentration in the muscle cells decreases, leading to the fibers separating and the muscle cells expanding. In this way, the veins themselves expand. The message carried by the NO molecules play a vi-

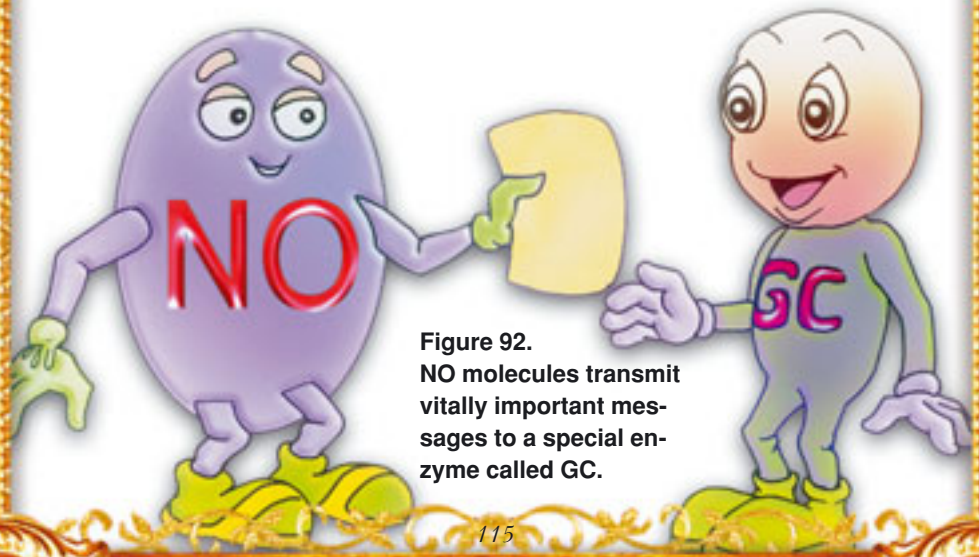


Figure 92.
NO molecules transmit vitally important messages to a special enzyme called GC.

tally important role in the regulation of the pressure inside your veins.

It must not be forgotten that what is described here is just one of the billions of complex communication processes continuing at every moment inside our bodies.

At this point, a number of questions need answering: How is it that unthinking, unconscious NO molecules so perfectly recognize systems that even the world's most esteemed academics have been unable to unravel? How do they know when to go into action or stop, right down to the millisecond? As soon as they are produced, how can they forward their messages at high speed, to exactly the right sites and at exactly the right time, as if they had received detailed instructions?

No doubt NO cannot perform all these wondrous tasks of its own accord. This molecule, like the millions of other molecules in nature, is the work of a flawless Creation. And for thoughtful people, it is just one of the proofs of God's infinite might and knowledge.

We will show them Our Signs on the horizon and within themselves until it is clear to them that it is the truth. Is it not enough for your Lord that He is a witness of everything? What! Are they in doubt about the meeting with their Lord? What! Does He not encompass all things? (Surah Fussilat, 53-54)

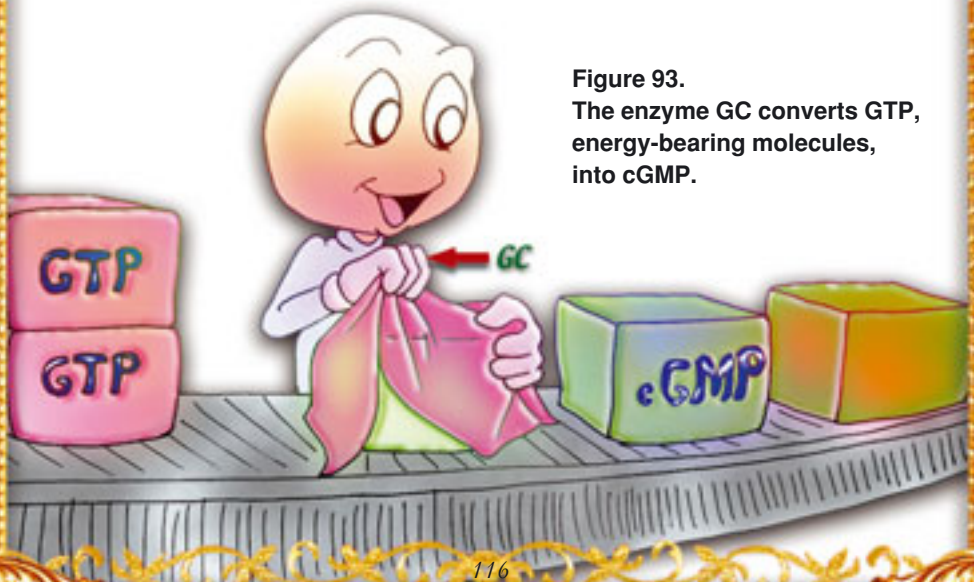


Figure 93.
The enzyme GC converts GTP, energy-bearing molecules, into cGMP.

24.

The Endothelial Cell: A Nitric Oxide Production Center

An amino acid by the name of L-arginine; the NO synthesis enzyme; nicotinamide adenine dinucleotide phosphate; calmodulin; oxygen; flavin mononucleotide; flavin adenine dinucleotide; tetrahydrobiopterine ...

Probably most people never have heard these words ever before. Yet the endothelial cell knows all these microscopic compounds very well and uses them for its production of the NO molecule *(Figure 94)*.

Factories manufacturing chemical products using modern-day technology are trillions of times larger than endothelial cells. Nonetheless, the advanced technology of the microscopic factory known as the endothelium is far superior to that of any human technology.

The endothelial cell knows which chemical substance it has to use, and in what proportion, in order to produce the nitric oxide molecule. There is never any incidence of wrong or incorrect production. For example, it does not produce laughing gas (N_2O) instead of NO. Remember, were the endothelial cells to produce fewer messengers than necessary, our veins would contract and our blood pressure would rise rapidly, leading to a heart attack. In the event of excessive production, our veins would over-

expand, our blood pressure would plummet, and this would result in shock. However, the endothelial cells never make such possibly fatal errors.

The cells in question are always ready to produce. When the need arises, they immediately go into operation and start production. These miniature factories work very efficiently. They never store the messenger NO molecules they produce, so the problems associated with storage thus never arise.

There are no undesirable, harmful side products from these extraordinary factories in the depths of our veins. When you consider that a great many health-threatening problems—such as global warming, acid rain and environmental pollution—all stem from chemical wastes, the endothelial cells' achievement can be better understood. That is because the NO molecules are broken down in as brief a space of time as 10 seconds, never accumulating in the body long enough to give rise to any harmful side effects. All this means that the endothelial cells use ideal methods in their manufacture of chemical products.

In the same way that a factory's systems indicate the advanced technology their designers must have mastered, the endothelial factory shows the infinite intelligence and knowledge of our Lord, with His sublime creative artistry. Like the other 100 trillion cells in our bodies, this microscopic factory acts under the inspiration of God.

He is the First and the Last, the Outward and the Inward.He has knowledge of all things. (Surat al-Hadid, 3)

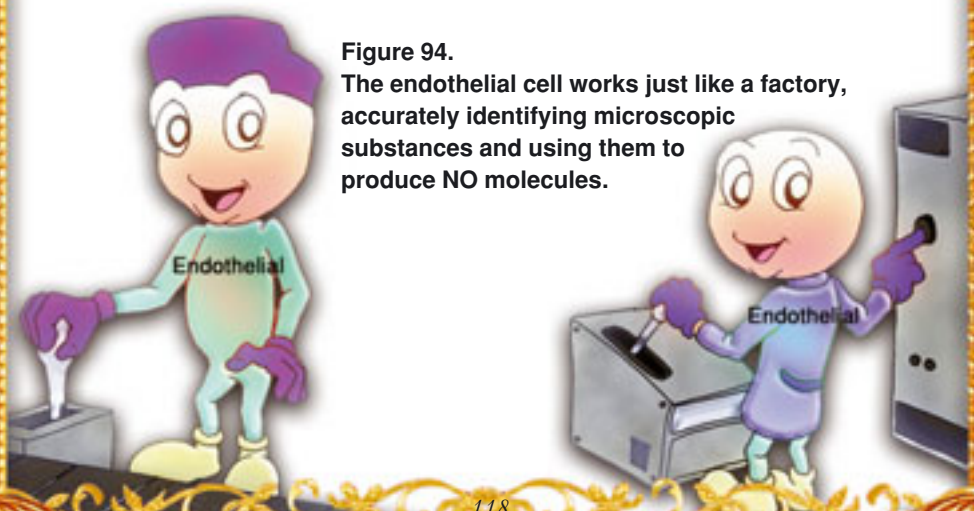


Figure 94.
The endothelial cell works just like a factory, accurately identifying microscopic substances and using them to produce NO molecules.

25.

The Power Station in the Human Body

The energy we need to stand up and walk, stand on our feet, breathe, and open our eyes—in short, for our very survival—is produced in power stations in our cells known as mitochondria. The aptness of this comparison can clearly be seen when we examine the processes that take place in these microscopic organelles.

Oxygen plays the major role in the production of energy in the cell, but oxygen also has many assistants. In just about every phase of energy production, several enzymes enter the equation with their exceedingly conscious behavior; the enzymes that complete their functions in one stage make way for others in the next. Thus thanks to dozens of intermediate processes and the countless chemical reactions and hundreds of different enzymes involved in these processes, the energy stored in foodstuffs, having been digested, is transmuted into a form that can benefit the cell. During these many changes, these enzymes never create any confusion, and their order never goes wrong. All the components work together as a disciplined team *(Figure 95)*.

We can say that the power station inside our cells, just 1/100 millime-

Figure 95.
Many different enzymes work in just about every stage of the cell's production of energy. In a most conscious manner, enzymes that complete their tasks at a later stage take over from other enzymes in an earlier stage. This change of enzymes happens with no confusion.

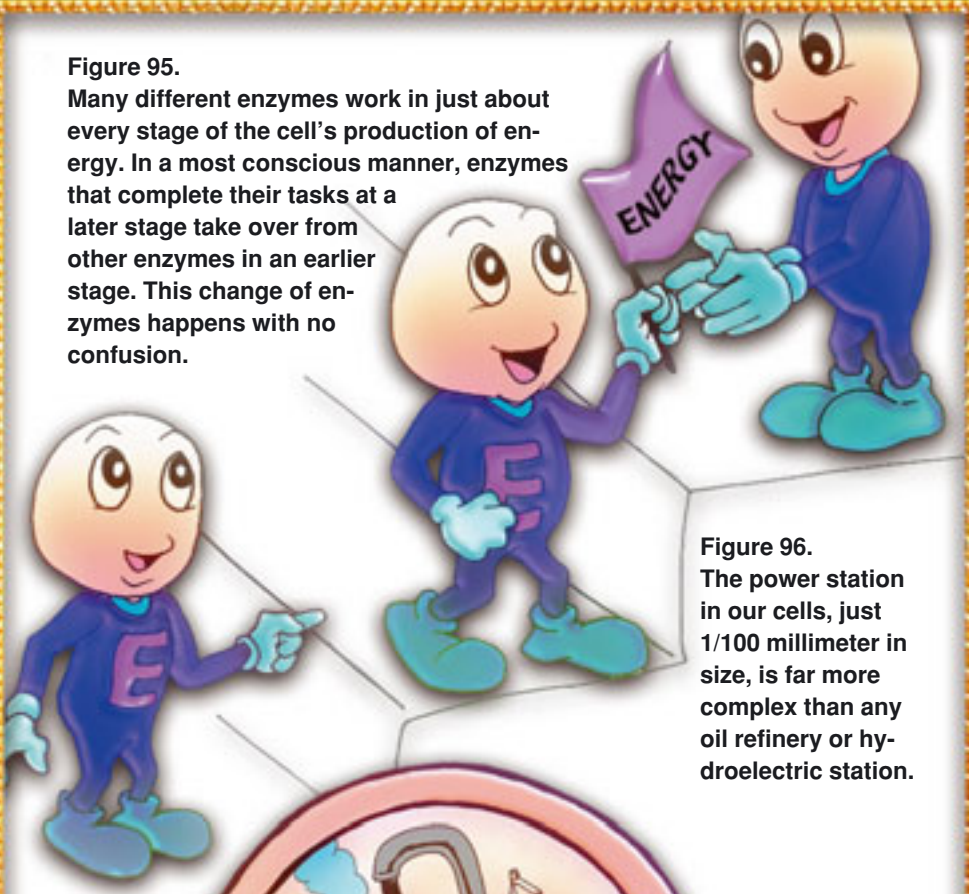
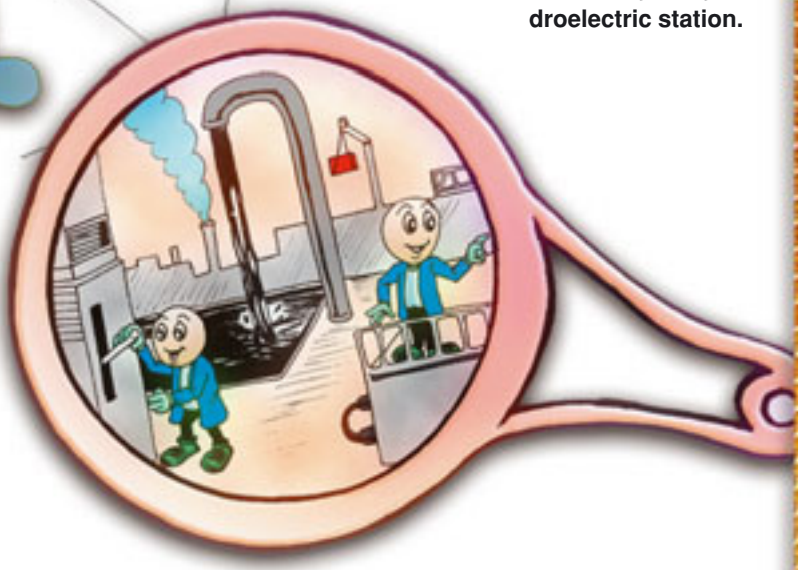


Figure 96.
The power station in our cells, just 1/100 millimeter in size, is far more complex than any oil refinery or hydroelectric station.



ter in size, is more complex than any petrol refinery or hydroelectric station *(Figure 96)*.

A gasoline refinery is built and run by engineers who know what petroleum is, who have analyzed crude oil under laboratory conditions and who act in the light of that knowledge. It is impossible even to imagine that

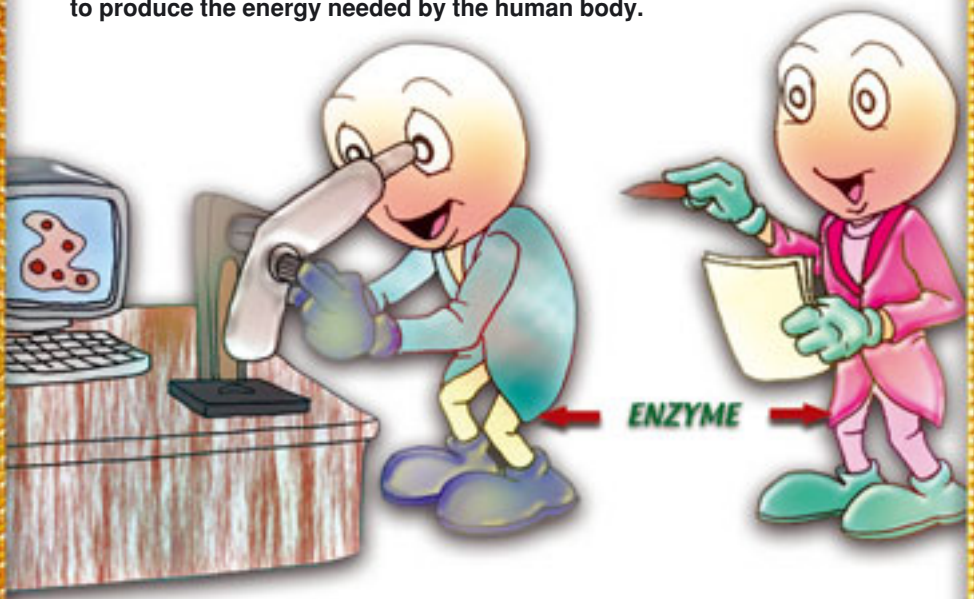
people with no knowledge and experience could build a functioning oil refinery *(Figure 97)*.

The production of energy in the living cell, which is far more complex than oil production, also requires information. Yet it would be ridiculous to suggest that a cell has the ability to learn anything at all. How, therefore, does this energy production take place?

Naturally, no cell has the opportunity to *learn* any biological function in the literal sense of the word. If the cell were unable to perform any function at the moment it first came into being—as evolutionists maintain—then it would be impossible for it to obtain the ability to do so later. That is because oxygen, which plays the paramount role in energy production, has harmful effects on the cell. The cell has to emerge together with the ability to utilize oxygen. This is just one of the proofs that cells cannot have emerged by chance, but were created in a single moment by Almighty God.

This artistry that God located in a space as small as 1/100 millimeter, shows us the infinite nature of His might.

Figure 97.
Enzymes work just like expert chemical engineers in their chosen fields to produce the energy needed by the human body.



26.

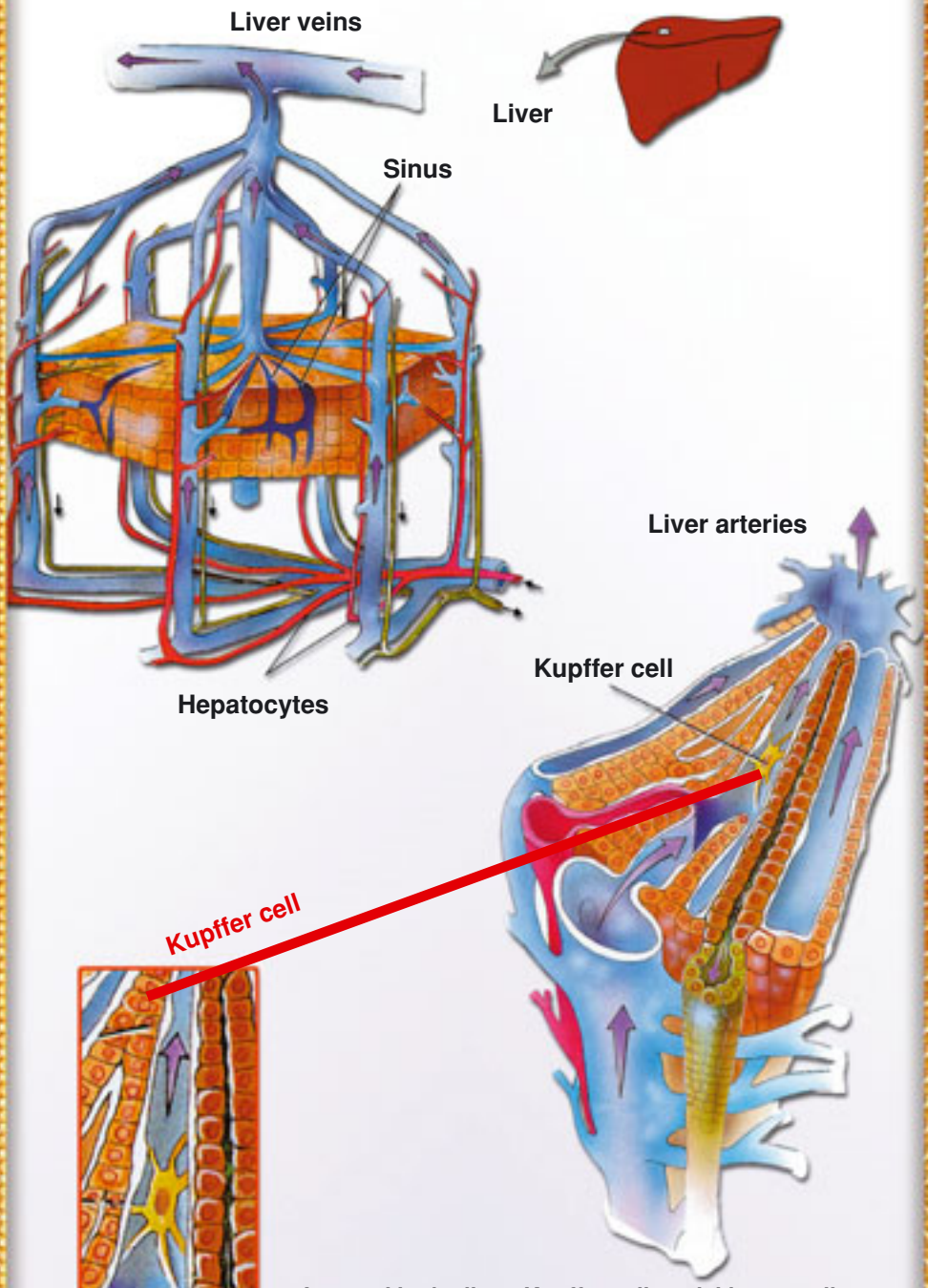
The "Bacteria - Destroying Machines" in the Liver

Through the food we eat, the air we breathe and in many other ways, large numbers of bacteria constantly enter our bodies. Those with possible harmful effects need to be neutralized if the body's working systems are not to be damaged. For that reason, our bodies contain cells equipped with perfect memories whose sole purpose is defense. However, various additional measures have been taken for defense, which is yet another example of our bodies' flawless creation. One of these measures is the defense cells in the liver, which can be described as a strategic point inside the circulatory system *(Figure 98)*.

These cells, known as *Kupffer* cells, neutralize any harmful bacteria reaching the liver from the intestine by way of the bloodstream by digesting them—in less than 0.01 of a second! How are these unconscious cells able to distinguish, among the great number of bacteria entering the body, beneficial ones from harmful ones? Unaware of what properties bacteria possess and what functions they will fulfill in the body, why do they destroy some bacteria while leaving others untouched? The answer to these questions is without doubt the matchless creative artistry of Almighty God *(Figure 99)*.

Figures 98 and 99. The defense cells in the liver destroy bacteria that known to be harmful to the human body.

Another question we need to ask is why the Kupffer cells have been located in the liver. Why the liver, and not some other organ in the body? Here once again, we encounter evidence of our bodies' flawless creation. If these cells were in some other organ but not in the liver, then they would be less effective in purifying the blood of bacteria. That is because after blood

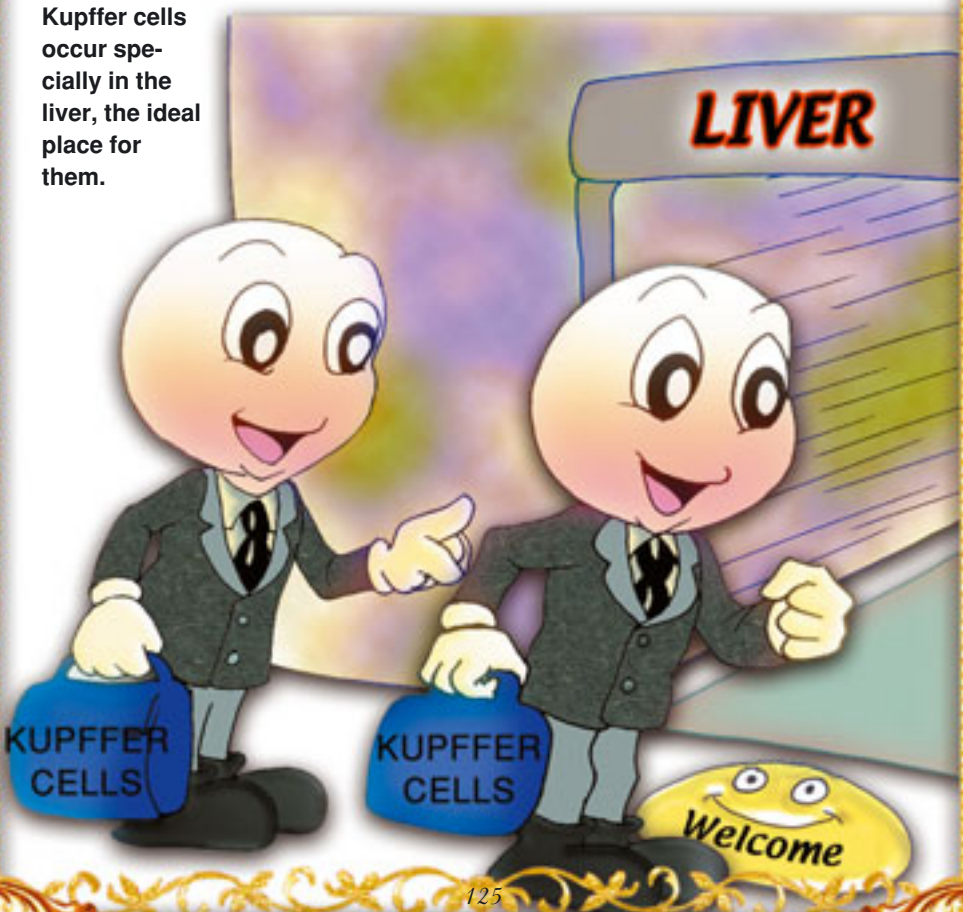


Located in the liver, Kupffer cells quickly neutralize any bacteria reaching the liver from the intestines. This whole system is the work of God's immaculate creation.

is cleaned in the liver, it enters the bloodstream to travel through the entire body. After being purified in the liver, fewer than 1 bacterium in 100 manages to enter the general circulation.

Could blind chance have located the all-important Kupffer cells in the liver when there are so many other organs available? *(Figure 100)*. Of course, these cells themselves do not identify the best place for them to settle. No one cell among the 100 trillion cells in the body has the consciousness with which to settle in such a location. The most perfect planning is essential for such a settlement to take place. Almighty God creates every detail in this system at every moment.

Figure 100. Kupffer cells occur specially in the liver, the ideal place for them.



27.

DNA Replication

As you know, cells replicate themselves by dividing. But what happens to DNA as a result of this division process? There is one single DNA strand in each cell. Yet the newly emerging "twin" cell will also need complete DNA of its own. In order to achieve this, a series of processes takes place, every stage of which is an independent miracle. As a result, an exact copy of the "original" DNA is formed shortly before cell division takes place, and this copy is transferred to the new-formed cell.

In order to replicate itself, DNA first separates itself into two opposite parts. This takes place in a most interesting manner. The DNA molecule, which resembles a spiral staircase, split down the middle, much like a zipper being unzipped, by an enzyme called DNA helicase. As the arms of the DNA separate from one another, helix-stabilizing enzymes keep both arms fixed, in order that they should not wrap round one another again *(Figure 101)*.

The DNA has now been divided into two halves. The missing halves of each are completed with materials available around them. The task of making good these gaps is performed by DNA polymerase. Thus, two new DNA molecules are produced *(Figure 102)*.

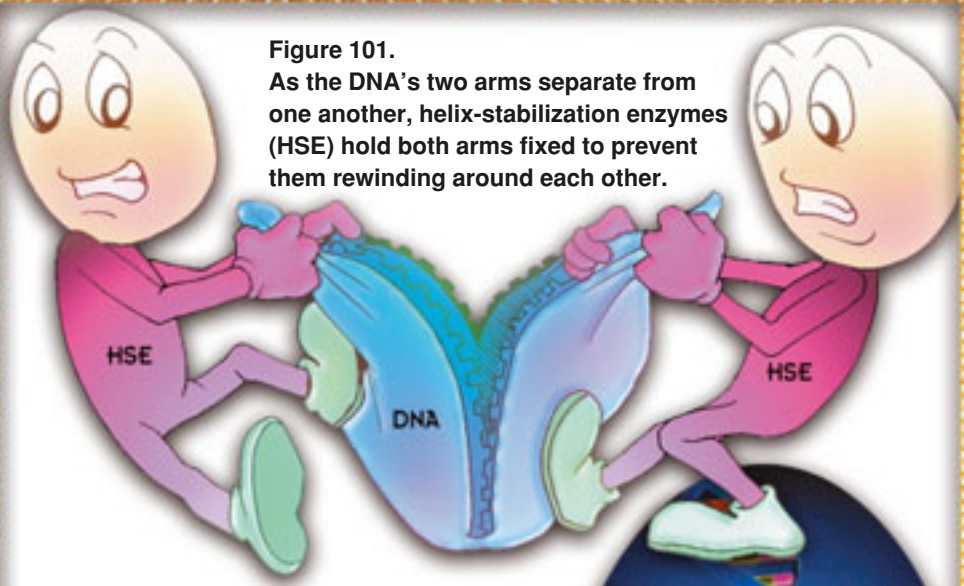


Figure 101.
As the DNA's two arms separate from one another, helix-stabilization enzymes (HSE) hold both arms fixed to prevent them rewinding around each other.

Side: The arms of a DNA molecule separating from one another.

The new DNA molecules that emerge during this matching are checked many times by supervisory enzymes. If any error has taken place (and any such error could have fatal consequences), it is

Figure 102.
After the DNA has been divided into two parts, polymerase enzymes complete the missing halves of both arms, using the materials readily available around them.

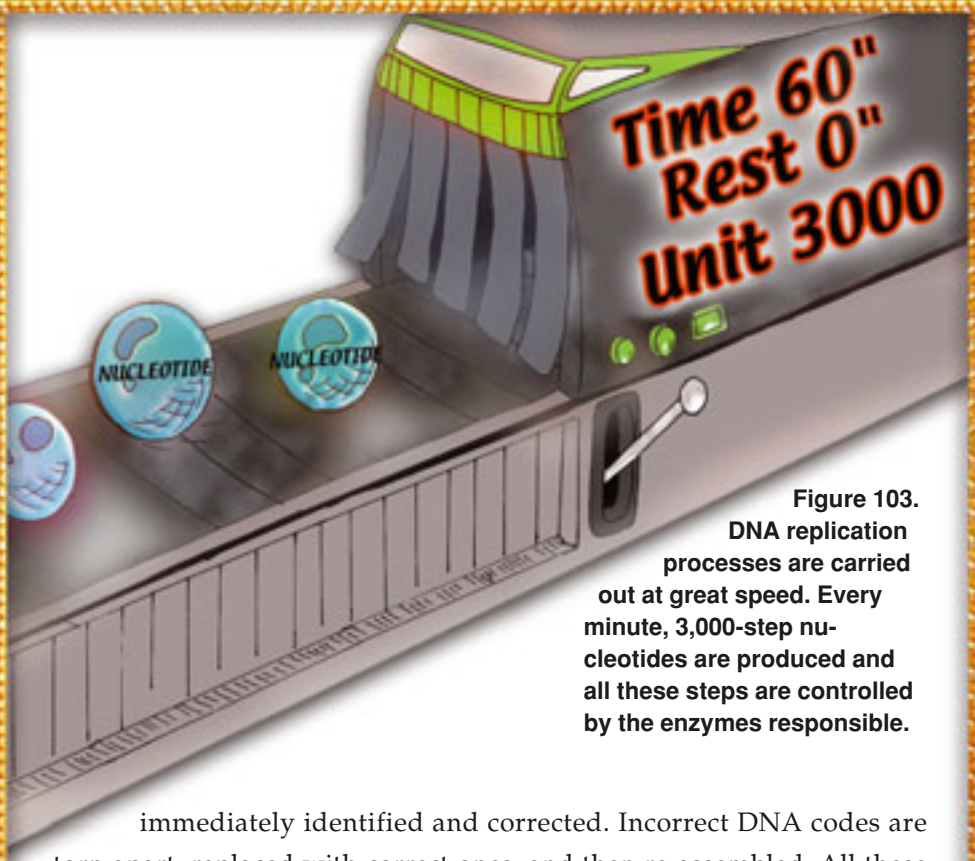


Figure 103. DNA replication processes are carried out at great speed. Every minute, 3,000-step nucleotides are produced and all these steps are controlled by the enzymes responsible.

immediately identified and corrected. Incorrect DNA codes are torn apart, replaced with correct ones, and then re-assembled. All these processes take place at such a dizzying speed that a 3,000-step nucleotide is produced in a minute, during which time all these steps are checked and the necessary adjustments made many times *(Figure 103)*.

As a result of external factors such as radiation or pollution, more errors than normal may occur in the newly produced DNA molecule. This time, the ribosomes in the cell begin to produce DNA-repairing enzymes in light of the commands coming from the DNA. Thus the DNA is protected, and the survival of the daughter cells—and the entire organism—is ensured *(Figure 104)*.

Unknown to you, countless processes and supervision are performed, and precautionary measures are taken, over the course of the day, to allow you to continue with your life in a problem-free manner, with an astonishing care and sense of responsibility. Each task is performed flawlessly and successfully. Almighty God has placed countless atoms and molecules, from the smallest (hydrogen atoms) to the largest (polymer molecules), at

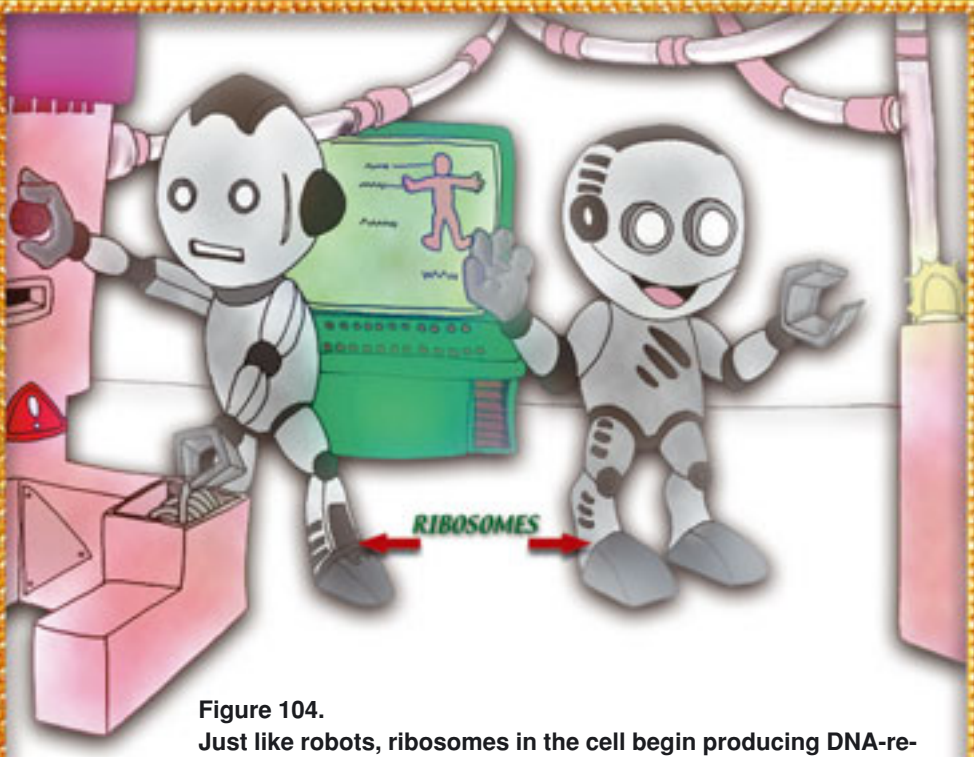


Figure 104.
Just like robots, ribosomes in the cell begin producing DNA-repair enzymes according to instructions from the DNA.

our service, in order for us to live agreeable, healthy lives.

One of the most amazing aspects of these enzymes, which ensure the production of DNA and also monitor its structure, are proteins produced in the light of information recorded in the DNA itself, and under the command and control of that same DNA. This system is so magnificent and interconnected that it's impossible for it to have come into existence by chance. DNA must exist in order for the cell to be, but the cell must exist in order for DNA to be—and the cell has to exist in order for both to be.! Moreover, the cell has to be fully formed, from its membrane down to all its tiny, complex organelles.

The theory of evolution, which claims that living things developed in stages as a result of consecutive beneficial coincidences, has no answer to the question of whether DNA or the necessary enzymes described above came into existence first. For a cell to survive, let alone reproduce, *both* the DNA and enzymes need to exist at one and the same time. And that is impossible in terms of the imaginary mechanisms proposed by the theory of evolution.

28.

Repair Enzymes

Errors that might arise in DNA as a result of external factors are identified and repaired by DNA control mechanisms. These consist of enzymes produced in the light of the information in the DNA itself. Although there are different repair mechanisms, the basic principle is that the damaged nucleotide carries out repairs in the light of information it receives from an undamaged nucleotide. This process generally takes place in three stages:

1. After being identified by the enzyme known as DNA nuclease, the damaged part of the DNA string is broken off, thus forming a gap in the DNA spiral.

2. DNA polymerase, another enzyme, attaches the necessary nucleotide to the gap, according to the information it receives from the healthy portion of the damaged nucleotide.

3. The DNA repair is not yet finished! A break has formed on the sugar-phosphate line on the repaired area, which is repaired by the enzyme DNA ligase.

Now consider: These processes are carried out, not by professors or

scientists well acquainted with DNA, but by molecules devoid of any consciousness, knowledge or reason. They are no different than an assortment of atoms, yet they have been equipped with extraordinary abilities. How can a molecule identify the incorrect part in a DNA string? To do so, it would need to know by heart the DNA helix, which consists of some 3 billion units of information, and be able to identify any incorrect one. In addition, it would have to know an exceedingly quick and efficient method of rectifying that error and be able to implement it perfectly.

This whole situation is quite astonishing. Almighty God, Who is free of all imperfection, exhibits the glory of His creation by creating tiny molecules with such extraordinary abilities. Any rational person of good conscience, as his knowledge of living things and the entire universe increases, will grow in submission to the infinite might of God and will call on God's name in the finest terms.

DNA has the ability to repair itself and make good its own deficiencies—this is just one manifestation of God's creative artistry and omniscience.

29.

Protein Production

Protein production in the cell is one of the miraculous phenomena created by God. Every cell operates like a factory, using the most advanced technology and organization. In this micro-world, which is visible only under the most powerful microscopes, extraordinary events take place.

Let us examine the main outlines of this protein factory that works with the most flawless and perfect efficiency:

1. Whenever the body feels the need for any protein, a message expressing that need reaches the DNA molecule in the nuclei of the cells where that production is to take place. Here, a very important point is to be noted: Whenever there arises a need for any protein in the body, certain messengers—themselves proteins!—can find all the relevant locations in the body, know where they must go, and then transmit their message to the right place in the proper form. The protein that establishes this communications finds its way in the total darkness of the bloodstream, without losing its way, losing the message it carries or doing any harm to any part of it *(Figure 105)*.

2. To request the formula for a protein from DNA, a special language

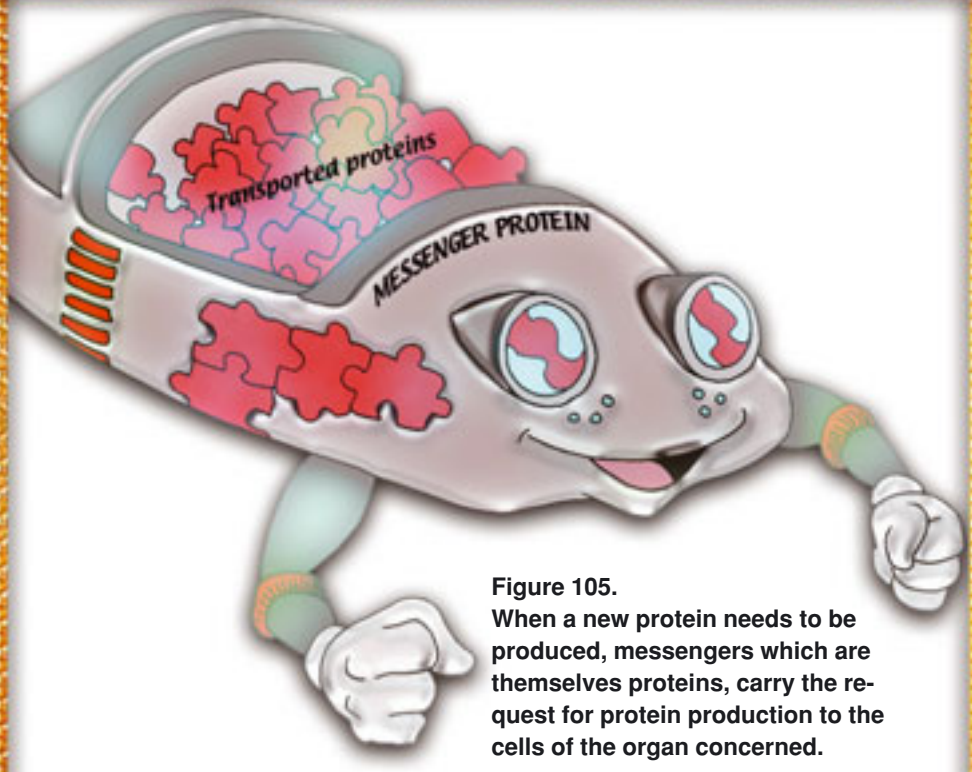


Figure 105.
When a new protein needs to be produced, messengers which are themselves proteins, carry the request for protein production to the cells of the organ concerned.

is used. This language has an alphabet which scientists designate as consisting of four letters, *A, G, C* and *T*. The production of the appropriate protein is of the greatest importance in order that there will be no impairment of the processes inside the cell, and for the need to be met in an accurate manner—in short, to maintain the cell's very survival. Therefore, after the message arrives concerning the need for a particular protein to be produced, the correct information needs to be selected and extracted from the DNA.

But who makes that selection? An enzyme known as *RNA polymerase*, whose work is exceptionally difficult. First and foremost, it must select the letters regarding the protein to be produced from among the DNA molecule, which consists of 3 *billion* letters. The way that RNA polymerase finds and extracts information of just a few lines from those 3 billion units of DNA information is comparable to finding a few specific lines in a foreign language, with no description or index of it being available, from an encyclopedia consisting of 1,000 volumes.

3. In order for the copying process to begin, a very important obstacle

has to be overcome. The entwined arms of the DNA molecule need to be separated, and this is again the task of RNA polymerase. Attaching itself to the first 3 letters of the gene to be coded, the RNA polymerase opens up the DNA rungs—which resemble a spiral staircase—as if it were unfastening a zipper. It does this at a very great speed. In fact, because of that very speed, there is a danger of the DNA heating up and getting damaged. Yet the system has been laid out so perfectly that this danger has been foreseen.

Thanks to a series of precautions taken beforehand, the danger of overheating is eliminated; as if it were aware of the possible danger, a special enzyme attaches to the ends of the opened DNA string and blocks this friction. As we've seen, special enzymes then prevent them winding around each other during the DNA opening process. Were it not for these enzymes, then it would be impossible for the order docket known as *messenger RNA* to be copied, because the arms of the DNA helix, parted like the teeth of a zipper, would again wind around each other before the copying process even began, and the resulting friction would damage the structure

As the arms of the DNA separate from one another, an enzyme prevents them winding around one another again. This enzyme is marked with green in the illustration.

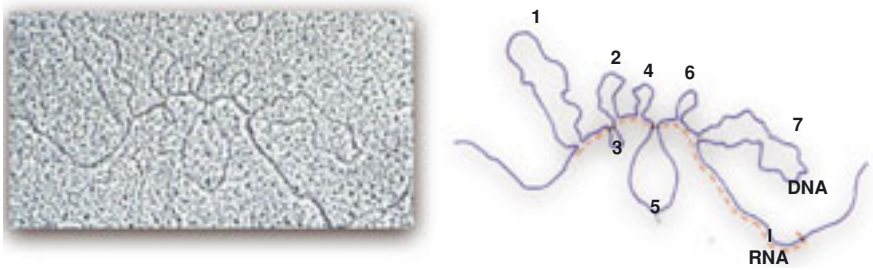
of the DNA. As we have seen, dozens of enzymes and proteins are involved in every stage of the process, yet all fulfill their responsibilities to the letter, in perfect harmony.

4. After these special precautions, there are still a few more hurdles to be overcome. For instance, the information containing the amino-acid sequence in the desired protein may lie anywhere in the long DNA molecule. In that case, how is the polymerase enzyme to copy codes indicating information—in other words, the amino-acid sequence— in different locations?

It cannot break the DNA, nor skip over unwanted codes. If it continues directly along the same lines, it will copy unnecessary data, and the desired protein will fail to appear.

The solution to this problem takes place with an extraordinary phenomenon. The DNA, as if it were aware that it must assist in the copying process, bends in such a way that the region containing the unwanted string of code appears on the outside. Thus the ends of code sequences that must be read consecutively, but which are separated from one another because there are other codes between them, actually join together. In this way, the codes that need to be copied appear in a single line, and the polymerase can easily copy the protein in the order docket.

5. The extraordinary events that occur in the copying of the order docket from the DNA, exhibiting the flawless nature of the creation of Almighty God, do not end here. The copying units also must be halted, or else the polymerase will copy the entire gene from beginning to end. At the end of the gene coding the protein is a codon indicating that the gene has



The regions marked 1 through 7 contain information that does not need to be "read." Enzymes set out these regions bend them to the outside, as shown in the illustration.

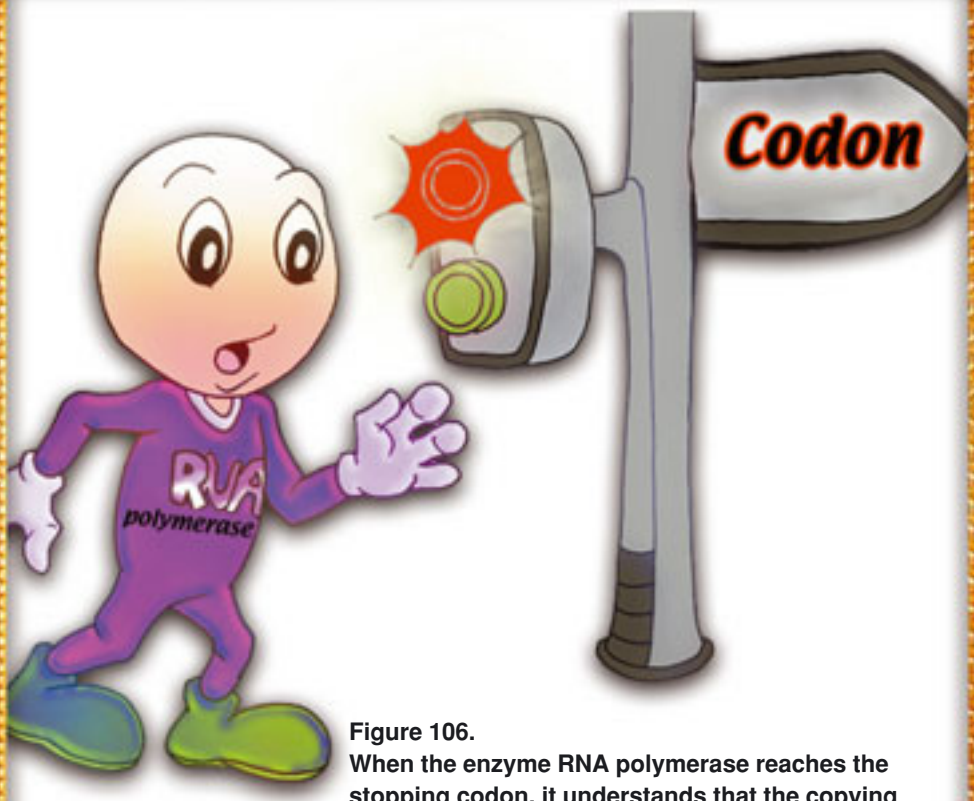


Figure 106.
When the enzyme RNA polymerase reaches the stopping codon, it understands that the copying must stop, and halts the process.

come to an end. (The word codon refers to any triple group of nucleotides that constitute the DNA code.) When the RNA polymerase arrives at the codon, it understands that the copying process is to end. And at this point, the messenger RNA bearing the message for the protein separates from the DNA *(Figure 106)*.

Great care is again taken at this point, because the messenger RNA will cover a considerable distance, exiting the nucleus and going to the ribosome where production is to take place. It is also essential that the message it carries should come to no harm. Therefore, it emerges from the cell nucleus under the protection of various special enzymes.

Protein production is by no means limited to these phases. However, the miraculous events that have occurred up to now are some of the proofs of God's sublime artistry and infinite knowledge.

30.

The Final Stage of Protein Production

After the information in the DNA needed for protein production in the cell is located and copied, it must reach the factory—in other words, the ribosomes—where production is to be carried out. These organelles, present in every cell, lie quite a distance from the DNA in the nucleus and are distributed throughout the cell's cytoplasm, the cell's internal fluid.

Production orders must be forwarded to these factories in perfect form and at high speed. The messenger RNA (mRNA) finds the ribosome from among all the many organelles inside the cell without losing its way. When the mRNA locates the ribosome, it settles onto its exterior in the form of a line.

The information belonging to the amino acid sequence of the desired protein has thus reaches the production center. Now, messages begin being sent to the other regions of the cell for the raw materials—amino acids, in other words—necessary for the protein to be produced and brought in *(Figure 107)*. [23]

The task of searching for and finding the amino acids to be used and of bearing them to the ribosome belongs to transporter RNA (tRNA). There

are 20 varieties of amino acid in every living cell. Each one of these amino acids, or raw materials, is carried by a transporter unique to itself. [24] The way amino acids bond to the tRNA that will transport them takes place as the result of a series of complex processes.

Every tRNA serving as transport carries every amino acid to the place in the ribosome set out in the production instruction, ensuring that there is no impairment of the production function.

The flawless discipline seen in these unconscious molecules, the way they behave as if possessed of awareness and responsibility, is proof that each has submitted to God, the Lord of sublime might and reason, and behaves under His control.

Figure 107.
After the information needed for protein production has been copied from the DNA, it is brought to the ribosome by messenger RNA and released. The messenger RNA finds the ribosome without losing its way.

The information and requisite raw materials for the protein to be produced are now ready. Yet first, there is another problem to be overcome. As we have already seen, the production data—the order, in other words—is written in a special language in the DNA. Production must take place according to the data written in that language. However, the strings of amino acids to be used as raw materials are "written" in another language.

The problem may be better described thus; the written instruction in the order form is in the language of the code comprising the DNA—that special "language" consisting of four letters. The proteins to be produced are communicated in a different language, with a 20-letter alphabet (because there are 20 varieties of amino acid comprising proteins). Thus, the production information coming from the DNA is not in any language the amino acids can decipher. As a result, in order for the amino acids to understand which information from the DNA is referring to, they must translate the DNA language.

In order for life to continue, the ribosome factory has been equipped with a mechanism that resolves this problem in a most perfect manner. A system has been created that translates between the two different languages used during production in the ribosome. This translation system, known as the *codon-anticodon* method, works in a manner far superior to even the most advanced computer centers. Just like an interpreter expert in two different languages, it turns the protein information written in the DNA language (consisting of four letters) into the protein language (consisting of 20), stating which amino acids are to be laid out alongside one another. As a result, the desired protein is accurately produced.

Worthy of particular note is the absence of any error in this translation process. There is only room for one or two errors in the production of the thousands of proteins necessary for the survival of the cell, and thus of the living things. No man-made technological apparatus nor the most careful and expert human beings could translate and write a text such as a protein—the equivalent to 200 novels—in such a flawless, perfect manner.[25] However, these molecules, which behave under the control of God at all times, do everything to the letter. To rational believers, all these are manifestations of God's miracles.

31.

The Cell Membrane and 100 Trillion Organized Workers

Consider how an automobile factory operates. All of its 1,000 or so workers must cooperate with great discipline and in great harmony. Several supervisory and chains of commands are in place to ensure that organization. Each section manufactures the parts demanded of it. For example, engines are produced on one assembly line, and doors in another. Everyone knows where every product will be used; everything remains under control.

Clearly, however, if the factory employs a thousand ignorant people with no idea of how cars are produced and tells them to find out on their own what to produce, and how, then great confusion and chaos will ensue.

Yet the human body contains not 1,000 but 100 *trillion* workers, all laboring together in perfect harmony. These individual cells are far more knowledgeable and better equipped than the workers in any factory. Not only are the miraculous processes they carry out quite breathtaking, but so also is the coordination among them. They recognize one another by means of signals in their membranes. Stomach cells recognize stomach cells, and hair cells recognize other hair cells *(Figure 108)*.

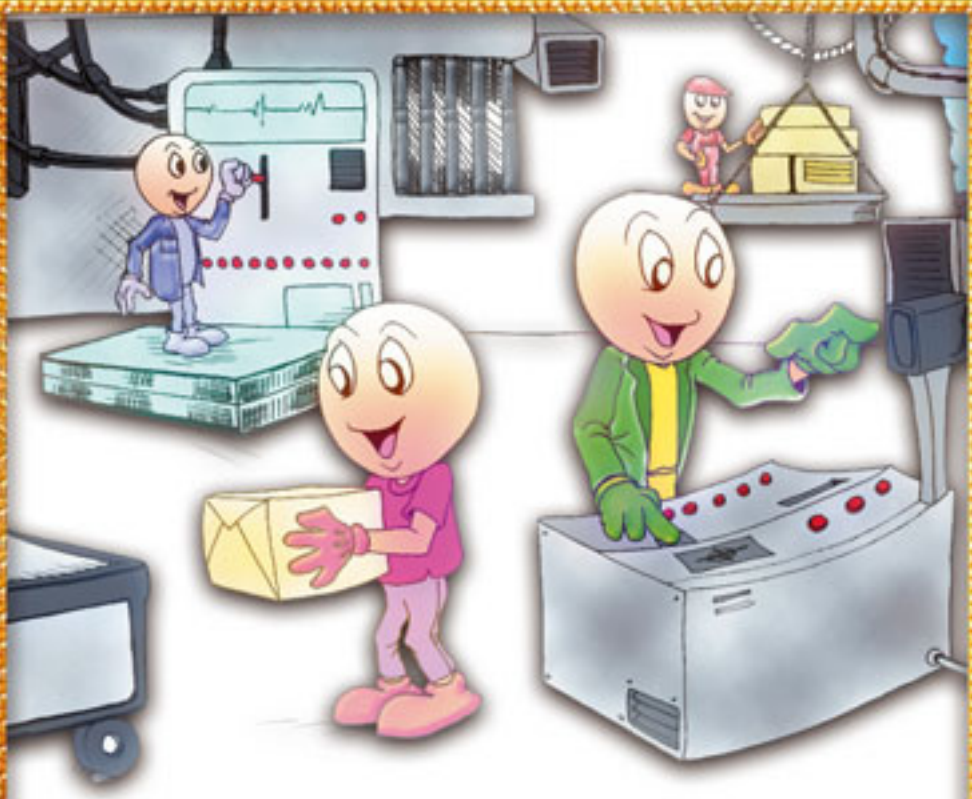
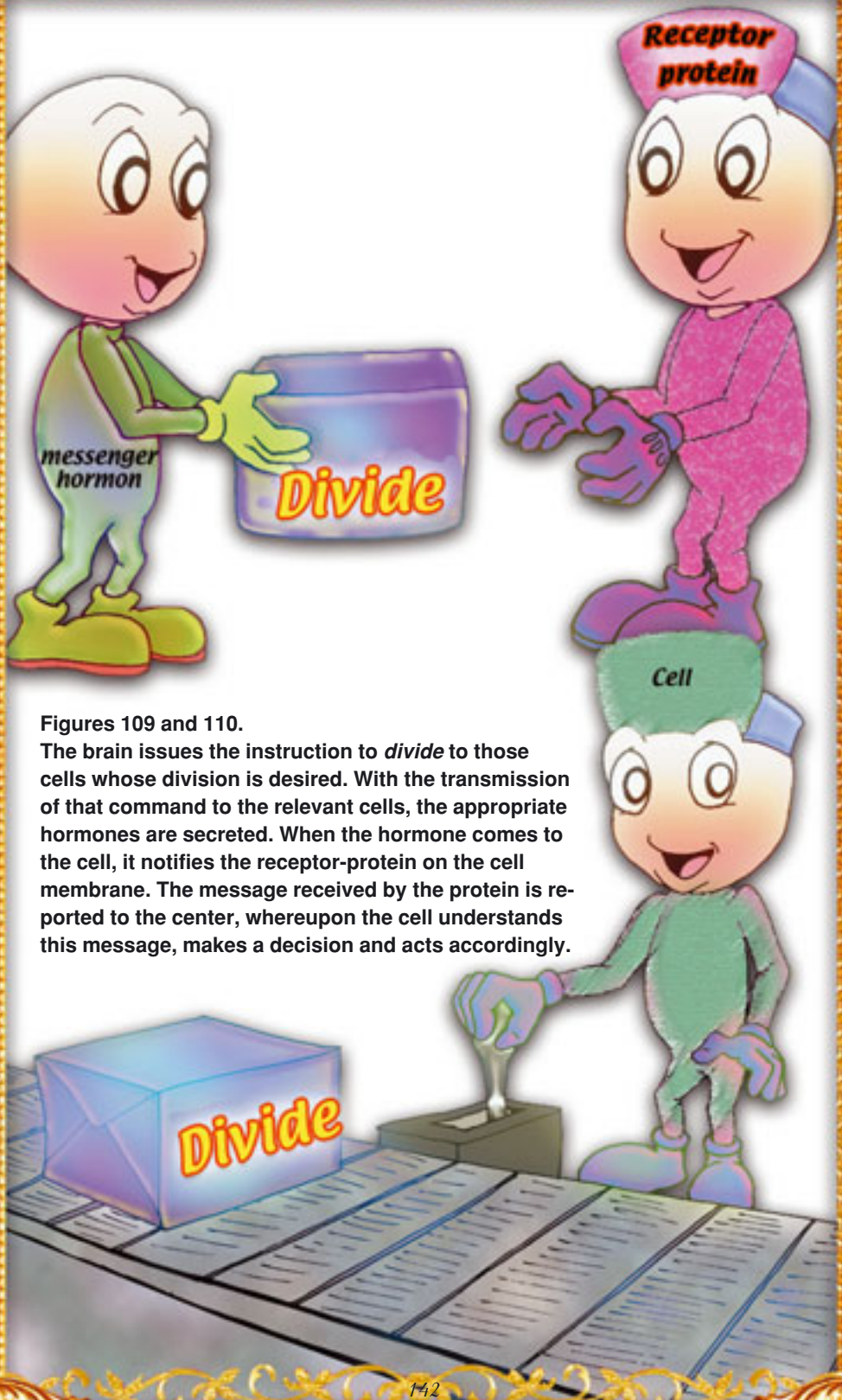


Figure 108.
Every cell works in the place and manner approved for it by God. In the same way that workers in a factory specialize in different departments, different cells work in each region and fulfill their duties with flawless organization.

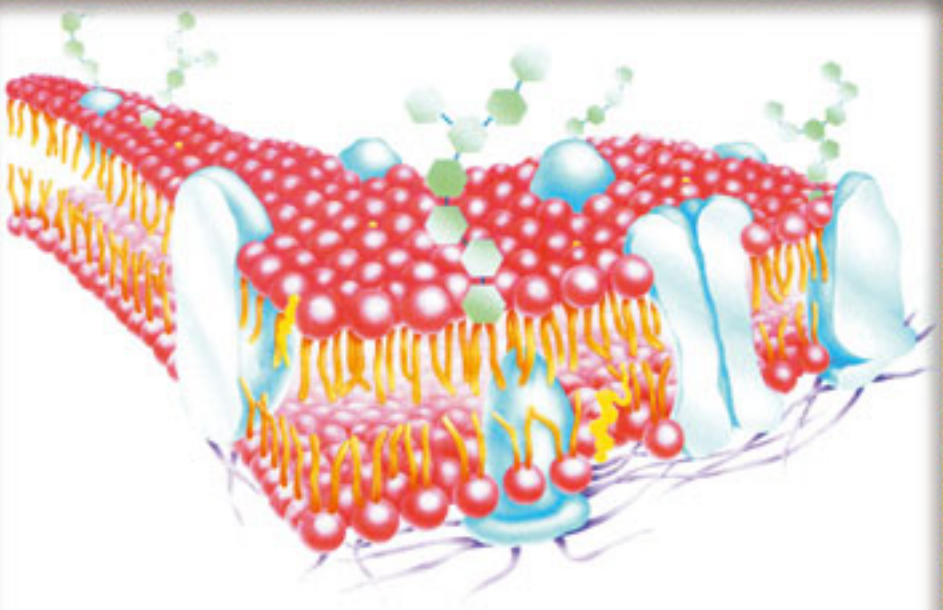
We now face some inevitable questions: How can two membranes recognize each another? How were these "workers" trained? How is it that they perform their duties with such devotion?

Each one of these 100 trillion cells does what the body asks of it. So how does every cell know what it is to do, at every moment? All this happens, of course, through the knowledge and inspiration of Almighty God. For example, if cell division is desired in a given region, the brain issues the relevant command to the cells there. For this purpose, hormones are released and each one transmits the brain's message by traveling to the relevant cell. When the envoy reaches the cell, it notifies the receptor protein on the cell membrane. The cell understands this message and takes the appropriate action *(Figures 109 and 110)*.

But is it possible for an island of protein in a crowd of fat cells to un-



Figures 109 and 110.
The brain issues the instruction to *divide* to those cells whose division is desired. With the transmission of that command to the relevant cells, the appropriate hormones are secreted. When the hormone comes to the cell, it notifies the receptor-protein on the cell membrane. The message received by the protein is reported to the center, whereupon the cell understands this message, makes a decision and acts accordingly.



A cross-section of the cell membrane that performs miraculous processes in our bodies.

derstand an instruction given to it and passing this on to the nucleus of the cell? Will the cell obey this instruction and devote its life to producing a routine substance without even knowing where it will be used? Of course not!

In addition, as stated earlier, the hundreds of passage points, receptors and controllers along the cell membrane, all work together in great harmony, aware of one another's existence. Yet these are all unconscious proteins. It is clear that the cell membrane did not come into possession of these attributes of its own accord, but that this entire system was created.

And that system was of course created for a particular purpose. Anyone of reason and conscience can see these miraculous proofs and appreciate God as He deserves. The attitude of believers to the miracles of our Lord is revealed thus in verses:

> **In the creation of the heavens and the earth, and the alternation of night and day, there are signs for people with intelligence: those who remember God, 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, 190-191)**

32.

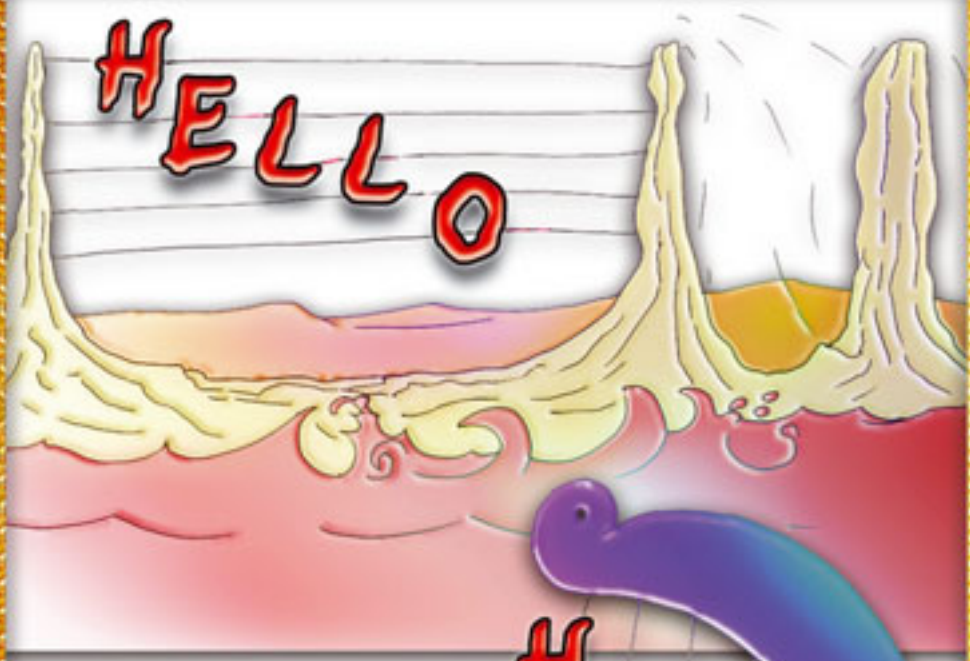
What Happens at the Moment of Hearing?

When you run into friends in the street who call out, "Hello!" the sound waves they emit are collected by your ear. At sea level, sound travels through 6 meters (19 feet) of air in 1/50 second.

The air vibrating in both of your ears travels the short distance to your middle ear at great speed. The ear membrane, only 7.6 millimeters (0.2 inches) in diameter, begins vibrating, which vibrations are transmitted to three small bones that convert these sound vibrations into mechanical vibrations. The vibrations in these bones are then transmitted to the inner ear and the fluid inside a structure known as the cochlea, which resembles a snail *(Figure 111)*.

Inside the cochlea, which contains fine strands of varying thicknesses, just like the strings of a harp *(Figure 112)*, different tones are divided from one another. Your friend's voice literally plays these strings. First the thickest strands vibrate, followed by the thinner ones. Finally, tens of thousands of rod-shaped bodies in the inner ear activate the hearing nerves through their own vibrations *(Figure 113)*.

The sound of your friends' "Hello" is now an electrical signal that



Figures 111 and 112.
When friends say "Hello," the sound waves quickly reach your middle ear and cause the ear membrane to vibrate. This vibration is transmitted to three small bones. Their vibration is transmitted to the inner ear, where a special fluid inside the cochlea is set in motion. Inside the cochlea, there are fine threads of differing thicknesses just like the strings of a harp.

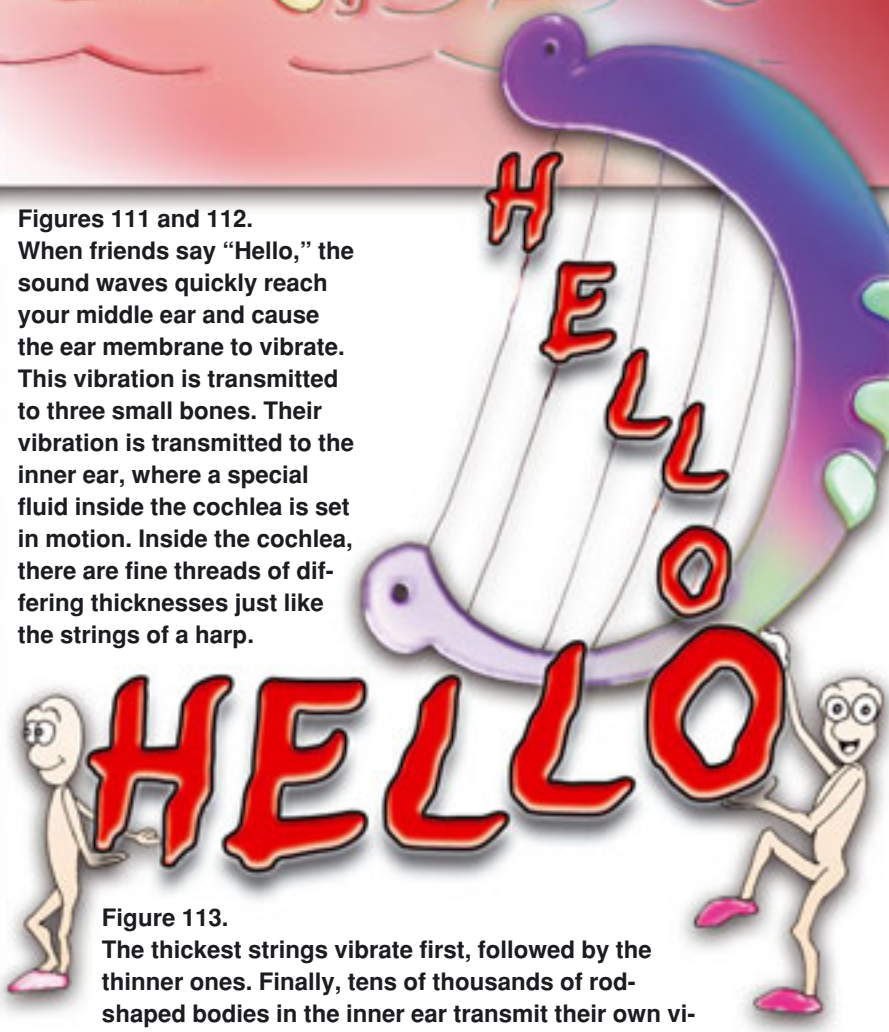


Figure 113.
The thickest strings vibrate first, followed by the thinner ones. Finally, tens of thousands of rod-shaped bodies in the inner ear transmit their own vibrations to the hearing nerves. The sound of your friends' "Hello" is now only an electrical signal.

travels rapidly towards the brain along the auditory nerves. At the end of this journey, a large portion of the millions of neurons in the brain are occupied with analyzing the hearing data thus obtained. Thus, finally, you actually hear your friends say "Hello" *(Figure 114)*.

These processes, here described in greatly simplified terms, are in fact exceedingly complex and take place in less than a second. We see and hear hundreds of thousands of times every day, yet we generally never think how we do this. Everything we see and hear, we see and hear through the mercy of God, the Compassionate and Merciful. This should be a means whereby all believers give thanks.

In fact, God reveals in the Qur'an that human beings should reflect on this and be duly grateful:

> **God brought you out of your mothers' wombs knowing nothing at all, and gave you hearing, sight and hearts so that perhaps you would show thanks. (Surat an-Nahl, 78)**

Figure 114.
The electrical signals reaching the brain are analyzed by neurons and perceived as sounds, thanks to which you are able to hear your friends greeting.

33.

Blood Clotting

When you cut yourself, or when an old wound starts bleeding again, you know that the bleeding will eventually stop. Over the area concerned, a scab will form that will gradually harden, and under it, the wound will heal itself.

This may seem to you to be quite a simple matter. The fact is, however, that biochemists' research has revealed that this is the result of a highly complex system.[26] The absence or impairment of any of the components of this system will mean it fails to function at all.

The blood must clot in the right location and at the right time, and it must cease when local conditions return to normal. The system must function flawlessly, right down to the very smallest detail.

In the event of bleeding, clotting must take place at once if the organism concerned is not to die from loss of blood.

Furthermore, clotting must take place along the extent of the injury and, most importantly, must be limited to only the site of that injury. Otherwise, more blood clotting will result in the death of the organism. For that reason, blood clotting must be kept under tight supervision; the scab must form in the right place at the right time.

Blood platelets—or thrombocytes, the smallest of the bone-marrow cells—have one vitally important characteristic. These cells are the main element in blood clotting. A protein known as the Von Willebrand factor ensures that the thrombocytes traveling through the bloodstream do not bypass the site of any injury. The thrombocytes caught here release a substance that brings other thrombocytes to the same site. Together, these cells then close up the open wound.

Once they have discharged their duties, the thrombocytes die. Their self-sacrifice is just one part of the blood-clotting system *(Figure 115)*.

Another protein responsible for blood clotting is thrombin, a substance produced only where there is an open wound. This production must be neither to great nor too small. In addition, it must take place and cease at exactly the right time. To date, more than 20 bodily chemicals that play a role in thrombin production have been described, and all are enzymes. These enzymes can halt or initiate their own production. The process is so tightly controlled that thrombin forms only in the event of tissue injury. As soon as all the enzymes required for clotting reach the requisite levels in the body, structural substances—long fibers which are actually proteins, known as fibrinogen —are formed. In a short time, a whole network of fibrinogen fibers is established where the blood is flowing to the outside. The thrombocytes in the blood become caught in this network and accumulate in it.

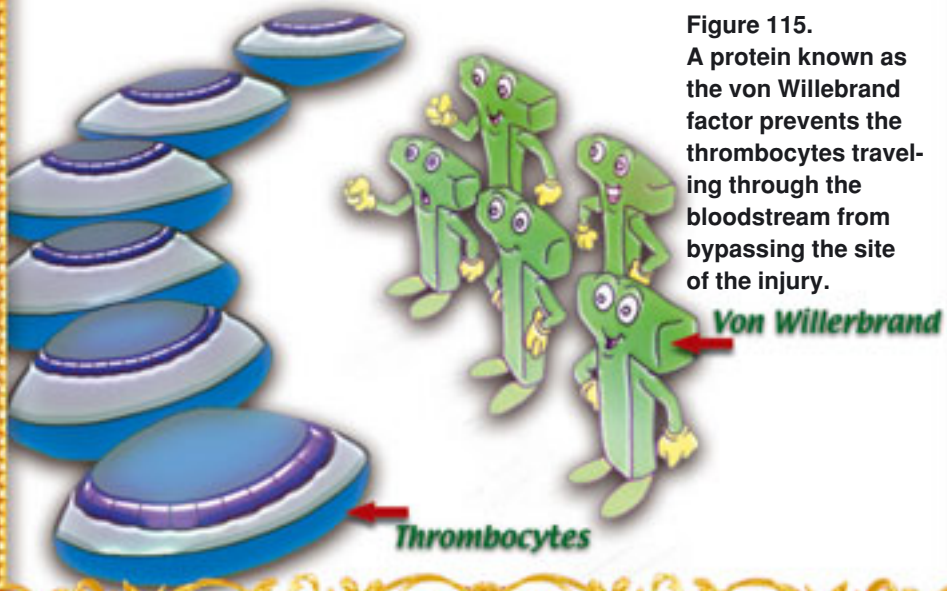


Figure 115.
A protein known as the von Willebrand factor prevents the thrombocytes traveling through the bloodstream from bypassing the site of the injury.

As this accumulation thickens, it will halt the flow of blood by acting as a stopper. What we refer to as a scab is the stopper that forms in this way *(Figure 116)*.

The blood clot is absorbed when the wound is fully healed.

The system that ensures the formation of a clot, that determines the extent of that clot, and that strengthens or eliminates it is of irreducible complexity. Blood clotting is a chain of events in which one event sets another in motion.

The system functions flawlessly, right down to the tiniest detail.

What would happen in the event of the slightest impairment to that system? What, for instance, would occur if clotting took place in the absence of any wound? Or if the clot that formed were easy to detach from the injury? In that event, the arteries leading to such vital organs as the heart, lungs and brain would become clogged up with clotting materials, and this would inevitably result in death.

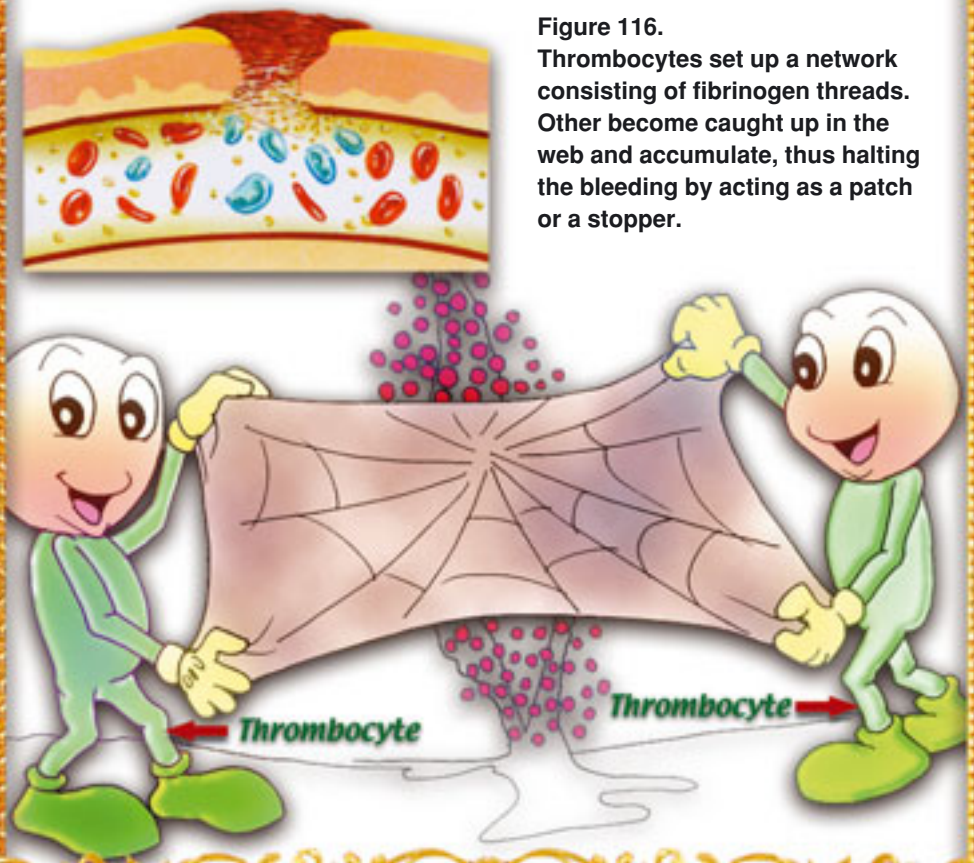


Figure 116.
Thrombocytes set up a network consisting of fibrinogen threads. Other become caught up in the web and accumulate, thus halting the bleeding by acting as a patch or a stopper.

This fact shows us once again that the human body has been perfectly created. It is impossible for even the blood-clotting system to be explained in terms of coincidences and *gradual development*, as the theory of evolution would maintain. This system, every detail of which is the product of a separate blueprint and calculation, reveals the perfection of creation. Almighty God, Who created us and placed us on this Earth, has created our bodies with this system that protects against wounds both great and small.

In addition, blood clotting is highly important not just for those external wounds visible to the naked eye, but also for repairing damage that takes place every day in our capillary vessels. Although you seldom feel them, you actually suffer tiny hemorrhages during the whole course of the day. When you bump your arm against a door or sit down too hard, hundreds of tiny capillary blood vessels are broken. But the internal bleeding that occurs as a result of this is immediately stopped, thanks to the clotting system, and the body subsequently rebuilds its capillary vessels. If the blow concerned is quite hard, the internal bleeding before clotting occurs will be quite powerful also, for which reason *bruising* occurs at the site. Anyone born without this clotting system in the blood is known medically as a hemophiliac and must be protected against the slightest knock for his whole life, and even wrapped in cotton wool. However, patients with severe hemophilia do not tend to live long. Even internal bleeding caused by a fall in the street can swiftly prove fatal.

In the face of these facts, all human beings must reflect on the miracle of creation of their own bodies and give thanks to God, Who created it so perfectly. This body, of which we are unable to produce a single system, or even a single cell, is a blessing bestowed on us by Almighty God.

In the Qur'an our Lord states:

We created you, so why do you not confirm the truth? (Surat al-Waqi'a, 57)

There are certainly Signs in the earth for people with certainty; and in yourselves as well. Do you not then see? (Surat adh-Dhariyat, 20-21)

34.

The Immune System

The immune system that protects our bodies against enemy bacteria and viruses works much like a disciplined army. The immune system's war against our microscopic enemies consists of three major stages:

1- Identification of the foe: first intervention.

2- Intervention by the real army: intense warfare.

3- Return to peacetime conditions.

Before declaring war, the immune system first has to identify the foe and obtain intelligence regarding it. Every war differs, according to the nature of the enemy. And unless this intelligence-gathering is done properly, our immune system could attack our own cells by mistake.

The first intervention comes from the phagocytes, the body's "dustmen" or janitors. The phagocytes declare war on the enemy. They are rather like infantry units that establish the first contact with enemy combatants *(Figure 117)*.

Sometimes the phagocytes are unable to match the speed at which the enemy multiplies. In that event, the macrophages go into action. Macrophages may be compared to cavalry striking at the mass of the

Figures 117 and 118.
Phagocytes engage in face-to-face combat with the enemy. If they fail to do their job, then macrophages enter the fray and raise the temperature of the body up to 39ºCelsius (102ºFahrenheit) in order to provide energy.

enemy troops. At the same time, thanks to a special protein they secrete, macrophages sound the general alarm in the body, by raising its temperature by fever *(Figure 118)*.

Macrophage cells have another very important property, however. They can trap and engulf a virus, breaking off a particular section of it, which it then carries like a flag. This part acts like a sign for other components of the immune system, and also demonstrates the intelligence of advance planning.

The first task of the helper T-cells that identify the enemy, thanks to the intelligence obtained by the macrophage, is to notify the killer T-cells and stimulate them to multiply *(Figure 119)*. Thus stimulated, killer T-cells soon become an army. The helper T-cells do not only stimulate the killer T-cells, but also ensure that many phagocytes attend the battlefield and trans-

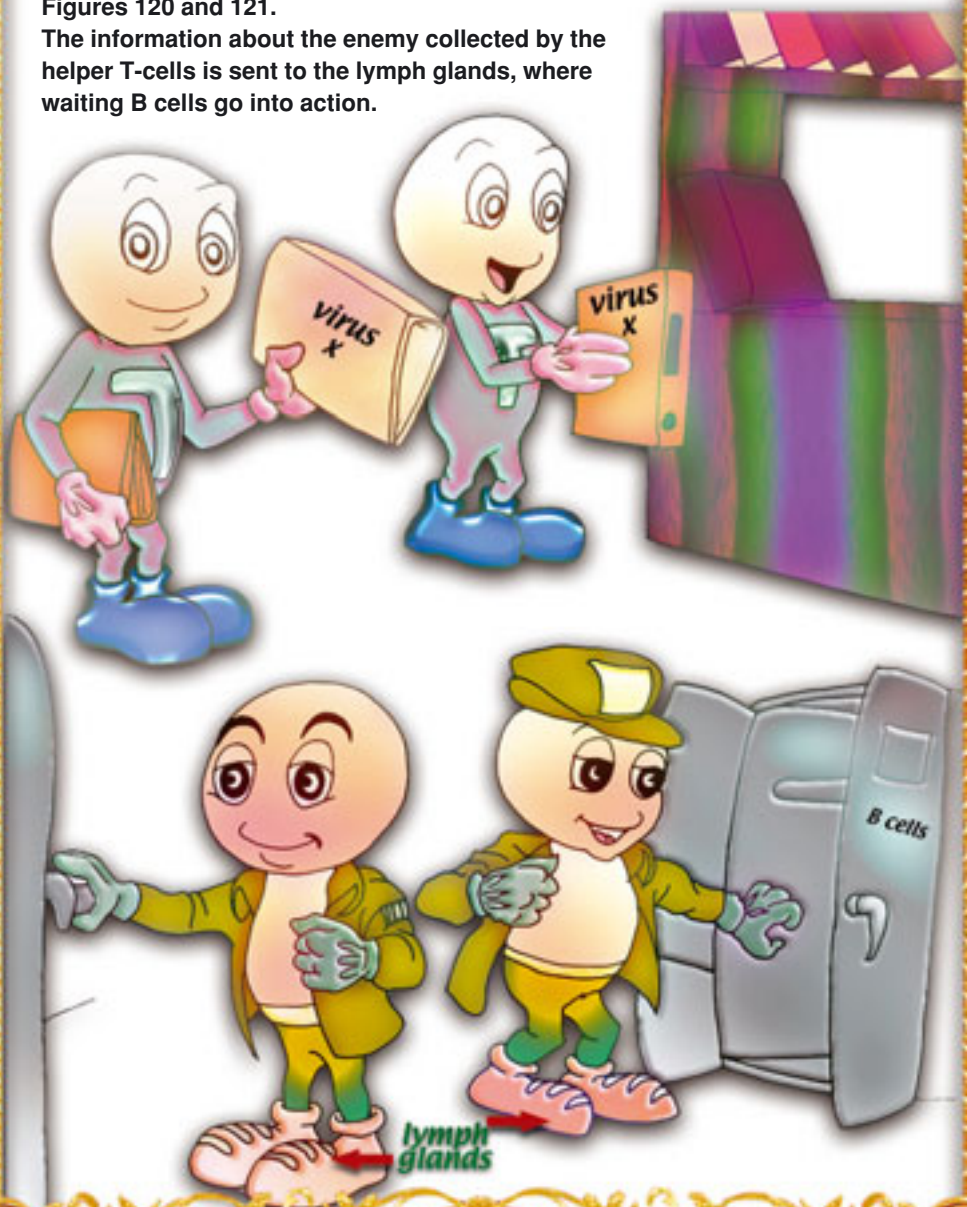
Figure 119.
Helper T-cells carry information about the enemy to killer T-cells.

mit the information they've gathered concerning the enemy to the spleen and lymph glands *(Figure 120)*.

When the lymph glands are reached, B cells that have awaited their call to duty are set in motion thanks to this information. After being produced in the bone marrow, B cells travel to the lymph glands to await the call to action *(Figure 121)*.

The awakened B cells go through a number of stages. Every stimu-

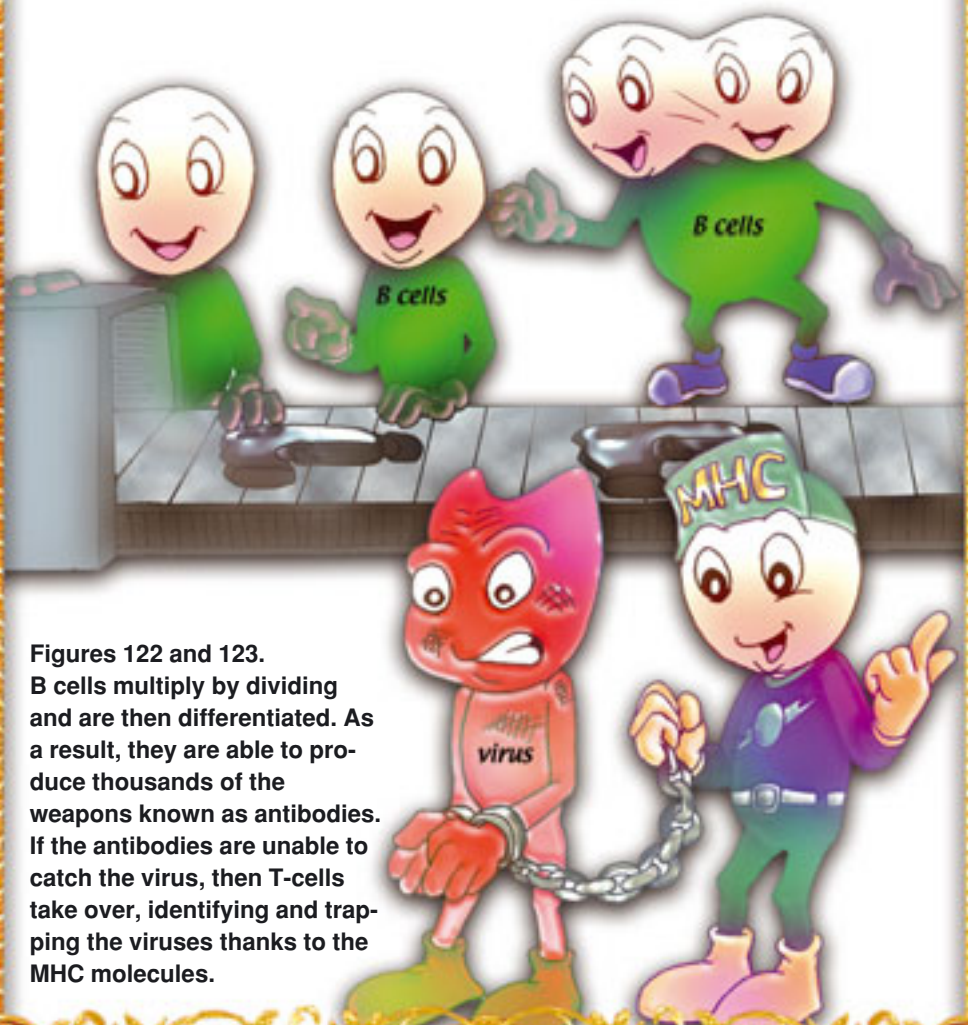
Figures 120 and 121.
The information about the enemy collected by the helper T-cells is sent to the lymph glands, where waiting B cells go into action.



lated B cell begins to divide and multiply, until there are thousands of cells of the same type. The B cells, now ready for the fray, divide further and become plasma cells that release antibodies, chemical weapons to be used in the war against the enemy. B cells can produce thousands of such antibodies in a second, which weapons are highly practical. They will first bond to the enemy antigen, and then impair that foe's biological structure *(Figure 122)*.

If a virus enters the cell, the antibodies are unable to trap the virus. In that event, the killer T cells again go into action and identify the viruses inside the cell, thanks to the MHC molecules, and kill the cell *(Figure 123)*.

However, if the virus is camouflaged in such a way that not even the killer T-cells can detect it, then cells known as *natural killer (NK)* cells take



Figures 122 and 123.
B cells multiply by dividing and are then differentiated. As a result, they are able to produce thousands of the weapons known as antibodies. If the antibodies are unable to catch the virus, then T-cells take over, identifying and trapping the viruses thanks to the MHC molecules.

over, destroying the cells that the others could not identify and which contain the viruses *(Figure 124)*.

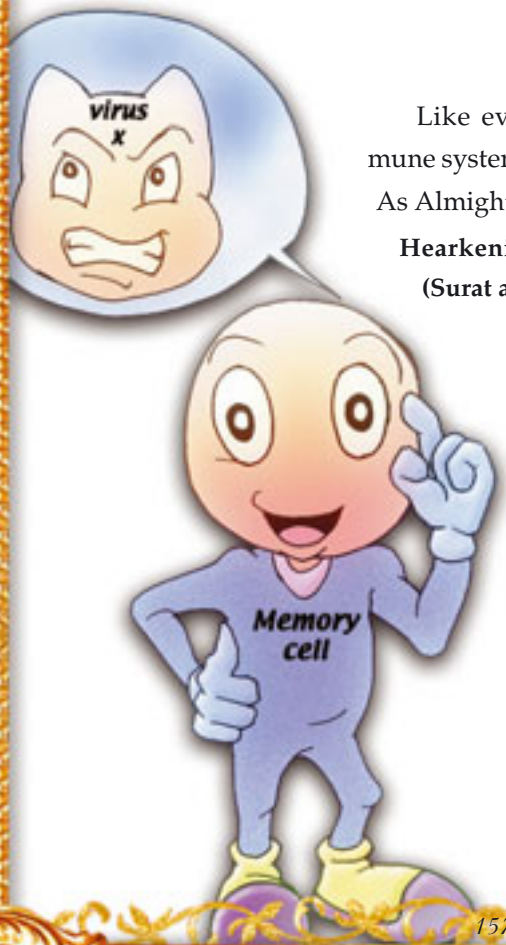
Once the victory has been won, the suppressor T-cells call a halt to the fighting *(Figure 125)*. The war is now over, but it will never be forgotten. Memory cells have by now recognized the foe, and these cells remain in the body for years. When the same enemy is ever encountered again, they will trigger a defense response that is rapid and effective *(Figure 126)*.

The heroes of this war receive no military training, and are not rational human beings, but rather tiny cells, millions of which would still fail to fill the space occupied by a period on this page.

Furthermore, this army with its astonishing properties is not limited to fighting alone. It produces all the weaponry to be used during the war, draws up the battle plans and strategies, and cleans up the "battlefield" once the fighting is over.

Figure 124.
NK—that is, natural killer— cells destroy the viruses that the killer T-cells have missed.

Figure 125.
Suppressor T-cells call a halt to the war once the victory has been won. At the side can be seen defense cells (yellow) fighting a cancer cell (pink).



Like everything in the universe, our immune systems behave in line with their creation. As Almighty God reveals in the Qur'an:

Hearkening to its Lord as it is bound to do!
(Surat al-Inshiqaq, 2)

Figure 126.
At the end of the war, the memory cells record information about the enemy in order to be ready for the next assault. Every detail in the defense system is a manifestation of our Almighty Lord's incomparable and flawless artistry.

35.

The Journey of Vitamin B_{12}

One feature of the stomach's mucus is that it contributes to the bone marrow that produces blood. It ensures that vitamin B_{12}, which is of enormous importance to the body, reaches the marrow. When we examine the journey that vitamin B_{12} undertakes before it reaches the marrow, and the role played by this in the stomach mucosa, we shall see yet another miracle taking place at the microscopic level.

After entering the human body, vitamin B_{12} makes a long journey through the digestive system. It finally enters the bloodstream from the small intestine and reaches the bone marrow cells *(Figure 127)*.

The absorption of vitamin B_{12} takes place in the small intestine. However, no digestive cell in the small intestine is able to trap the vitamin. There is a special group of cells in one small region of the small intestine that has solely been charged with capturing vitamin B_{12}.[27] This group of cells dedicates their lives, in a most miraculous manner, to trapping this vitamin. These cells identify and seize vitamin B_{12} from among trillions of molecules. How do these cells identify it, and how do they distinguish it from so many other substances? Why do they feel themselves obliged to capture vitamin B_{12}?

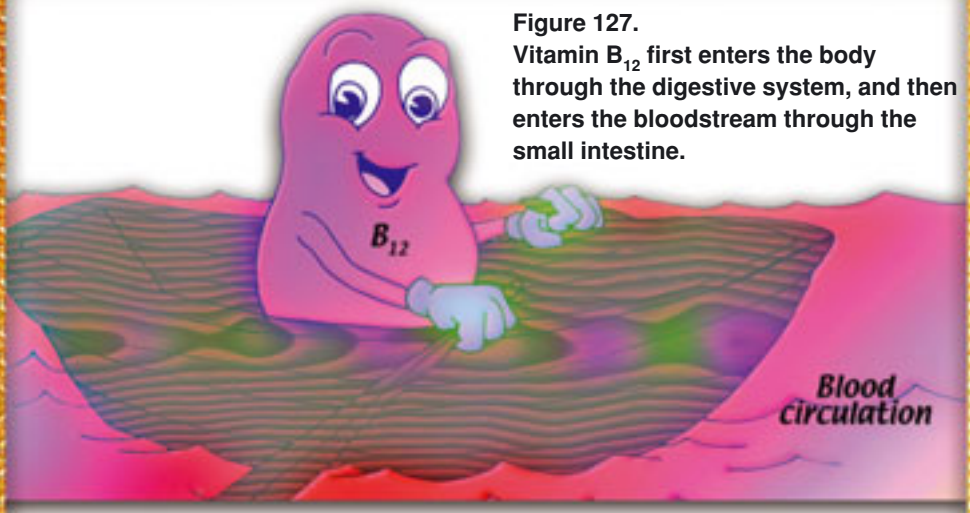


Figure 127.
Vitamin B_{12} first enters the body through the digestive system, and then enters the bloodstream through the small intestine.

The intelligence exhibited by these cells in catching vitamin B_{12} cannot, of course, emerge as the result of chance. As we shall clearly see, Almighty God, the sublime and mighty, deliberately created this system. When we examine it in a little more detail, miraculous proofs of creation will become more clear.

The cells in the small intestine are unable to recognize vitamin B_{12} in its raw form. In order for it to be recognized and caught, vitamin B_{12} needs to be marked with a special molecule. This requirement has, of course, already been taken into account, and a system to mark the vitamin B_{12} before it reaches the intestine has been established.

While the vitamin B_{12} is still in the stomach, the stomach cells produce a special "marker" molecule for B_{12}. This molecule is like an identity document that the vitamin will need on the later stages of its journey. This "marker" adheres tightly to the vitamin B_{12} as it continues on its journey to the small intestine *(Figure 128)*.

In the small intestine, border officials—a specialized group of cells, whose sole duty is to find vitamin B_{12}—ensure its passage into the bloodstream. However, these "officials" are unable to recognize vitamin B_{12} in its unprocessed state. At this point, the "passport" carried by the B_{12} comes to its assistance. Thanks to this document, the border officials identify and locate the vitamin B_{12} from among trillions of other molecules. Then, again thanks to this marker molecule, they enable the vitamin B_{12} to enter the

bloodstream. In this way, the B_{12} succeeds in reaching the bone marrow *(Figures 129 through 131)*.

As you've seen, the stomach cells know the importance to the body of vitamin B_{12}. Moreover, the intestinal cells know what kind of marker they need in order to recognize B_{12}, and they produce this marker molecule. Intestinal cells, have no eyes, hands or brains, yet they recognize this marker and thus catch the vitamin B_{12}.

Another very important point is that the vitamin B_{12} absorbed as the result of all these events provides no direct benefit to the cells in either the stomach or the intestinal wall. Vitamin B_{12} is used very far away, in the bone marrow. Thanks to it, the human body can produce blood, and is thus able to survive.

The journey undertaken by a single vitamin and the details of that journey are sufficient for us to realize the flawless nature of the system established inside our bodies.

It is certain that the keen awareness and flawless functioning displayed in the course of these processes cannot take place through the will of the cells concerned. After all, the entities known as cells are structures consisting of collections of unconscious molecules. It would be meaningless to look for consciousness, will or a power inside a cell. It is our Lord, Almighty God, Who created this system, and all things, from nothing.

Figure 128.
While vitamin B_{12} is still in the bloodstream, the stomach cells produce a special molecule for it. This molecule is an *identity* document that this vitamin will need on every stage of its journey.

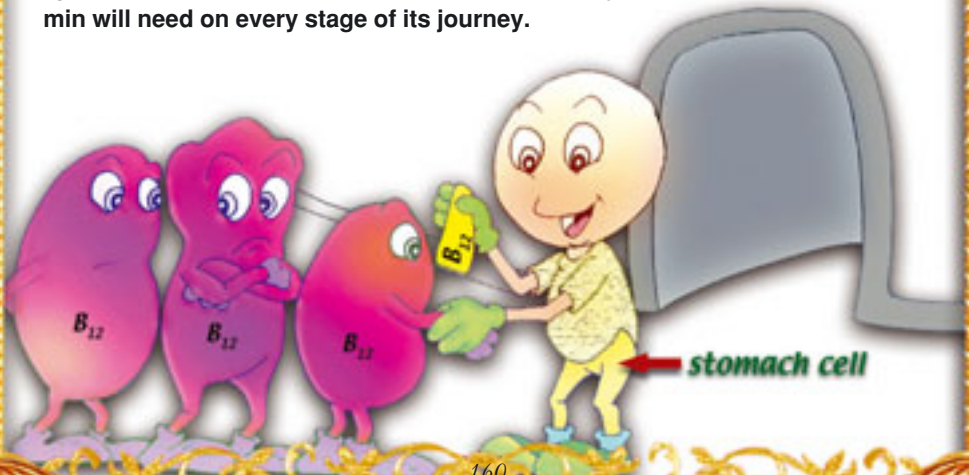


Figure 129.
Cells in the small intestine are unable to recognize vitamin B_{12} in its unprocessed form. In order for B_{12} to be recognized and caught by the cells, it must be marked with a special molecule.

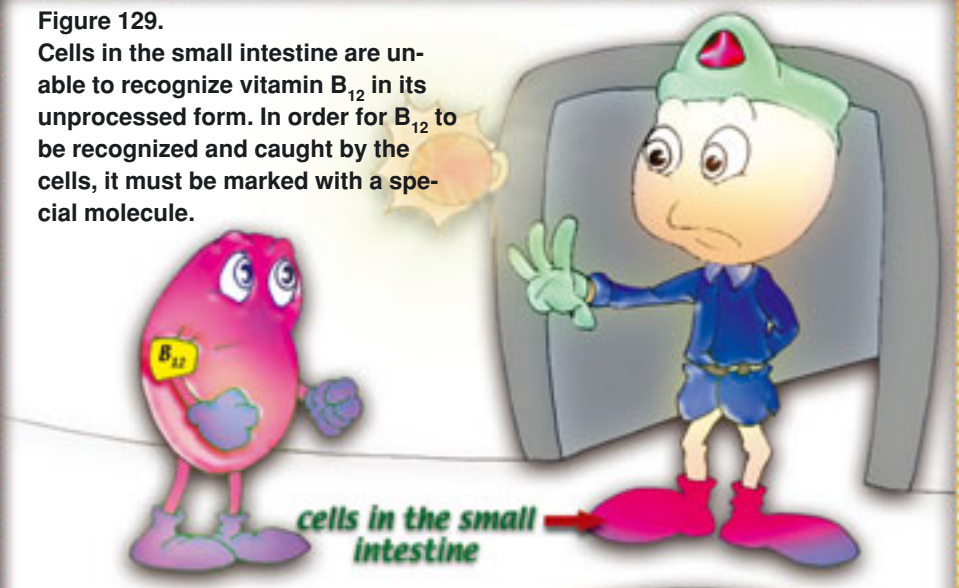


Figure 130.
The labels affixed to the vitamin B_{12} by the stomach cells come into play here, as the small intestine cells recognize these labels and accept the B_{12}.

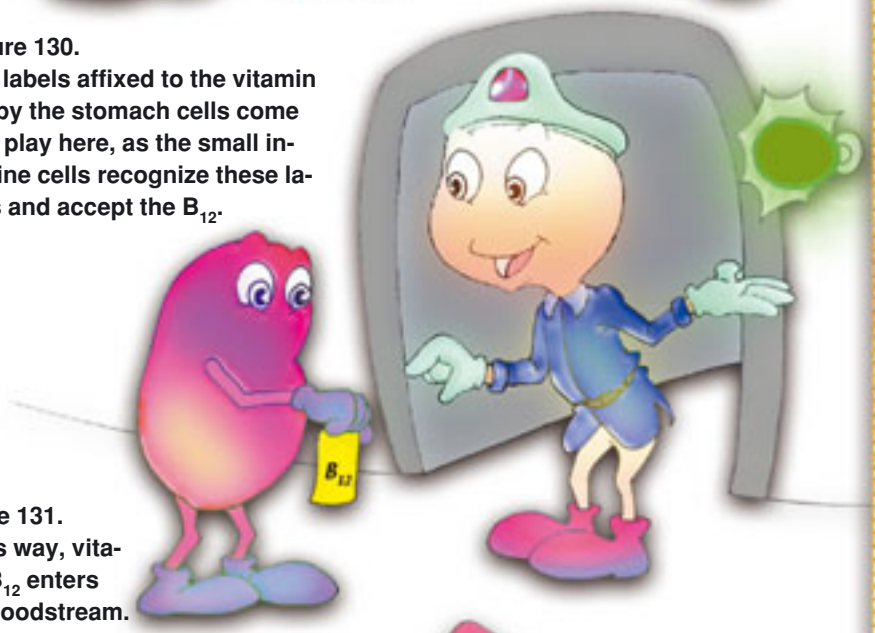
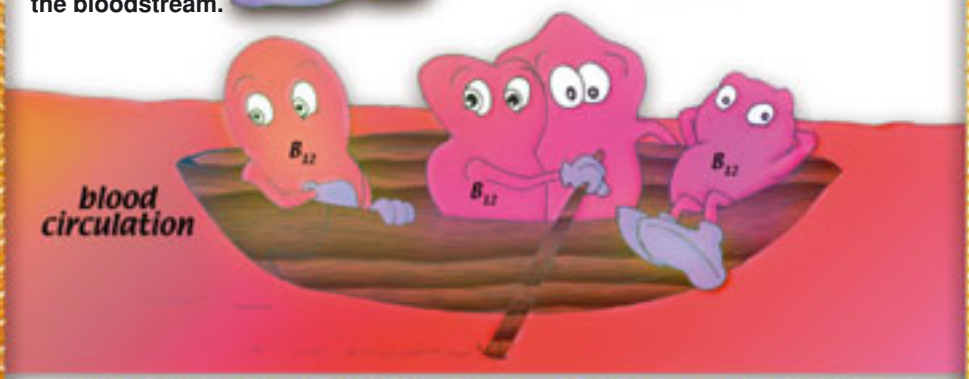


Figure 131.
In this way, vitamin B_{12} enters the bloodstream.



36.

The Pancreas: The Human Body's Chemist

Let us imagine that you have eaten a pleasant dinner. You may never have considered how you will digest that wide range of foodstuffs. You may not even be aware that each one of them must be processed by different enzymes.

It's of course perfectly normal that someone who has never received special training on this subject should be unaware of these facts. Yet one organ in the body does possess all this information. It knows which foods will be digested by which enzymes; and dispatches the right chemical secretion to the foodstuffs, at just the right time, with no confusion or error ever arising.

This organ is the pancreas, one of the most important organs in the body. It decides how many sugar molecules there should be in the blood flowing through your veins. If the number of sugar molecules in the blood has declined, the pancreas immediately takes steps to raise that number;, and these measures save the life of the individual concerned. If the number of sugar molecules rises, then it takes steps to reduce their number.

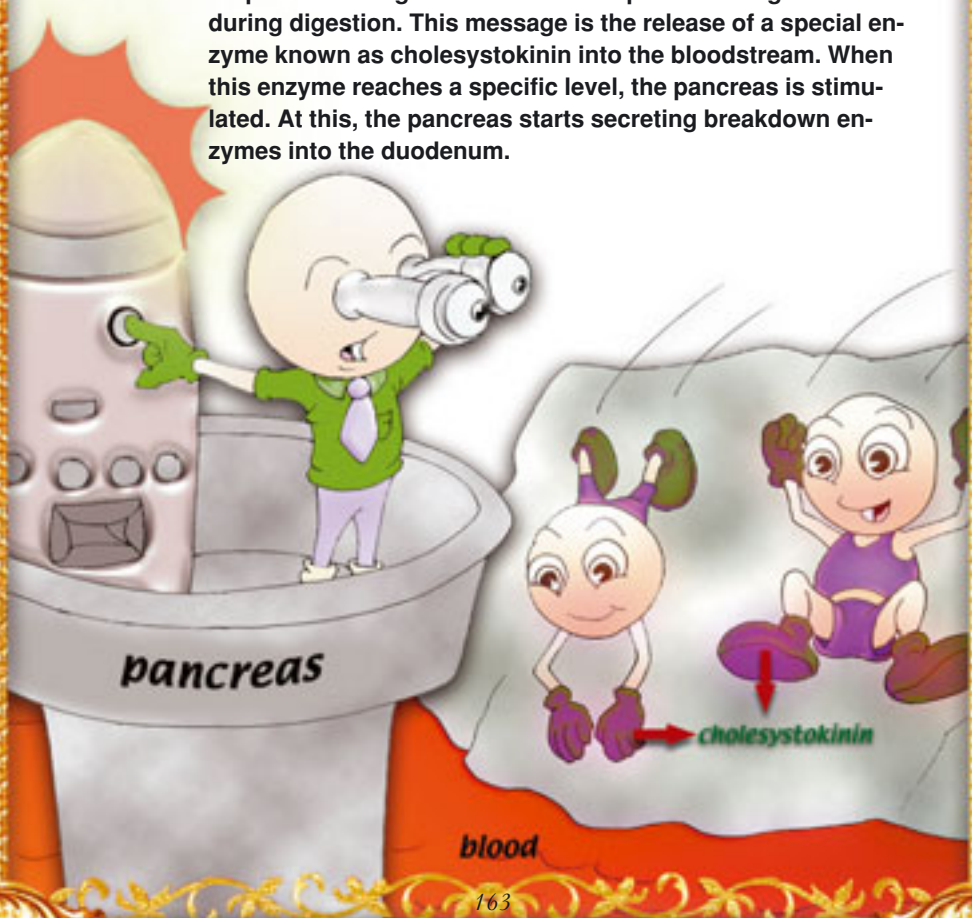
With the enzymes it sends to the digestive system, the pancreas plays a most important role in human life. At the same time, the enzyme that pre-

vents the intestine itself from being broken down by stomach acids is also produced by the pancreas.

If we look at these tasks one by one, we see that this organ, which may never have attracted your notice, acts in a very conscious and planned manner on your behalf, and it possesses a flawless system that keeps you alive.

The pancreas' entry into action in the digestive system takes place with a special message. As the digestive processes continue in the stomach, a special enzyme called *cholesystokinin* begins to enter the bloodstream. When this enzyme reaches a certain level in the blood, this stimulates the pancreas, notifying it that the time for action has come, whereupon the pancreas begins secreting fragmenting enzymes into the duodenum [28] *(Figure 132)*.

Figure 132.
A special message is needed for the pancreas to go into action during digestion. This message is the release of a special enzyme known as cholesystokinin into the bloodstream. When this enzyme reaches a specific level, the pancreas is stimulated. At this, the pancreas starts secreting breakdown enzymes into the duodenum.



The pancreas is not limited to understanding that the digestion process has begun, it also understands what varieties of food you have eaten—and produces digestive enzymes in line with those different foods. For instance, when you eat pasta and bread, which are rich in carbohydrates, the enzyme secreted by the pancreas is of a kind able to break down carbohydrates. When these foods reach the duodenum, the pancreas produces an enzyme known as amylase *(Figure 133)*.

Figure 133.
The pancreas identifies the foods entering the stomach and secretes different enzymes to digest them.

If you consume foods like red meat, fish and chicken, the pancreas immediately recognizes that you have eaten protein. And again, when these foods reach the duodenum, the pancreas secretes different enzymes, such as trypsin, chymotrypsin, carboxypepsidase, ribonuclease and deoxyribonuclease, which break down protein. If the food you eat has a high fat content, then yet another enzyme, lipase, goes into action alongside these other enzymes, to digest the fat.

As you see, this organ understands what the foods you eat consists of, then produces one by one the proper chemical fluids needed for each one to be digested, but only at the time when they are required. The pancreas never secretes an enzyme that breaks down protein for carbohydrate molecules, nor one that breaks down carbohydrate for fat molecules. It never forgets the chemical formulae of the complex enzymes it produces. No requisite substance is ever left out. In healthy individuals, the pancreas works to perfection for their entire lifetime.

The stomach cells do not stand idly by as digestion continues in the stomach. As if they knew that the food being digested in the stomach will later reach the duodenum, some of these cells start secreting hormones that call on the pancreas cells for help. They then send their messages to the pancreas by way of the bloodstream.

The signal released into the blood travels through the body. When it arrives, the pancreas cells recognize it and straightway act on it. Interestingly although it travels in the bloodstream through almost the entire body, the cells of other organs do not open the message, and certainly do not read it. All the cells know that this message is directed to the pancreas, and not for them. In other words, the molecular structure of the message has been designed in such a way as to interact solely with the receptor cells on the membrane of pancreas cells. That is, the stomach cell that produced it writes the correct "address" on the hormone. Moreover, it writes the correct address from among all the other billions of different locations in the body. In order to be able to write this address, the stomach cell has to know all the relevant features of the pancreas cell *(Figure 134)*.

The miracle goes beyond the mere correct writing of the destination, to the message in the letter. In the depths of the human body, two living things (cells) a long distance from each other correspond and communi-

cate. Although they have never seen one another, they know which language the other understands. In addition, this communication is for a purpose. Two cells have joined forces and make plans for the food you've eaten to be digested. There can be no doubt but that this is a great miracle.

The pancreas that receives the hormone cholesystokinin that reaches it loses no time in obeying the instruction it conveys. Immediately the gland begins secreting the enzymes necessary to digest that specific food. If the meal is mainly carbohydrates it will produce an enzyme that breaks down carbohydrate and sends this enzyme off to the duodenum.

Imagine that a blackboard has been placed in front of you containing the formulae for a protein molecule, a fat molecule and a carbohydrate molecule, in that order. The atomic sequences of these molecules have also been set out. You are then asked to produce the formulas for enzymes with the molecular structure most appropriate for breaking down these different molecules and to write them down on the board *(Figure 135)*.

Only an expert chemist could write down the formulae for the enzymes that would break down these exact molecules. That person could not arrive at the appropriate three formulas by guesswork; he could write them correctly only in light of the training he had received and knowledge previously imparted to him.

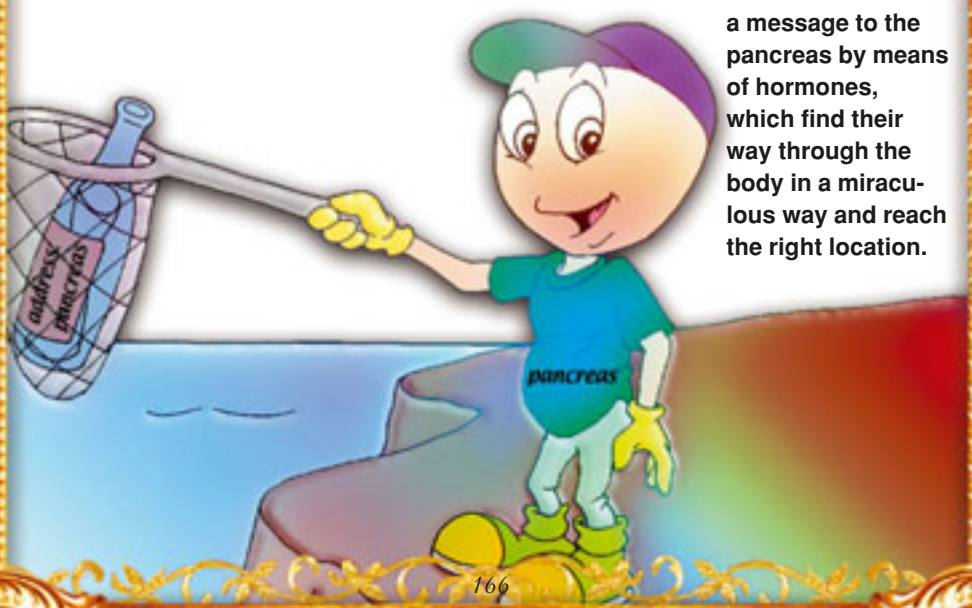


Figure 134.
The stomach sends a message to the pancreas by means of hormones, which find their way through the body in a miraculous way and reach the right location.

That being so, how do the pancreas cells know the chemical structure of the enzymes they produce? Each pancreas cell possesses the knowledge of the formulas in question. Additionally, it uses that information in the best way possible and tirelessly serves the body of which it's a part. While the entire human being must have received special training to produce these formulas, a tiny cell is born knowing them by heart.

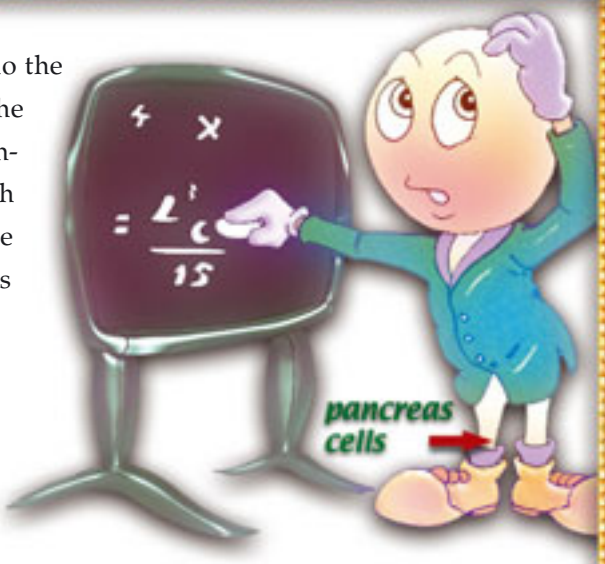


Figure 135.
When it comes to chemistry, the pancreas cells are far more successful and better informed than any human being. We can know the chemical structure of enzymes only after receiving extensive training, whereas these cells receive no training at all.

No coincidence can bestow on a cell such a superior intelligence, such specialized information. No coincidence can establish a system in which cells can communicate with and seek assistance from one another. In the same way, that coincidence can never teach a pancreas cell a single chemical formula, nor can it give the cell the ability to use that information at the right time.

It is Almighty God, Lord of the Worlds, Who causes such miraculous events to take place in succession and by inspiring them to function at every moment, places them at the service of human beings.

And He has made everything in the heavens and everything on the earth subservient to you.It is all from Him. There are certainly Signs in that for people who reflect. (Surat al-Jathiyya, 13)

In the heavens and earth there are certainly Signs for the muminun. And in your creation and all the creatures He has spread about there are Signs for people with certainty. (Surat al-Jathiyya, 3)

37.

Transporter Molecules in the Cell Membrane

Upon reaching the cell membrane, a substance in the bloodstream does not immediately enter the cell. It is met in different ways, depending upon its size, chemical properties, and whether or not it is beneficial. Any substance about to enter a cell is subjected to tight controls, just like visitors to the borders of another country. If it is a foreign substance, its identity is established and, if it is determined that it represents a threat to security, it is deported. However, the entry and departure of some substances has been made easier, in the same way that countries do for their own citizens. These substances are able to enter and leave the cell without being subjected to any precautionary measures. In short, substances approaching the cell membrane are greeted with different forms of welcome, depending on their identity.

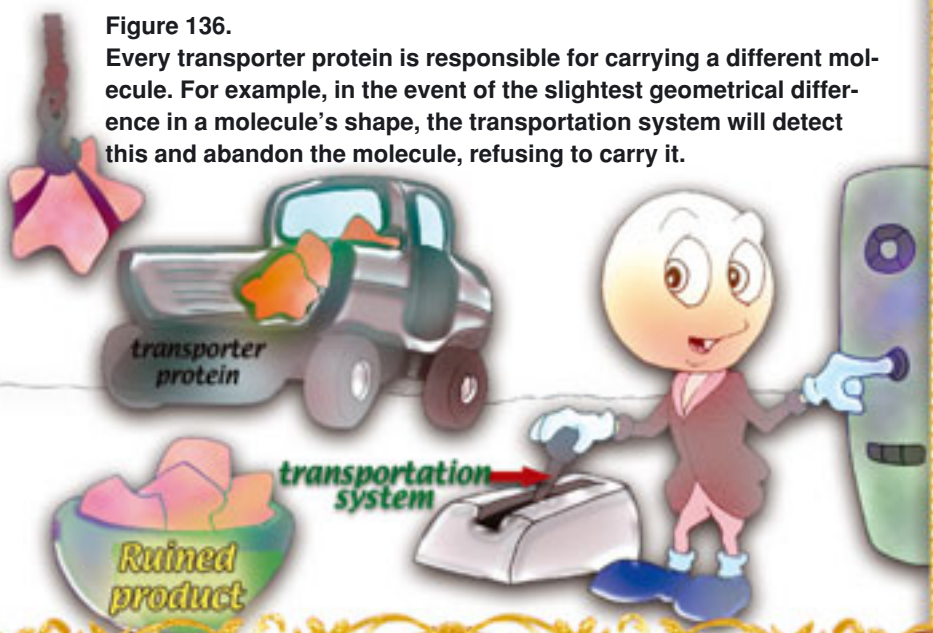
In order for a substance to be able to pass through the cell membrane, it must be able to *mix* with the cell membrane—in other words, to be soluble in fat. In the same way that you can never mix oil and water, no matter how hard you try, so it is impossible for a substance that iso insoluble in fat to mix with the cell membrane. A special method is employed for the passage of such substances, and in this, proteins in the cell membrane play a crucial role.

Some molecules are unable to pass through the cell membrane on their own because of their small size. Channel and transporter proteins help molecules and ions to which they give permission to pass through the membrane. The cell membrane's proteins will transport specific substances and behave most carefully in selecting them. For example, the sugar-transporting system will not transport amino acids.

The transporter protein distinguishes between the two molecules on the basis of their forms and the number of atoms they contain. For instance, two molecules may have the same number of atoms and carry the same chemical groups, but if one has the slightest variation in its molecular form, the transportation system will refuse to carry that molecule *(Figure 136)*.

How is it possible for a transporter or channel molecule to recognize the chemical formula of another molecule and to distinguish it on the basis of the number of its atoms? Could a protein devoid of intelligence and consciousness of its own accord assume a responsibility that will be of benefit to the cell? It is, of course, impossible for these proteins to engage in division of labor of their own accord, to identify beneficial molecules, to assume the job of transporting them inside the cell or to fulfill these responsibilities to the letter as the result of sheer chance. Any rational, honest person will see in these details evidence of the infinite knowledge of Almighty God, the Creator of all things from nothing.

Figure 136.
Every transporter protein is responsible for carrying a different molecule. For example, in the event of the slightest geometrical difference in a molecule's shape, the transportation system will detect this and abandon the molecule, refusing to carry it.



38.

Complement Proteins Responsible For Protecting the Body

There is a system in the body that protects it at all times. Complement proteins, one component of that system, are programmed to attack virtually *every cell* in the body.

This is really astonishing. Although they exist to protect the body, they regard all the cells that comprise that body as hostile. Complement proteins are manufactured in the liver, from where they enter the bloodstream and under normal conditions, travel through the bloodstream at random, producing no effects. When stimulated, however, they suddenly decide to eradicate all the cells they encounter.

This stimulus they receive is disseminated throughout the entire body by way of a single complement protein. They make no distinction between friend and foe.

However, harmless cells belonging to the body have been created in such a way as to defend themselves against complement proteins. As soon as complement proteins make contact with cells belonging to the body, the cells neutralize those proteins. On the other hand, any foreign organisms that have entered into the body, will be subjected to an unexpected assault from these security guards *(Figure 137)*.

When one complement protein attaches itself to a foreign organism, it changes its own shape. This is followed by another complement protein bonding to the bacterium. Then other proteins belonging to the complement system adhere to the bacterium, one by one, until the invading bacterium finds itself surrounded by complement hunters *(Figure 138)*.

The final element in the complement system is responsible for attacking the bacterium's cell membrane. This protein opens a hole in the cell membrane, the only shield of the now-defenseless bacterium. Following this attack, the bacterium absorbs water and explodes *(Figure 139)*.

Figure 137.
Complement proteins regard the body's own cells as hostile, just as it does enemy bacteria entering the body from the outside. However, every cell in the body has been equipped with the means to defend itself against complement proteins, so that these proteins can inflict harm on the enemy only.

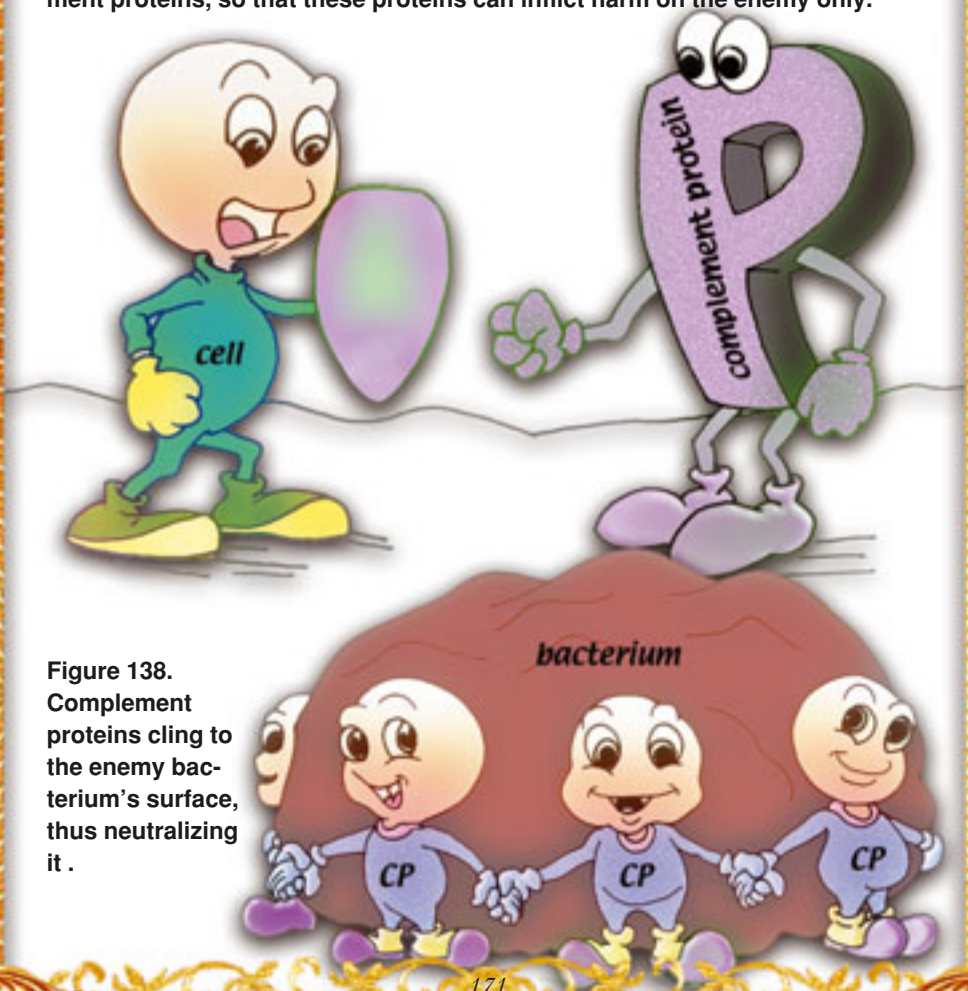


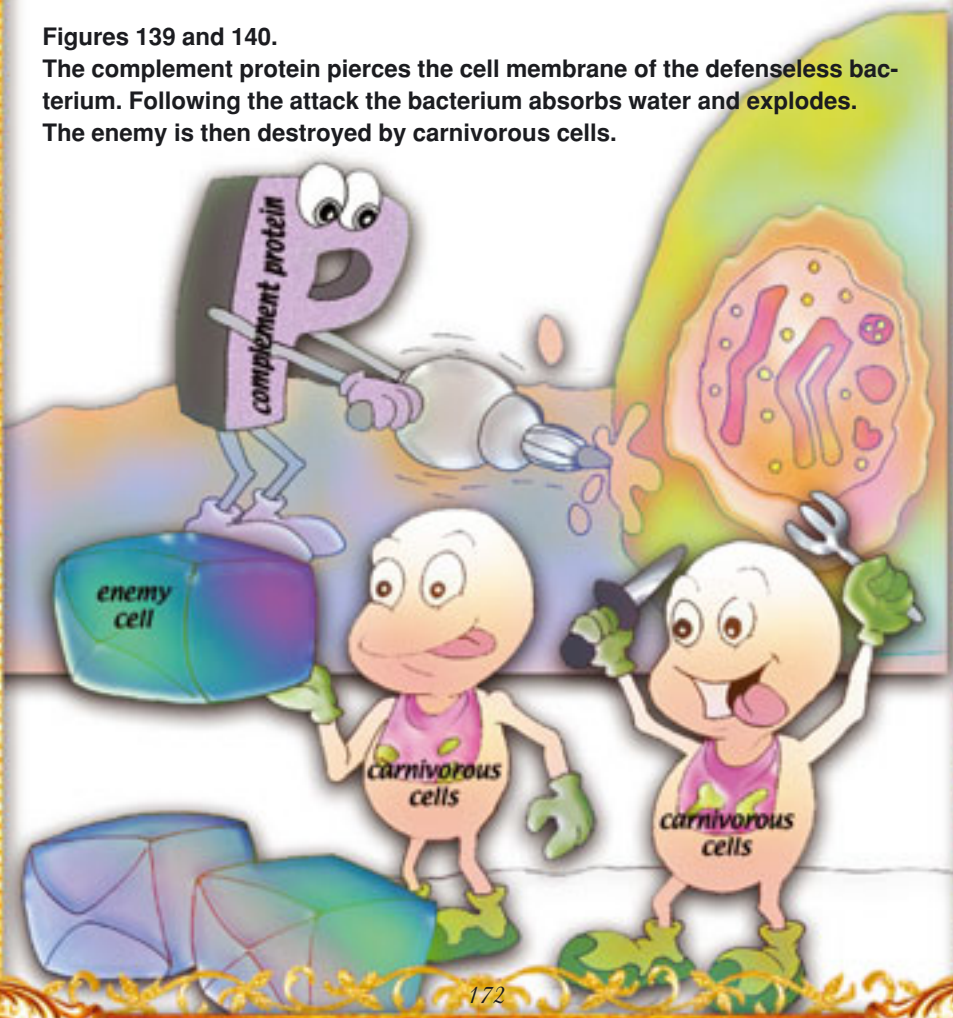
Figure 138.
Complement proteins cling to the enemy bacterium's surface, thus neutralizing it .

Complement proteins sometimes employ another method. They surround the foe with a fine membrane, thus marking it for carnivorous cells *(Figure 140)*. All this demonstrates that a single bacterium entering the body, and the molecules that wage war on it inside the body, are all the work of a single Creator, our Lord God. Bacteria are well aware of the kind of dangers they will encounter. Body cells, on the other hand, take precautionary measures before even recognizing a bacterium that may enter the body. It is utterly irrational to claim that unconscious cells could take these measures themselves. It is God, Lord and Ruler of the entire universe, Who creates this system.

In verses, our Lord states:

Say: "I seek refuge with the Lord of humanity, the King of humanity, the God of humanity." (Surat an-Nas, 1-3)

Figures 139 and 140.
The complement protein pierces the cell membrane of the defenseless bacterium. Following the attack the bacterium absorbs water and explodes. The enemy is then destroyed by carnivorous cells.



39.

Anti-Acid Formulas Producing Molecules

Digested foods reaching the intestine from the stomach contain powerful acids, which constitute a grave danger for the duodenum—because unlike the stomach, the duodenum has no special lining with which to protect itself.

How is it, therefore, that these acids leave the duodenum unharmed? When we look at the events taking place during digestion in order to answer that question, we encounter miraculous phenomena occurring in the body.

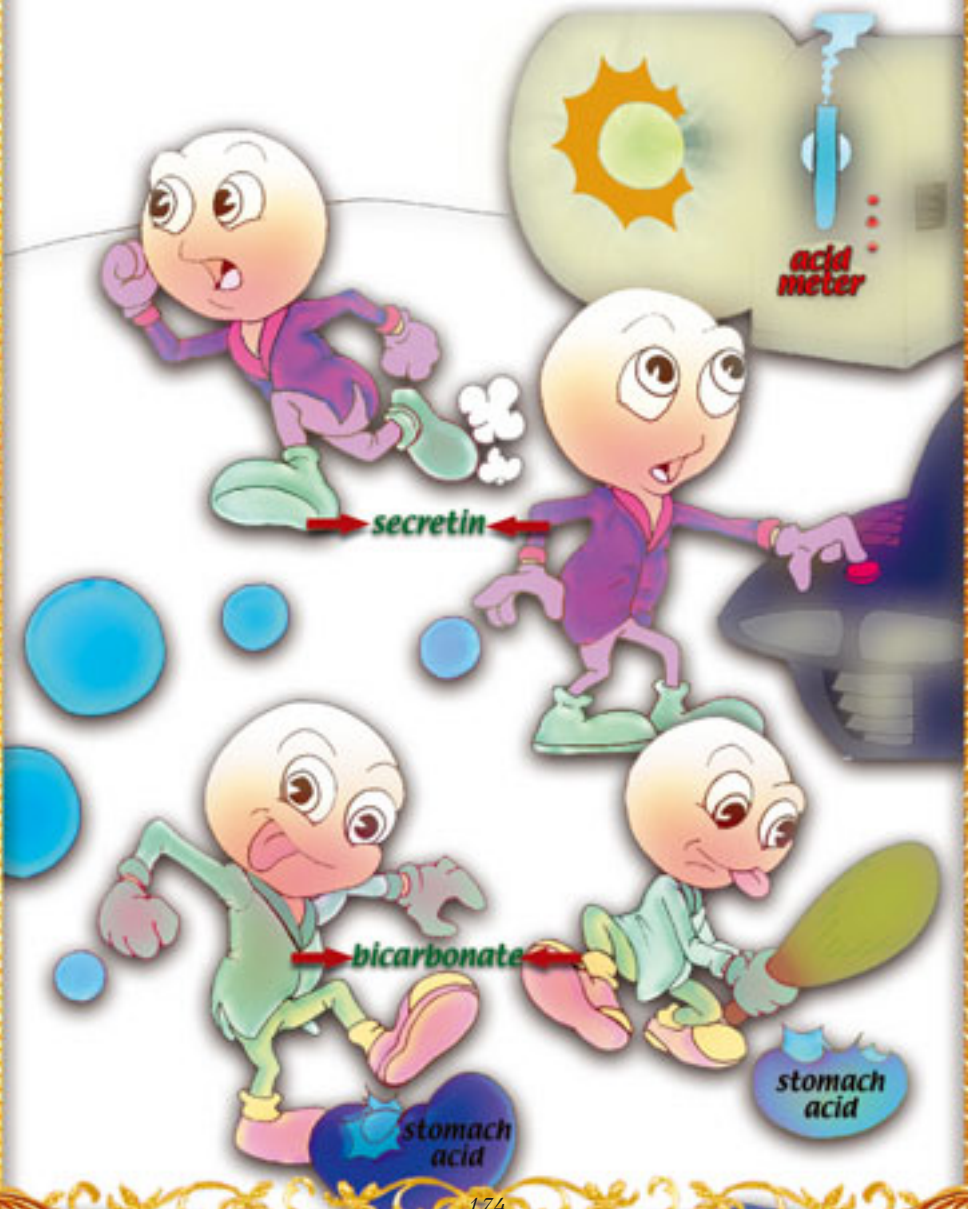
When the amount of acid reaching the duodenum from the stomach together with foodstuffs reaches danger levels, the intestine begins secreting a hormone called *secretin* from the cells in its walls. In the small intestine, this secretin that protects the duodenum exists in the form of *prosecretin*. But under the influence of acidic digested foods, this hormone transforms into secretin, a different chemical substance *(Figures 141 and 142)*.

The hormone secretin enters the bloodstream and reaches the pancreas, where it asks the pancreas to secrete enzymes. Learning—by means of the secretin—that the duodenum is in danger, the pancreas sends *bicar-*

bonate molecules to the region, which molecules neutralize the stomach acid and protect the duodenum.

How do have processes, of such vital importance to human beings, come about? Intestinal cells know that the substance they need is to be found

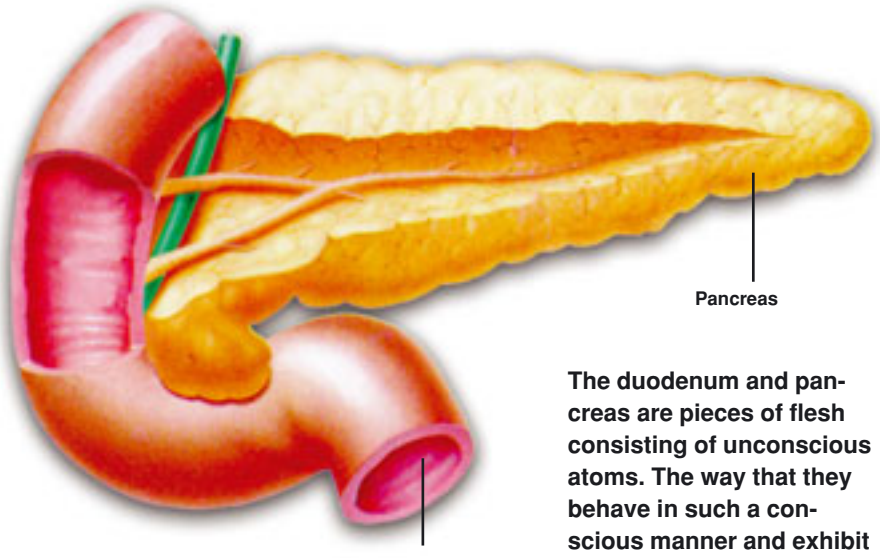
Figures 141 and 142.
When the acid level in the duodenum rises to dangerous levels, bicarbonate molecules go into action by way of the hormone secretin, to neutralize the stomach acid.



in the pancreas and know the chemical formula that will spur the pancreas into action. The pancreas understands the message from the intestine and begins to secrete bicarbonate. These are all incomparable, miraculous processes created by our Lord.

Verbs such as *knowing* and *being aware*, used here in reference to intestinal cells, are employed to better emphasize events taking place in the body. But as all rational people will appreciate, it is impossible for a cell to think, make free-will decisions, be aware of the features of another organ and manufacture substances according to given formulas.

It is Omniscient and Almighty God Who creates cells together with these attributes. Anyone of good conscience will find proofs of our Almighty Lord's infinite intelligence and knowledge in every detail in the universe.



The duodenum and pancreas are pieces of flesh consisting of unconscious atoms. The way that they behave in such a conscious manner and exhibit such intelligent behavior is a manifestation of the creation and omniscience of God.

40.

The Consciousness Displayed by Egg Cells

Although the cells of a developing embryo, preparing to settle in the walls of the womb are genetically different to those of the mother, they are not rejected in the same way that an organ or tissue transplanted into the body will be. This fact remained a mystery for a long time. G. L. Flanagan sets out the answer in his book, *Beginning Life:*

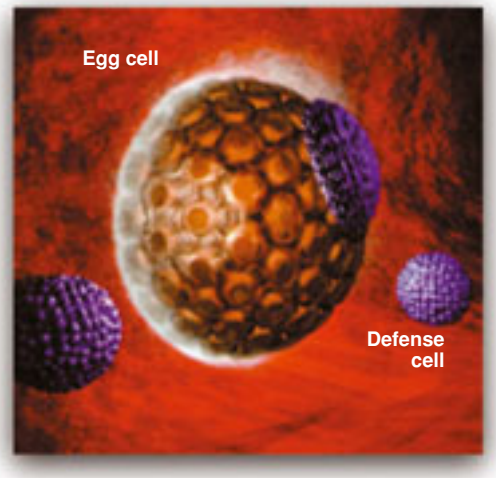
> ... The cell cluster suppresses its genetic markers and instead gives out special signals that can be compared to a *universal password*. This password is the same for all people and is the same one that the mother's cells expressed when she herself was just such a cluster. Therefore, her cells do not now mobilize defences against the new arrivals, because they biologically recognize the nesting cluster as universal friend, not foe.[29]

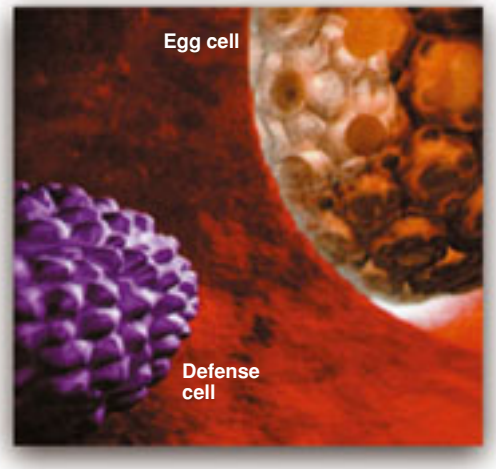
There's one very important point here. The way a collection of cells can send a *universal message*, as Flanagan puts it, and that their message can be understood by other collections of cells, which then know whether they're dealing with friend or invader, is a truly great miracle. It must not be forgotten that the "societies" in question consist not of human beings,

but tiny cells with no hands, eyes, ears or brains, invisible to the naked eye, themselves made up of unconscious atoms, molecules and proteins. It would be completely illogical to expect such a display of awareness from cells.

The way that the embryo is able to settle in the mother's womb with no difficulty, and to survive there, takes place by the mercy of God, Who creates everything—the embryo, the mother, and the defense system in the mother's body.

Truly God has knowledge of the Hour and sends down abundant rain and knows what is in the womb. And no self knows what it will earn tomorrow and no self knows in what land it will die. God is All-Knowing, All-Aware. (Surah Luqman, 34)





The mother's defense cells approach to eliminate the embryo (top). However, thanks to the perfect creation in the body, they are unable to harm the egg.

Conclusion

All the time you have been reading this book, as well as at the present moment, the molecules in your body have been going about their activities constantly. Some have measured your calcium levels and in various ways, have made good any calcium deficiency. Others have begun collecting amino acids necessary for protein production. Some have divided your DNA's double helix in two in order to copy it, while others have waged war on bacteria and viruses entering your body and thus protected you against disease.

Others have worked to maintain your body temperature within normal range, and still others have expelled waste products from your body. Countless other processes as well have been taking place, all at the same time.

You have done nothing to regulate all this, to initiate it, nor to put an end to it. You have just sat in your chair, reading.

This book, besides introducing you to the infinite might, knowledge and intelligence of God, has described just a few of the proofs that He is the Compassionate and Merciful. God has created human beings and all other

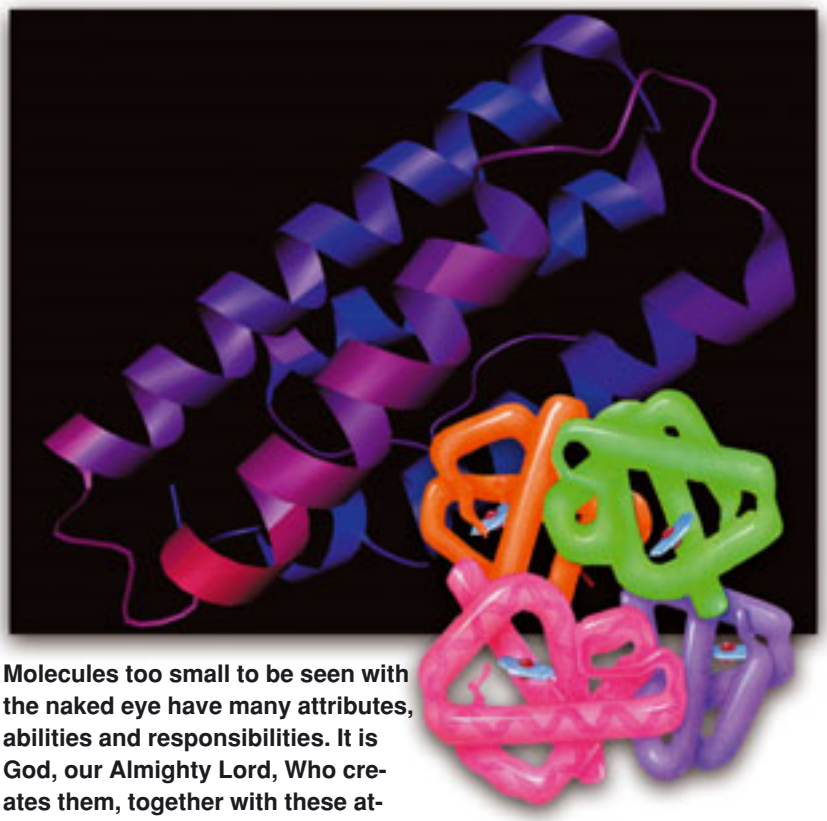
living things with flawlessly functioning systems. As is revealed in the Qur'an, God:

... created everything and determined it most exactly. (Surat al-Furqan, 2)

As can be seen from every example cited in this book, molecules too small to be seen with the naked eye have great abilities and responsibilities. These molecules must have been created with all the characteristics necessary for them to fulfill all these attributes. The examples we have provided are no doubt manifestations of the existence, omniscience and creative artistry of God.

Almighty God, Lord of the finest titles, says in the Qur'an:

... God has power over all things and that God encompasses all things in His knowledge.' (Surat at-Talaq, 12)



Molecules too small to be seen with the naked eye have many attributes, abilities and responsibilities. It is God, our Almighty Lord, Who creates them, together with these attributes, from nothing.

Appendix

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 God 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.

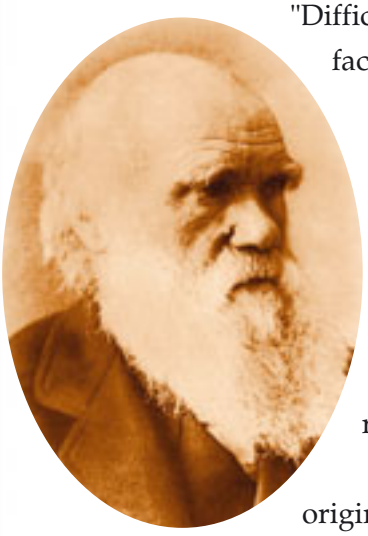
Yet this propaganda cannot conceal the truth. The fact that the theory of evolution is the greatest deception in the history of science has been expressed more and more in the scientific world over the last 20-30 years. Research carried out after the 1980s in particular has revealed that the claims of 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 God 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.



Charles Darwin

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.

Louis Pasteur

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."[30]

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 per-

haps the most obscure point in the whole study of the evolution of organisms.[31]

Alexander Oparin

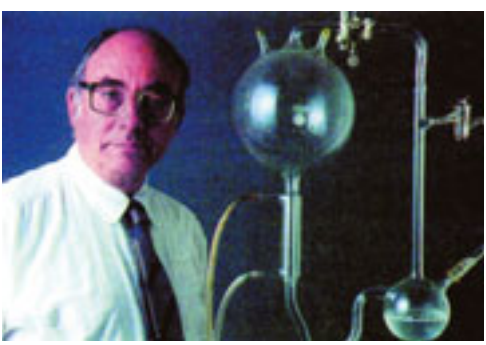
Evolutionist followers of Oparin tried to carry out experiments to solve this problem. The best known experiment was carried out by the American chemist Stanley Miller in 1953. Combining the gases he alleged to have existed in the primordial Earth's atmosphere in an experiment set-up, and adding energy 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.[32]

After a long silence, Miller confessed that the atmosphere medium he used was unrealistic.[33]

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?[34]



Stanley Miller

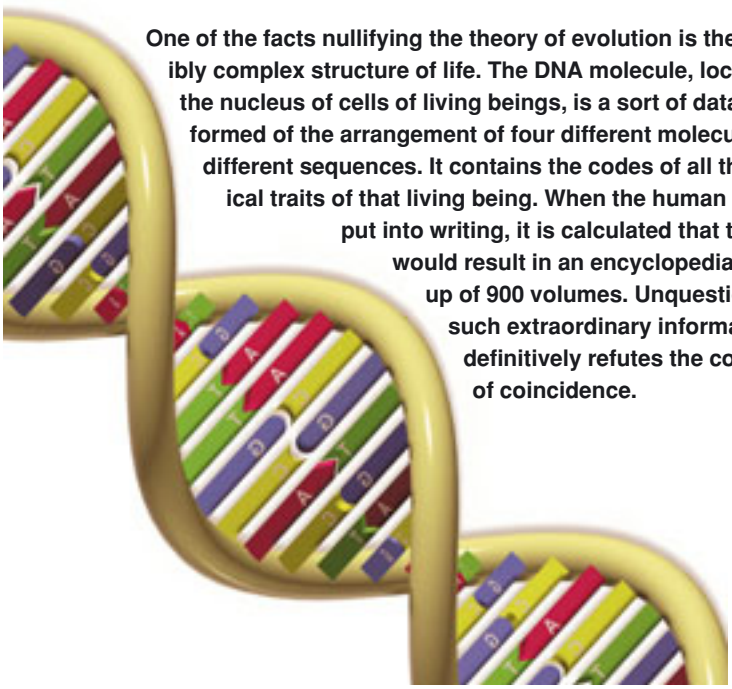
The Complex Structure of Life

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

One of the evolutionists' gravest deceptions is the way they imagine that life could have emerged spontaneously on what they refer to as the primitive earth, represented in the picture above. They tried to prove these claims with such studies as the Miller experiment. Yet they again suffered defeat in the face of the scientific facts: The results obtained in the 1970s proved that the atmosphere on what they describe as the primitive earth was totally unsuited to life.



One of the facts nullifying the theory of evolution is the incredibly complex structure of life. The DNA molecule, located in the nucleus of cells of living beings, is a sort of databank formed of the arrangement of four different molecules in different sequences. It contains the codes of all the physical traits of that living being. When the human DNA is put into writing, it is calculated that this would result in an encyclopedia made up of 900 volumes. Unquestionably, such extraordinary information definitively refutes the concept of coincidence.

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.[35]

No doubt, if it is impossible for life to have originated from nat-

ural 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…*

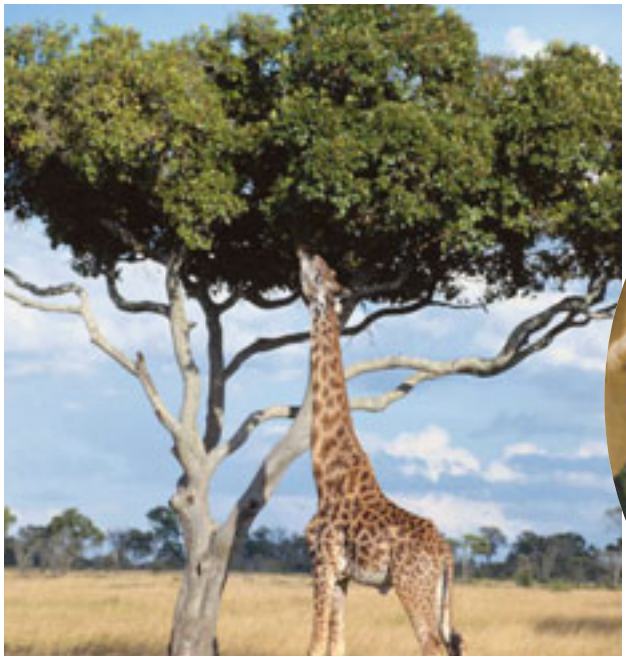
Natural selection holds that those living things that are stronger and more suited to the natural conditions of their habitats will survive in the struggle for life. For example, in a deer herd under the threat of attack by wild animals, those that can run faster will survive. Therefore, the deer herd 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.[36]

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 accumu-



Lamarck

Lamarck believed that giraffes evolved from such animals as antelopes. In his view, the necks of these grass-eating animals gradually grew longer, and they eventually turned into giraffes. The laws of inheritance discovered by Mendel in 1865 proved that it was impossible for properties acquired during life to be handed on to subsequent generations. Lamarck's giraffe fairy tale was thus consigned to the wastebin of history.

lated 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.[37]

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,

Chance mutations, which evolutionists claim to develop living things, are always harmful to humans and all other living things. Not even one beneficial mutation has been observed so far. Quite the contrary, mutations always have harmful effects on living things as seen in this picture.

there would be a random change in the framework of the building which, in all probability, would not be an improvement.[38]

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.

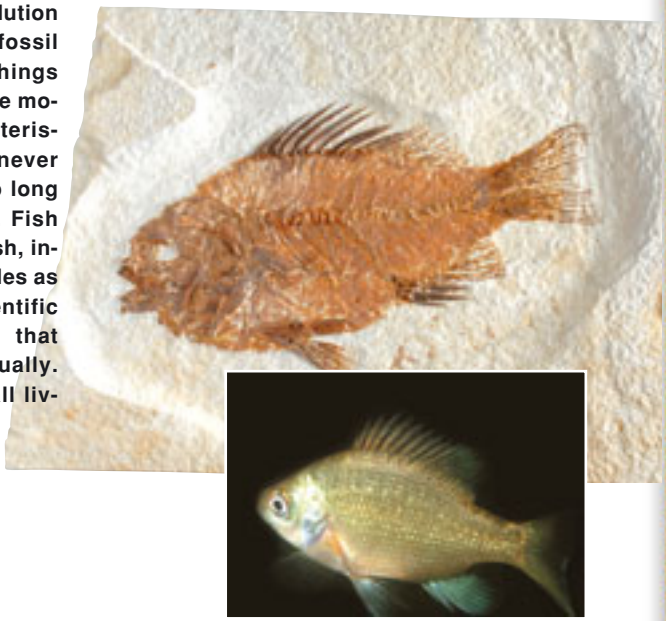
According to this theory, every living species has sprung from a predecessor. A previously existing species turned into something else over time and all species have come into being in this way. In other words, this transformation proceeds gradually over millions of years.

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."

LIVING FOSSILS REFUTE EVOLUTION

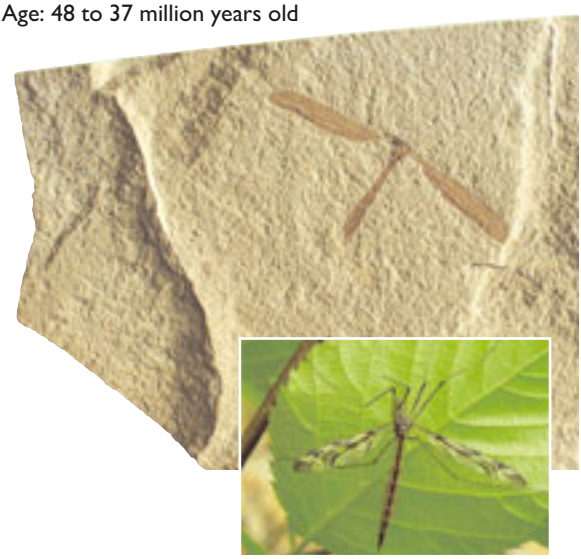
Fossils are proof that evolution never happened. As the fossil record shows, living things came into being in a single moment, with all the characteristics they possess and never altered in the least for so long as the species survived. Fish have always existed as fish, insects as insects and reptiles as reptiles. There is no scientific validity to the claim that species develop gradually. Almighty Allah created all living things.



A 54-to-37-million-year-old fossil sunfish

A 295-million-year-old fossil sea urchin

Crane Fly
Period: Cenozoic Era, Eocene epoch
Age: 48 to 37 million years old



The theory of evolution claims that living species gradually evolved from one another. The fossil record, however, explicitly falsifies this claim. For example, in the Cambrian period, some 550 million years ago, tens of totally distinct living species emerged suddenly. These living beings depicted in the above picture have very complex structures. This fact, referred to as the "Cambrian Explosion" in scientific literature is plain evidence of creation.

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 T*he 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.[39]

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.[40]

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.[41]

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.[42]

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*.

Evolutionist newspapers and magazines often print pictures of primitive man. The only available source for these pictures is the imagination of the artist. Evolutionary theory has been so dented by scientific data that today we see less and less of it in the serious press.

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."[43]

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.[44]

Moreover, a certain segment of humans classified as Homo erectus have lived up until very modern times. *Homo sapiens neandarthalensis* and *Homo sapiens* sapiens (modern man) co-existed in the same region.[45]

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.[46]

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.[47]

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 the 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 1 over 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 God's superior creation.

The theory of evolution, which claims the opposite, is a total fal-

lacy 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.

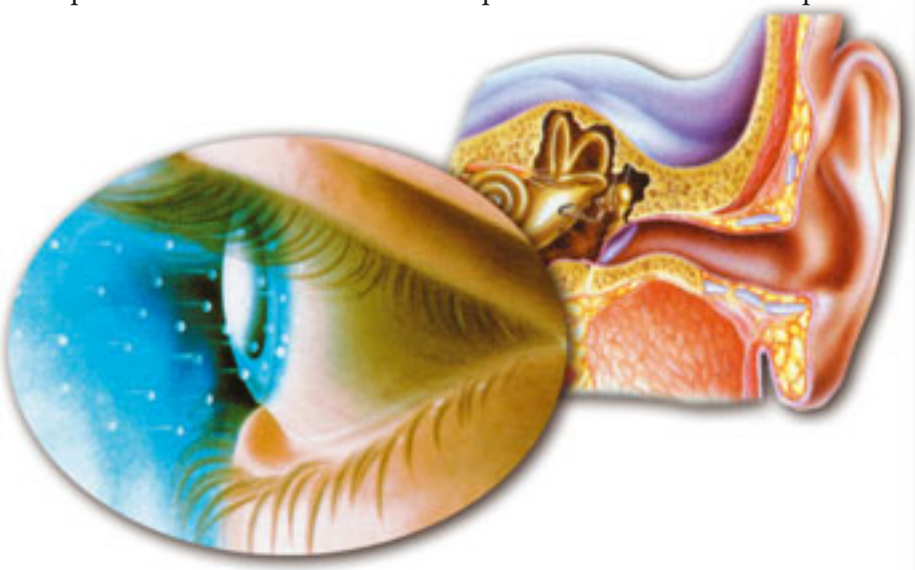
Evolutionists claim that the mechanism producing this sharp and distinct image has been formed by chance. Now, if somebody told you that the television in your room was formed as a result of chance, that all of its atoms just happened to come together and make up this device that produces an image, what 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



Compared to cameras and sound recording devices, the eye and ear are much more complex, much more successful and possess far superior features to these products of high technology.

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.

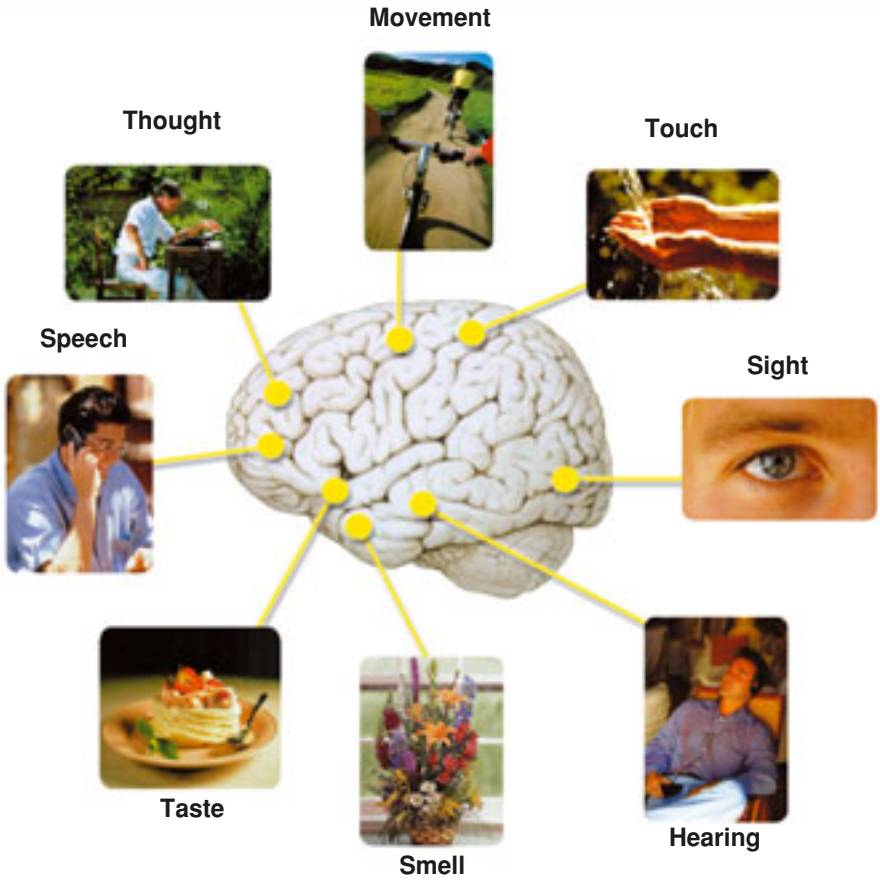
To Whom Does the Consciousness that Sees and Hears within the Brain Belong?

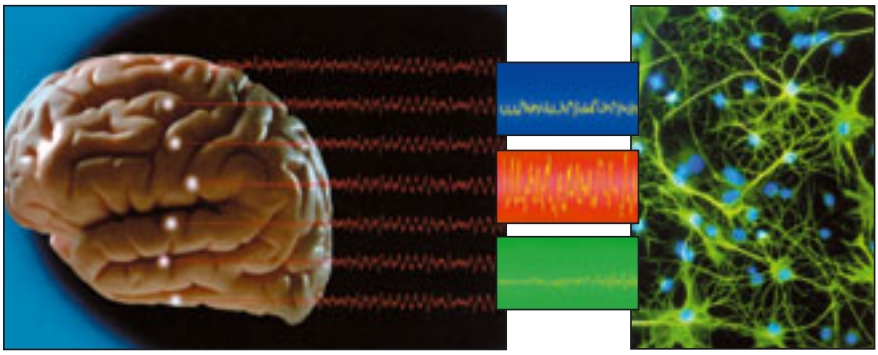
Who watches an alluring world in the brain, listens to symphonies and the twittering of birds, and smells the rose?

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 God, 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 God, 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.





We live our whole life in our brains. People we see, flowers we smell, music we hear, fruit we taste, the moisture we feel with our hands—all these are impressions that become "reality" in the brain. But no colors, voices or pictures exist there. We live in an environment of electrical impulses. This is no theory, but the scientific explanation of how we perceive the outside world.

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]...[48]

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 save 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 God, Who created the whole universe from non-existence, designed it 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 Prophet Abraham (pbuh) worshipping idols they had made with their own hands, or the people of Prophet Moses (pbuh) worshipping the Golden Calf.

In fact, God 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. God 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 Prophet 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 Prophet 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 Prophet 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.[49]

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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