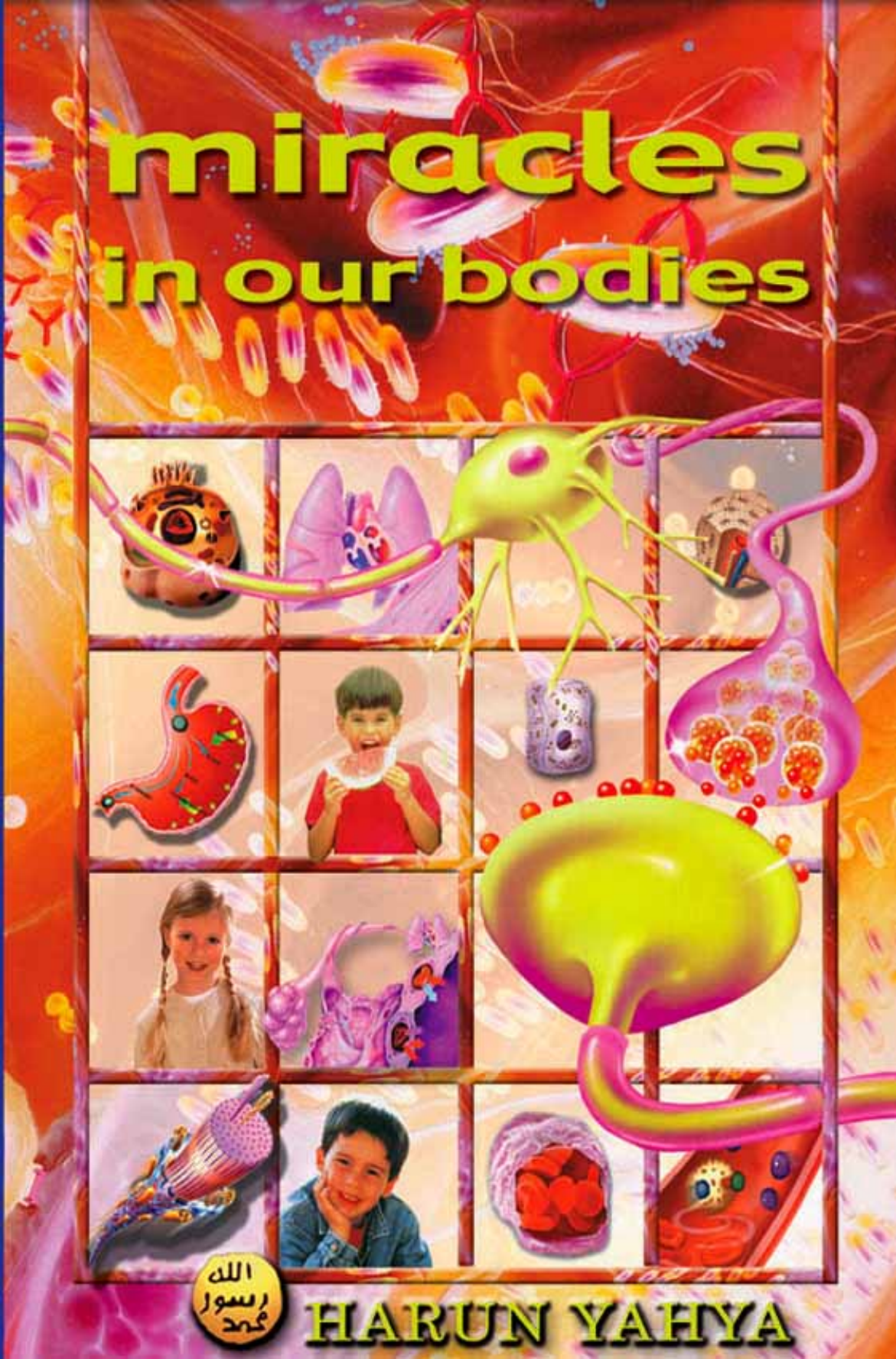
miracles in our bodies



محمد رسول الله

HARUN YAHYA

Each one of the trillions of cells in our bodies fulfils its tasks perfectly as a result of Allah's perfect plan, so that we may lead our lives without any difficulty. Waking up every morning to go to school, tasting the sweet flavour of honey, breathing without any difficulty, running in your school garden and playing with your friends, writing, reading and lots of other things you do are thanks to Allah's compassion and mercy.

Like all other things on earth, Allah has created you perfectly and given you everything you need. What you should do in return is to give thanks to our Lord, Who has given you all these blessings that are much more valuable than any other present you may be given in this world.

This book will lead you to reflect upon your bodies. It will show you how perfectly and elaborately the human body has been created by Allah. Once you read the book, you will love Allah even more and thank Him. You will be surprised at the neglectfulness of the people around you, who do not reflect, and you will be eager to tell them what you know, so that they will be heedful

ABOUT THE AUTHOR

The author, who writes under the penname Harun Yahya, was born in Ankara in 1956. He studied arts at Istanbul's Mimar Sinan University, and philosophy at Istanbul University. Since the 1980s, the author has published many books on political, faith-related and scientific issues. Greatly appreciated all around the world, these works have been instrumental in helping many to return their faith in Allah, and, in many others, to gain a deeper insight into their faith. Harun Yahya's books appeal to all kinds of readers, regardless of their age, race, or nationality, for they focus on one objective: to broaden the readers' perspective by encouraging them to think about a number of critical issues, such as the existence of Allah and His unity, and to live by the values He prescribed for them.

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Miracles in Our Bodies

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

HARUN YAHYA

October, 2003

ABOUT THE AUTHOR

Now writing under the pen-name of HARUN YAHYA, he 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.

His penname is a composite of the names *Harun* (Aaron) and *Yahya* (John), in memory of the two esteemed Prophets who fought against their people's lack of faith. The Prophet's seal on the his books' covers is symbolic and is linked to the their contents. It represents the Qur'an (the final scripture) and the Prophet Muhammad (peace be upon him), last of the prophets. Under the guidance of the Qur'an and the Sunnah (teachings of the Prophet), the author makes it his purpose to disprove each fundamental tenet of godless 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, who attained ultimate wisdom and moral perfection, as a sign of his intention to offer the last word.

All of Harun Yahya's works share one single goal: to convey the Qur' an's message, encourage readers to consider basic faith-related issues such as Allah's Existence and Unity and the Hereafter; and to expose godless 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, and Spain to Brazil. Some of his books are available in English, French, German, Spanish, Italian, Portuguese, Urdu, Arabic, Albanian, Russian, Serbo-Croat (Bosnian), Polish, Malay, Uygur Turkish, and Indonesian.

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

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

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

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

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

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

The works of the author include *The New Masonic Order, Judaism and Freemasonry, Global Freemasonry, The Kabbala and Freemasonry, The Knight Templars, Templars and Freemasonry, Israel's Policy of World Domination, Islam Denounces Terrorism, The Black Clan, Terrorism: The Ritual of the Devil, The Disasters Darwinism Brought to Humanity, Communism in Ambush, Fascism: The Bloody Ideology of Darwinism, The 'Secret Hand'in Bosnia, Holocaust Violence, Behind the Scenes of Terrorism, Israel's Kurdish Card, Communist China's Policy of Oppression in East Turkestan, Palestine, Solution: The Values of the Qur'an, The Winter of Islam and The Spring to Come, Islam and*

Buddhism, The Philosophy of Zionism, Articles 1-2-3, Romanticism: A Weapon of Satan, The Light of the Qur'an Has Destroyed Satanism, Signs From the Chapter of the Cave in the Qur'an to the Last Times, The End Times and the Mahdi, Signs From the Qur'an, Signs of the Last Day, The Last Times and The Beast of the Earth, Truths 1-2, Idealism The Philosophy of Matrix and the True Nature of Matter, The Western World Turns to God, The Evolution Deceit, The Perfect Design in the Universe Is Not by Chance, Why Darwinism Is Incompatable with the Qur'an, Darwinism Refuted, New Research Demolishes Evolution, A Definitive Reply to Evolutionist Propaganda, The Quandary of Evolution I-II (Encyclopedic), The Error of the Evolution of Species, The Blunders of Evolutionists, The Collapse of the Theory of Evolution in 50 Steps, The Errors of The NAS: A Reply to the National Academy of Sciences Booklet Science and Creationism, Confessions of Evolutionists, Perished Nations, For Men of Understanding, Love of Allah, Allah's Art of Affection, The Glad Tidings of the Messiah, The Prophet Musa (as), The Prophet Yusuf (as), The Prophet Muhammad (saas), The Prophet Sulayman (as), The Prophet Ibrahim (as) and the Prophet Lut (as), Maryam (as) The Exemplary Muslim Woman, The Golden Age, Allah Exists, Allah's Artistry in Colour, Magnificence Everywhere, The Importance of the Evidences of Creation, The Truth of the Life of This World, The Nightmare of Disbelief, Knowing the Truth, Eternity Has Already Begun, Timelessness and the Reality of Fate, Matter: Another Name for Illusion, The Little Man in the Tower, Islam and Karma, The Dark Magic of Darwinism, The Religion of Darwinism, The Collapse of the Theory of Evolution in 20 Questions, Allah is Known Through Reason, The Qur'an Leads the Way to Science, Consciousness in the Cell, Biomimetics Technology Imitates Nature, The Engineering in Nature, A String of Miracles, The Creation of the Universe, Miracles of the Qur'an, The Design in Nature, Self-Sacrifice and Intelligent Behaviour Models in Animals, Deep Thinking, Never Plead Ignorance, The Green Miracle: Photosynthesis, The Miracle in the Cell, The Miracle in the Eye, The Miracle in the Spider, The Miracle in the Mosquito, The Miracle in the Ant, The Miracle of the Immune System, The Miracle of Creation in Plants, The Miracle in the Atom, The Miracle in the Honeybee, The Miracle of Seed, The Miracle of Hormones, The Miracle of the Termite, The Miracle of the Human Body, The Miracle of Human Creation, The Miracle of Protein, The Miracle of Smell and Taste, The Miracle of the Microworld, The Secrets of DNA, The Miracle in the Molecule, The Miracle of Creation in DNA, The Miracle of Talking Birds.

The author's childrens books are: *Wonders of Allah's Creation, The World of Animals, The Glory in the Heavens, Wonderful Creatures, Let's Learn Our Islam, The World of Our Little Friends: The Ants, Honeybees That Build Perfect Combs, Skillful Dam Constructors: Beavers, Tell Me About Creation, The Miracle in Our Body, A Day in the Life of a Muslim, Children This is for You I-II*

The author's other works on Quranic topics include: *The Basic Concepts in the Qur'an, The Moral Values of the Qur'an, Quick Grasp of Faith 1-2-3, Ever Thought About the Truth?, Crude Understanding of Disbelief, Devoted to Allah, Abandoning the Society of Ignorance, Paradise: The Believers' Real Home, Learning from the Qur'an, An Index to the Qur'an, Emigrating for the Cause of Allah, The Character of the Hypocrite in the Qur'an, The Secrets of the Hypocrite, Names of Allah, Communicating the Message and Disputing in the Qur'an, Answers from the Qur'an, Death Resurrection Hell, The Struggle of the Messengers, The Avowed Enemy of Man: Satan, The Greatest Slander: Idolatry, The Religion of the Ignorant, The Arrogance of Satan, Prayer in the Qur'an, The Theory of Evolution, The Importance of Conscience in the Qur'an, The Day of Resurrection, Never Forget, Commonly Disregarded Qur'anic Rulings, Human Characters in the Society of Ignorance, The Importance of Patience in the Qur'an, Perfected Faith, Before You Regret, Our Messengers Say, The Mercy of Believers, The Fear of Allah, Jesus Will Return, Beauties for Life in the Qur'an, A Bouquet of the Beauties of Allah 1-2-3-4, The Iniquity Called "Mockery," The Mystery of the Test, Real Wisdom Described in the Qur'an, The Struggle Against the Religion of Irreligion, The School of Yusuf, The Alliance of the Good, Slanders Spread Against Muslims Throughout History, The Importance of Following the Good Word, Why Do You Deceive Yourself?, Islam: The Religion of Ease, Zeal and Enthusiasm Described in the Qur'an, Seeing Good in All, How do the Unwise Interpret the Qur'an?, Some Secrets of the Qur'an, The Courage of Believers, Hopefulness in the Qur'an, Justice and Tolerance in the Qur'an, Basic Tenets of Islam, Those Who do not Heed the Qur'an, Taking the Qur'an as a Guide, A Lurking Threat: Heedlessness, Sincerity Described in the Qur'an, The Happiness of Believers, Those Who Exhaust Their Pleasures During Their Wordly Lives, A Sly Game of Satan, Passivism in Religion, The Religion of Worshipping People, Agonies of a Fake World, How a Muslim Speaks, The Silent Language of Evil, The Ruses of the Liar in the Qur'an, Loyalty in the Qur'an, The Solution to Secret Torments.*

TO THE READER

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

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

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

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

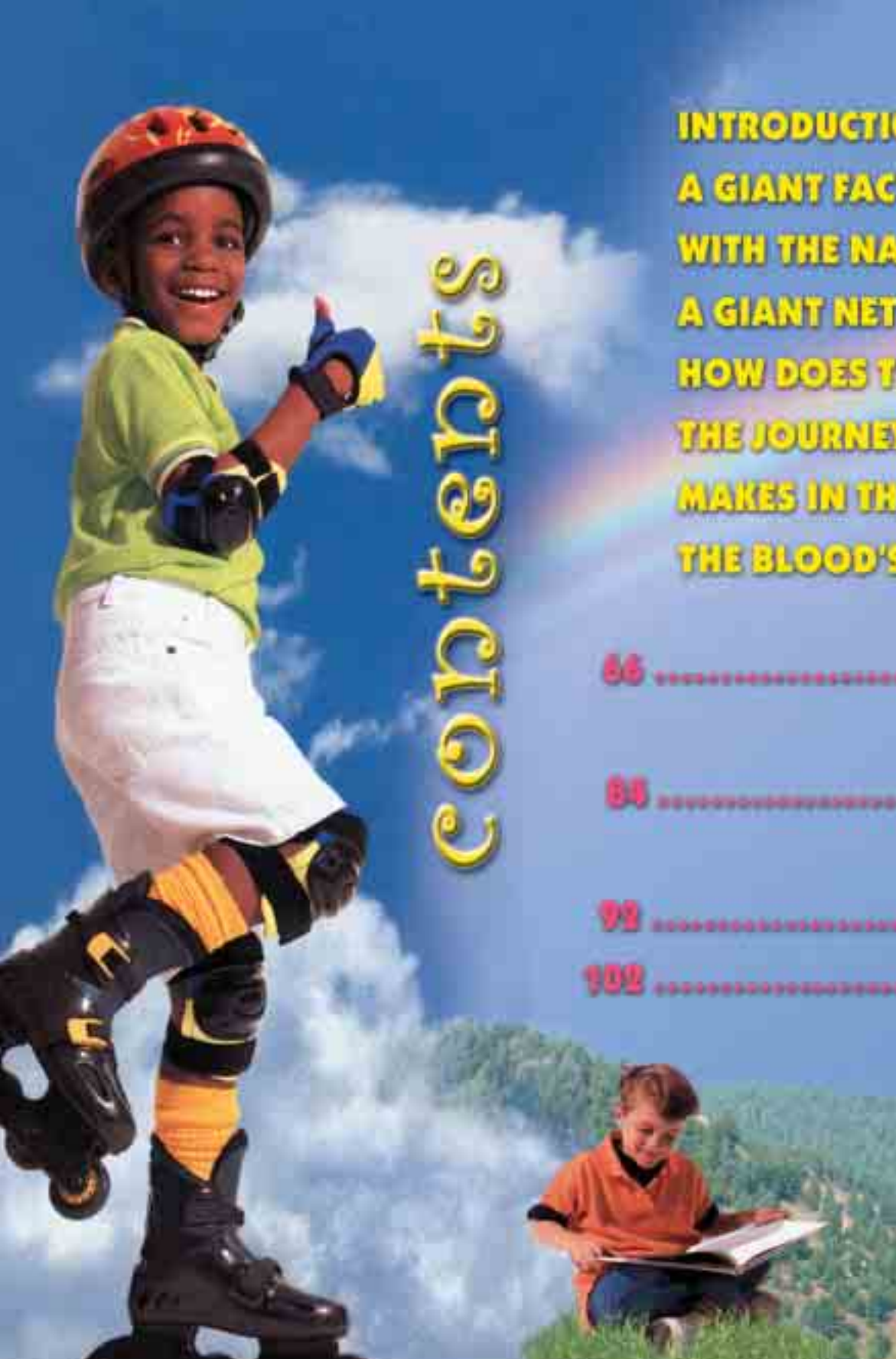
○ In these books, unlike some other books, you will not find the author's personal views, explanations based on dubious sources, styles that are unobservant of the respect and reverence due to sacred subjects, nor hopeless, pessimistic arguments that create doubts in the mind and deviations in the heart.

Miracles in Our Bodies

Goodword BOOKS

HARUN YAHYA

October, 2003



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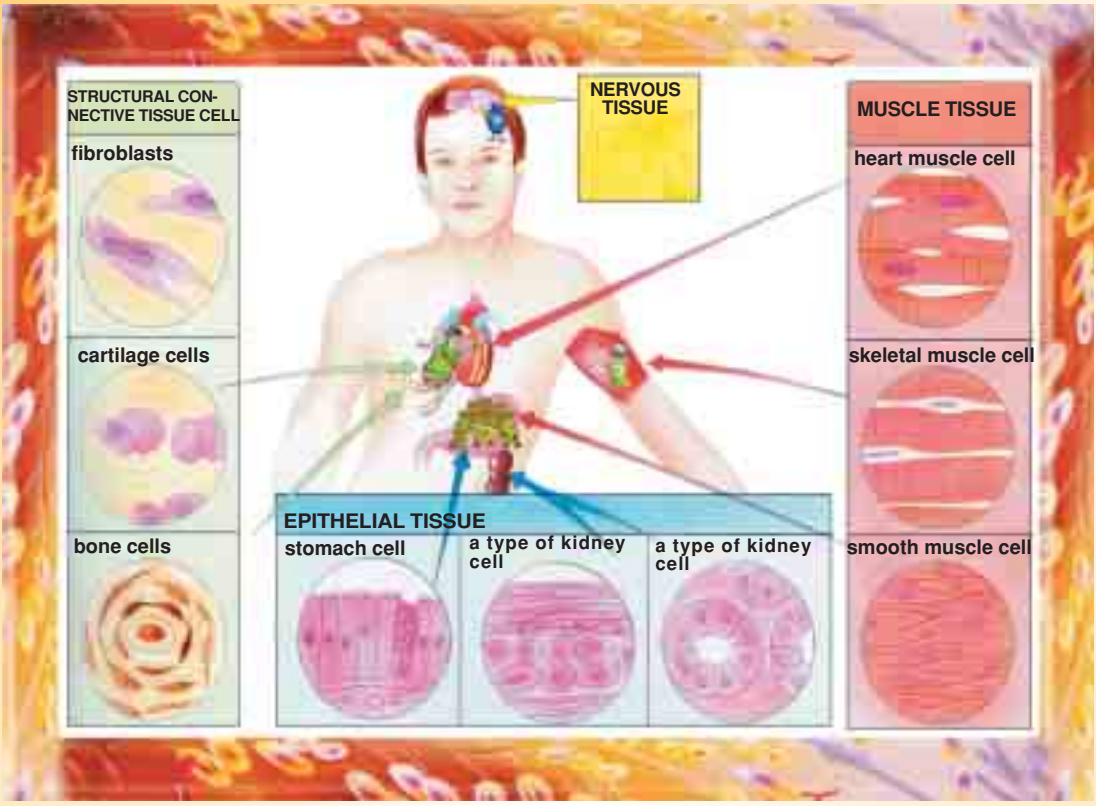
INTRODUCTION

Dear children, prepare yourselves to step into a broad and miraculous world in a little while. In fact, this world interests you closely. Although you might not have realised until now, trillions of workers of this world have been unceasingly working for you. You are surprised, aren't you?

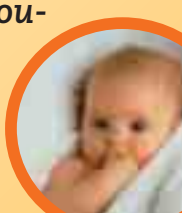
This marvellous world is your body and the workers which have been working for you are your body cells. Every point of your body consists of cells. At this moment, there are trillions of cells in your body that are at your service. They are working even while you are reading this book. For example, your eye cells are carrying out a number of processes ceaselessly in order to enable you to read. As you breathe, the



Our bodies are composed of cells, each of which has assumed a different task. The figure above shows a few types of our body cells, which act together to enable us to live.

cells in your windpipe and then the cells in your lungs come into play. In the meantime, the cells in your stomach are probably digesting the food you ate a few hours ago.

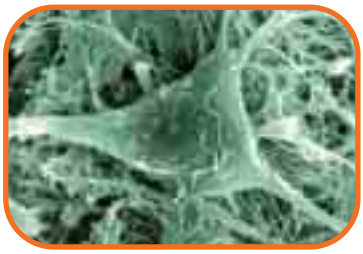
What we have mentioned here are only a few of the processes that are continually carried out in your body. All of these happen without your even being aware of them. How is that trillions of cells come together, know what to do and co-operate to function? Moreover, no trou-



AND OUR CELLS GO UNDER THE MICROSCOPE...

cells in the eye

nerve cell



red blood cell

ble arises during these processes. No cell attempts to do another's task or refuses to perform its own task. Besides, all these processes take place with an extraordinary speed.

In the coming pages, we will examine how daily tasks, such as digestion, respiration, seeing and hearing are, in reality, quite splendid. We will witness that our cells sometimes act like a chemist to produce chemical substances, sometimes act like an engineer to make calculations and sometimes work to meet the needs of some other cells.

It is astonishing that all these are achieved by cells that are too small to be seen with the naked eye. Moreover, the

cells in our bodies perform these vital functions without receiving any help. Remember that these cells are not human beings like us. They can neither see each other nor hear, nor decide to "do wise work". They have no ears or brains. They have not studied chemistry, but, as we will see in the following sections, they know chemical formulas and can produce substances according to these formulas. How is it that they can do all these?

You will be filled with admiration as you read and find out that cells do not perform all these tasks by their own wisdom. You must already be aware that they could not have possibly learnt how to carry out these tasks in time by chance.

Still, we owe our life to the conscious acts of these tiny beings, which we cannot even see with the naked eye. Surely in them there is a very important fact for us to understand.

There is a possessor of superior wisdom who makes our cells perform all these tasks and teaches them what to do. The possessor of this eternal wisdom is Allah, Who has created everything, loves us and knows all of our weaknesses and needs.

Each one of the trillions of cells in our body fulfills its tasks perfectly as a result of Allah's perfect plan, so that

More processes are carried out in every one of our bodies' cells, which are too small to be seen with the naked eye, than in the laboratory below.

we may lead our lives without any difficulty. Waking up every morning to go to school, tasting the sweet flavour of honey, breathing without any difficulty, running in your school garden and playing with your friends, writing, reading and lots of other things you do are thanks to Allah's compassion and mercy.

Like all other things on earth, Allah has created you perfectly and given you everything you need. What you

In the picture above, you can see the inside of a cell. At the center of the cell is the cell nucleus, which is surrounded by other cell parts.

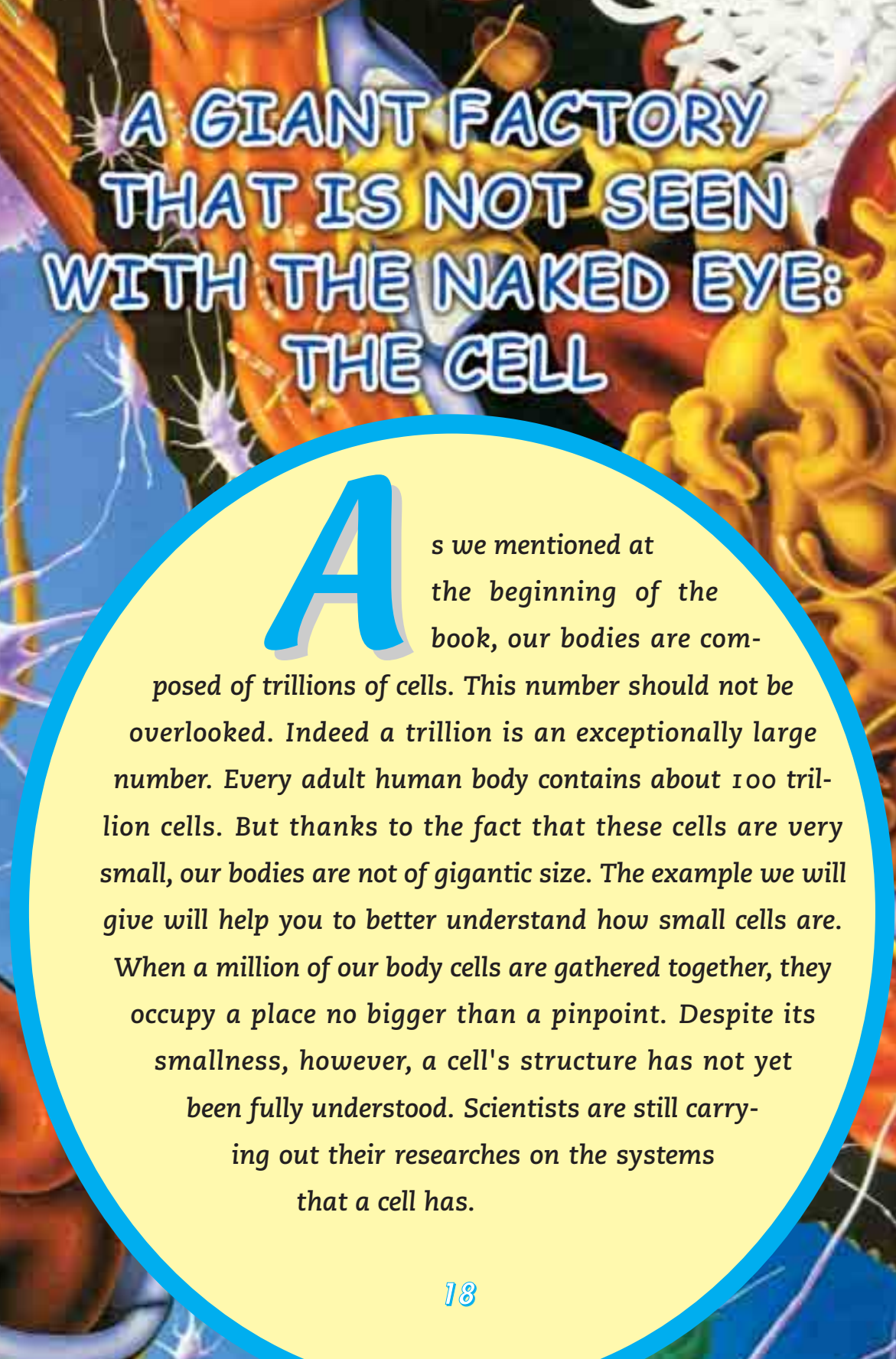
should do in return is to give thanks to our Lord, Who has given you all these blessings that are much more valuable than any other present you may be given in this world.

For this reason, we need to think thoroughly about what Allah has bestowed upon us. In the verses of the Qur'an, our Holy Book, Allah has given many examples for people to reflect on. The following is one such verse:

In the creation of the heavens and earth, and the alternation of the night and day, and the ships which sail the seas to people's benefit, and the water which Allah sends down from the sky—by which He brings the earth to life when it was dead

and scatters about in it creatures of every kind—and the varying direction of the winds, and the clouds subservient between heaven and earth, there are Signs for people who use their intellect. (Surat al-Baqara: 164)

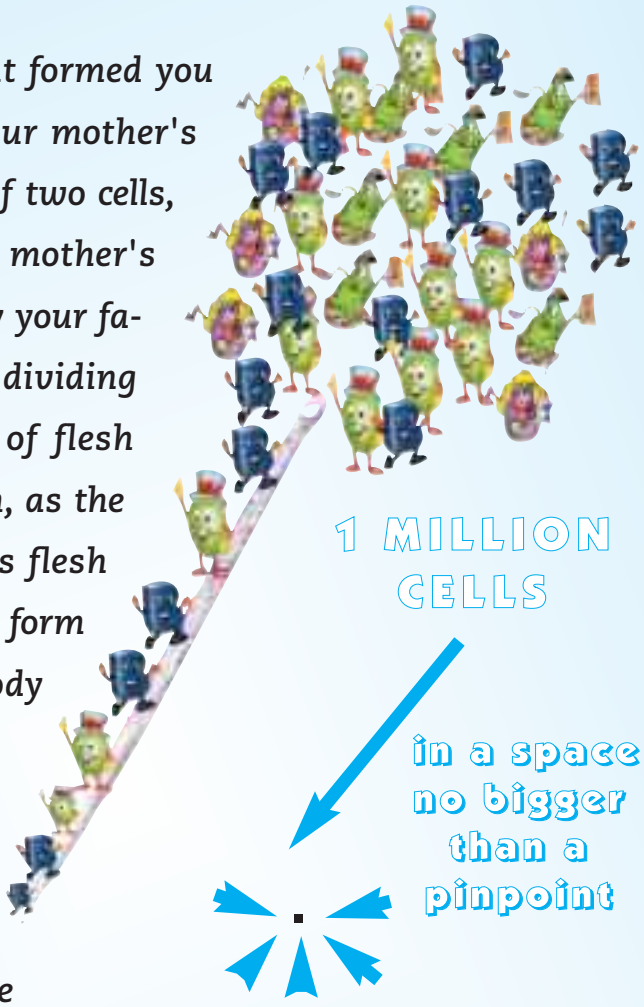
In this book, we will reflect upon our bodies. We will see how perfectly and elaborately the human body has been created by Allah. Once you read the book, you will love Allah even more and thank Him. You will be surprised at the neglectfulness of the people around you, who do not reflect, and you will be eager to tell them what you know, so that they will be heedful too.



A GIANT FACTORY THAT IS NOT SEEN WITH THE NAKED EYE: THE CELL

As we mentioned at the beginning of the book, our bodies are composed of trillions of cells. This number should not be overlooked. Indeed a trillion is an exceptionally large number. Every adult human body contains about 100 trillion cells. But thanks to the fact that these cells are very small, our bodies are not of gigantic size. The example we will give will help you to better understand how small cells are. When a million of our body cells are gathered together, they occupy a place no bigger than a pinpoint. Despite its smallness, however, a cell's structure has not yet been fully understood. Scientists are still carrying out their researches on the systems that a cell has.

The first cell that formed you was originated in your mother's womb by the union of two cells, one released by your mother's body and the other by your father's. This cell kept dividing and became a piece of flesh some time later. Then, as the cells that formed this flesh continued to divide to form new cells, your body was shaped bit by bit.



Each new cell acquired a different shape. Whereas some became blood cells, some became bone cells and yet others became nerve cells. There are 200 types of different cells in our bodies. In fact, all of these cells are composed of identical components, yet each performs different tasks. For example, the muscle cells in your legs are like a rope woven so that you can walk and run. Thanks to the

Cells that divide and multiply as seen in the picture above then differentiate into hundreds of different types of cells, a few of which are shown below.

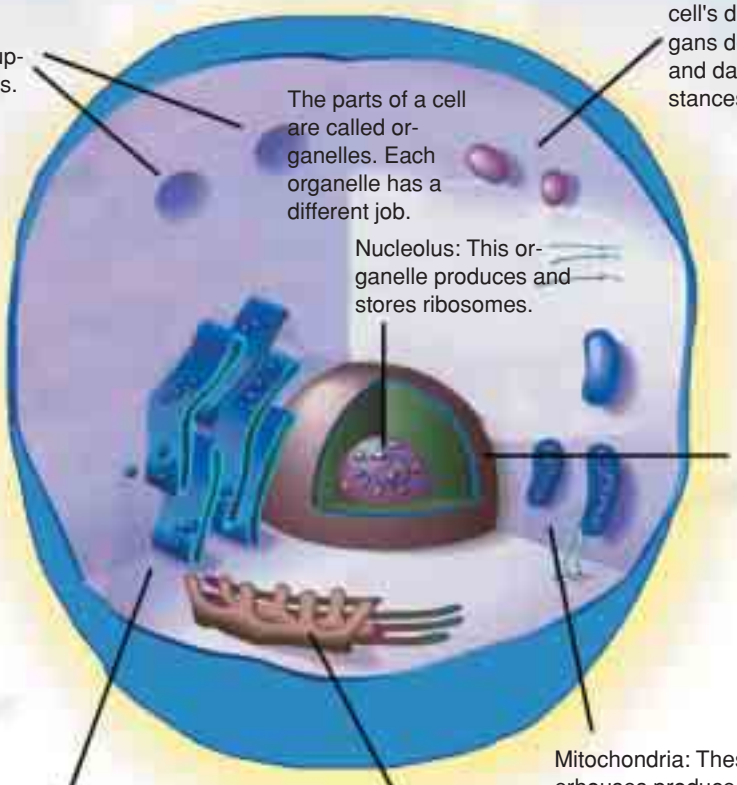
structure they possess, your arm and leg muscles do not tear due to excessive stretching while you are playing with a ball. In shape, your blood cells are globular, their task being to transport oxygen, which is required by your body, by means of blood vessels. Thanks to their shape, they can easily flow through the blood vessels together with the oxygen they carry. Skin cells, on the other hand, are clamped together and closely arranged in a line. So your skin is impervious to microbes and water.

Likewise, all other cells too have the exactly ideal shapes that are suited to their tasks. However, it is surely not by chance that these cells ac-

The cables seen above are made by experts who specialize in this occupation, that is to say that each of these cables is the product of a design process.

quired the shapes they possess. Consider computers, cars or aeroplanes. There is someone who designed the shapes and the necessary systems for the operation of each of these devices. All details are considered and planned by the technologists of the producer companies. Cars are produced so as to ensure comfortable and safe travel; television sets are produced so as to transmit the best quality visual images and sounds to audiences. This applies not only to technological devices, but to all objects that we use. Tables, chairs, the building you are living in, the pencil you use, the eating utensils like the spoons or forks in your kitchen... each is the result of a design. Each has been planned in detail and nothing has come into existence by coincidence. As you know, in order for a design and a product to come into being, there needs to be a source of intelligence.

Now let's consider our body cells. Our cells have much more



Let us give an example to help you better understand how miraculous and complex the structure of a cell is: A cell can be compared to a city with all types of processing systems in it. In this city there are plants for generating power, factories for manufacturing needed materials, warehouses for storing these products, pipelines for transporting the materials as well as laboratories and refineries. It is thanks to the flawless functioning of these systems in our cells that we continue to live.
But remember that the size of a cell, contrary to a modern city, is not many square kilometers, but only a hundredth of a millimeter.

1 2 3

CHILDREN! Follow the arrows and see the order of the processes carried out in a cell.

4 5

1-2: Every foreign substance is stopped for inspection at the entrances to the cell.
3: The inside of the cell is like a busy factory.
4: At the center of the cell is the nucleus, which acts as a data processing center.
5: The cell has also a site functioning like a refinery.

advanced plans and functions than a television or any other technological device. Moreover, these structural units, which possess extraordinary features, are living. As we have mentioned earlier, scientists have not fully discovered the marvellous system in these small units.

You are wondering, aren't you, how such a design, which the human mind cannot even fully explore, came into existence in this small space?

This reveals to us that our cells were planned and created by a being with supreme intelligence. The possessor of this intelligence is Allah, Who created us perfectly down to the last detail.

A GIANT NETWORK THAT SURROUNDS OUR BODIES

Have you ever asked yourself these questions?

✓ *Should I breathe now?*

✓ *Is the amount of the blood that my heart pumps sufficient?*

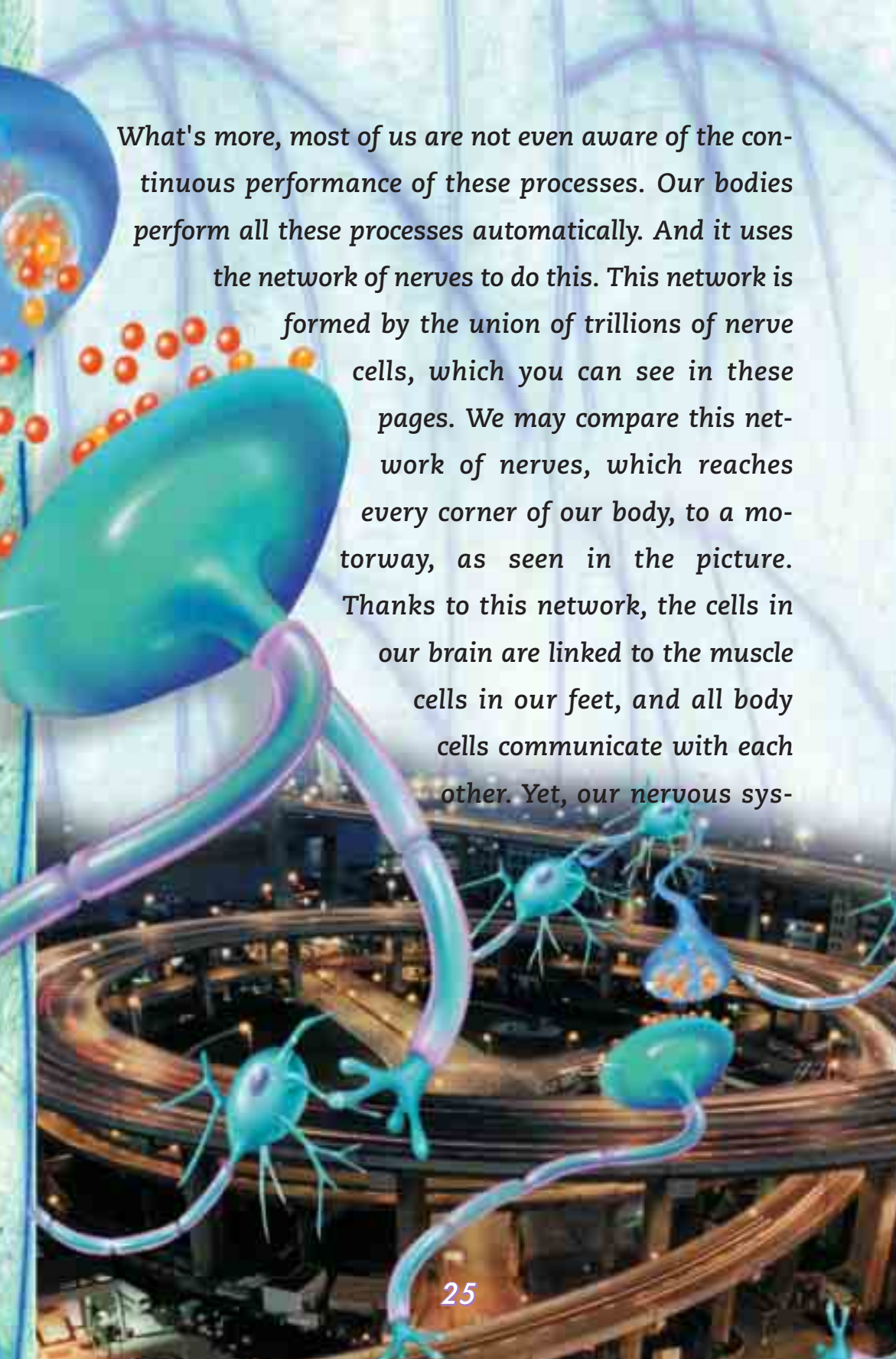
✓ *Which of my cells and organs require how much energy?*

✓ *When should my stomach start digesting the food I've eaten?*

✓ *Is the intensity of the light entering my eye in due proportion?*

✓ *Which muscles should I contract in order to move my arm?*

These questions sound odd, don't they? That is because we never ask ourselves such questions.



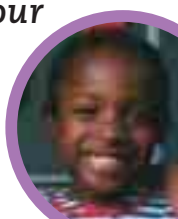
What's more, most of us are not even aware of the continuous performance of these processes. Our bodies perform all these processes automatically. And it uses the network of nerves to do this. This network is formed by the union of trillions of nerve cells, which you can see in these pages. We may compare this network of nerves, which reaches every corner of our body, to a motorway, as seen in the picture. Thanks to this network, the cells in our brain are linked to the muscle cells in our feet, and all body cells communicate with each other. Yet, our nervous sys-

tem has a much more comprehensive system than kilometres of motorways, which have many crossroads and separate carriageways for vehicles travelling in opposite directions. Just as vehicles move from one place to another on motorways, electrical nerve impulses are transmitted along the network of nerves in our body. These impulses convey messages from one region to another.

These impulses move in your body much faster than you can imagine. An electrical stimulus sets out from your brain, for instance, when you want to flex your arm. During this complicated journey, the stimulus first stops by the spinal cord. Thence it proceeds towards the organ concerned, to which the message should be conveyed. Your arm muscle contracts as a whole and you bend your arm at the elbow. This series of actions takes place in a mere thousandth of a second. Considering that it takes approximately a

During all your activities throughout the day, your nerve cells are constantly busy.

second to slowly close and reopen your eyes, one can better understand how short a thousandth of a second is. Similarly, stimuli are sent from the entire body to the brain via the nerves. From every single part of your body messages are sent to your brain continuously and at an amazing speed. So you can talk, laugh, run, taste the flavour of ice cream, play with your dog... all these processes occur without interruption; you perform the act immediately as you think about. You see the object right at the moment you look at it, you hear the words right at the moment they are uttered, and perceive whether an object is hot or cold right at the moment you touch it. All these are thanks to the perfect harmony between your



Through the nerves all around your body, your brain constantly receives stimuli from the rest of your body. The brain evaluates these stimuli and responds to the relevant parts of your body. It is these answers provided by the brain that enable you to move, see and hear.

brain and nervous system.

Indeed, nerve impulses are active in your body at this exact moment too. Nerves in your fingertips are sending messages to your brain regarding the weight of this book that you are holding in your hand, so that you lift the book with a force suited to its weight. In the meantime, stimuli are sent from your eyes, nose, ears, feet and many other parts of your body to your brain as well.

Your brain evaluates these incoming stimuli and sends relevant responses to the concerned parts of your body, which act according to these responses. Now let's recall all of these actions. Many processes occur within your body simultaneously. You read a book while at the same

time you hear sounds from the external world, feel the soft fur of your cat as it passes between your legs, taste the flavour of the fruit juice you drink, your heart keeps beating and many other actions take place in your body.

What would happen if you were to control all of these for a few seconds? Surely you would not be able to control all at the same time. However, thanks to the perfect creation of Allah, your brain and other parts of your body operate jointly and execute all these tasks without needing any intervention of yours. All kinds of information are transmitted from the body to the brain in the form of stimuli, which need to be interpreted. Only then can you perceive the softness of your dog's fur, the coolness of the wind, the flavour of the peach juice, the smell of the fried potatoes. Well then, do you think it is possible for your brain, which is a piece of flesh weighing not more than 1.5 kilos, to fulfil all these by itself? Of course not. Thanks to the splendid creation of Allah, your brain can carry out all these processes at the same time.

You would blink your eyes if a friend of yours approached you silently and clapped his hands suddenly when you had not noticed his or her coming. There is not another option, because this is a reflex. A reflex is an immediate involuntary response. The reason why it is immediate is that stimuli are not transmitted to the brain in such cases and the required response is received directly from the spinal cord. This is a significant gift that Allah created for us because, thanks to such reflexes, we are protected from many dangers. For instance, you can remove your hand immediately when you touch a hot glass. The reflex is a security mechanism that Allah created for the protection of our bodies. With the inspiration of Allah, nerve stimuli proceed in your body at a speed of approximately 9 kilometres (6 miles) in a second and so you are protected against many dangers.

HOW DOES THE BRAIN FUNCTION?

Scatter puzzle pieces irregularly on the floor and suppose they are the entire knowledge about the world. For instance, let some pieces represent light, some represent colours and yet others represent sounds. Now take these pieces one by one and start reassembling them to form the picture. What you can do by thinking it over at length is done hundreds of times in a second by your brain, which works by Allah's inspiration. Do you wonder how?

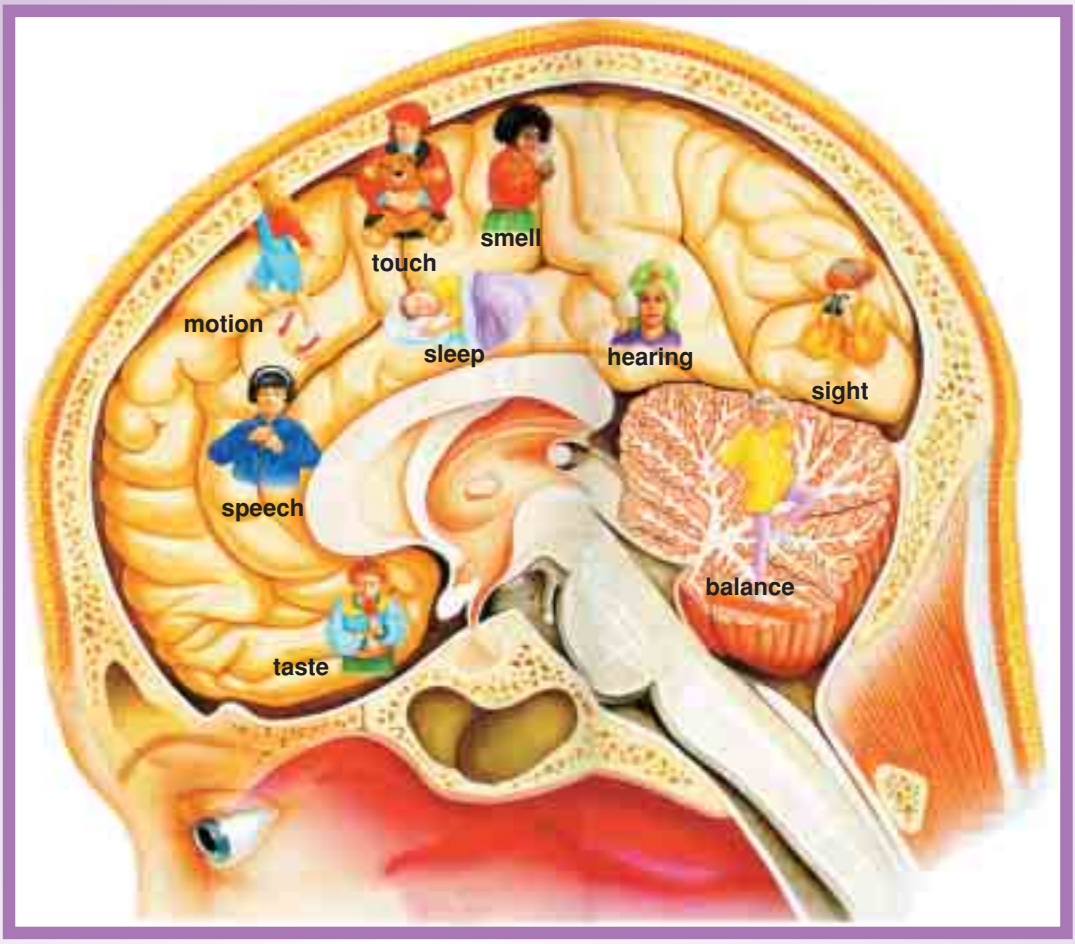
The brain gathers the information received from the eyes, nose, ears, skin, mouth etc. and construes them. What makes this interpretation is a collection of 100 billion nerve cells in your brain. These cells operate unceasingly and enable you to see the colour of the apple you eat, to

recognise the voice of your best friend and to perceive the smell of hot chocolate.

The picture on the next page shows some children who are talking, hearing, smelling, moving and sleeping in the brain. Of course this is an imaginary picture, intended to show the particular portions of the brain and their functions. In reality, what the brain consists of is nerve cells, which can be seen only under a microscope.

Do you think nerve cells can see your favourite toy or taste the flavour of chocolate ice cream? Certainly not. That is because nerve cells are composed of fine pieces

The cell on the left with the fringe-like extensions is a nerve cell (neuron). Billions of nerve cells, interconnected through these branches extending out from the cell body, form a network right through the body. There are gaps between nerve ends, and nerve signals are carried across these gaps to other nerve cells.



of flesh. Hence there must be another being with supreme power who created this wonderful world. This being is Allah. Allah, the possessor of everything, creates everything perfectly and presents each of us with a beautiful life. What we should do in return is to be thankful to our Lord. Allah has given our eyes and ears as an example, and has told us to give thanks for them to Him:

> ***It is He Who has created hearing, sight and hearts for you. What little thanks you show! (Surat al-Muminun: 78)***

THE JOURNEY THAT THE FOOD WE EAT MAKES IN THE BODY

We obtain the energy needed for bodily functions from various foods and drinks. However, every food that we eat, for example pasta, the meat or the banana, needs to be digested first in order to be ready to be used in the body. These foods are used by body cells after they are digested. The sugar contained in a banana or in an apple provides fuel for your cells and increases your energy; the proteins contained in meat are essential for the growth of your cells, and thus of your body. Try to get back to your infancy now.

You were approximately 2-3 kilograms (4,5-6,5 pounds) when you were born. Your weight will increase to 30-35 (65-75) when you are 10, to 40-50

AGE: 1

AGE: 7

AGE: 11

kilograms (90-110 pounds) when 15 and 50-60 kilograms (110-130 pounds) when 20-25 years old.

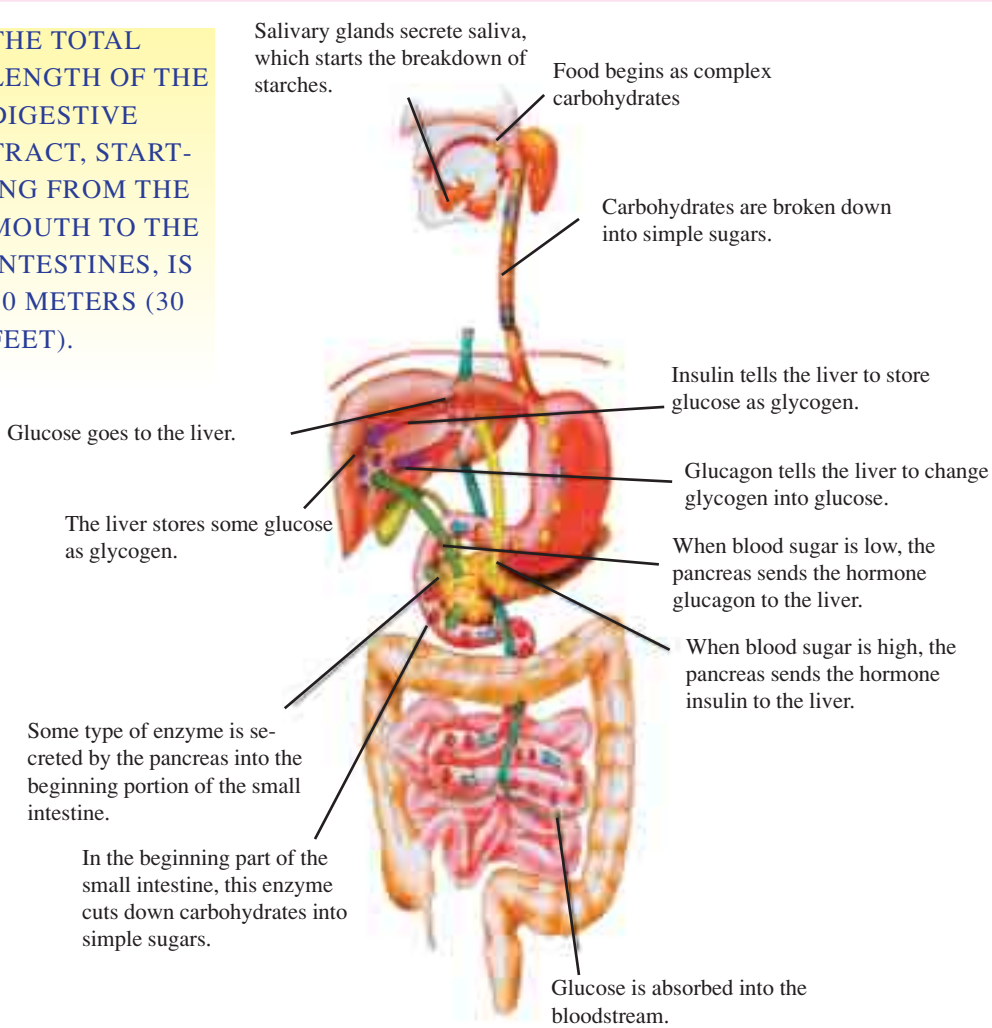
The reason for this huge difference is the fact that the substances in the foods you consume are added to your body in time. Some of these foods provide the energy you require to ride your bicycle, to run and to play, whereas some are added to your body and constitute your flesh and bones. Waste matter is discharged from the body. All these processes are performed in your digestive system. Organs and glands including your stomach, intestines and pancreas have roles in digestion.

The functioning of the digestive system is similar to the working of a petroleum refinery. Crude oil arriving at the refinery as raw material is processed by machines and refined

so as to be usable. The foods that we eat are raw materials in the first stage and are then processed in the stomach so as to be used by the body. Having been broken down in the stomach and the intestines, foods become ready to be used as the nourishment of the cells and are conveyed to relevant regions of the body via blood vessels.

A single parent substance is processed in a petroleum

THE TOTAL LENGTH OF THE DIGESTIVE TRACT, STARTING FROM THE MOUTH TO THE INTESTINES, IS 10 METERS (30 FEET).



refinery and a variety of products, for example gasoline, which is a fuel for automobiles, or the rubber used as the sole of your shoes, are derived from it. Likewise, the nutriments in the foods are broken into fats, sugars and carbohydrates in the stomach. But remember that what happens in your stomach after you eat a delicious sandwich is even more complex than what happens in a refinery. Moreover, this series of actions which we will soon discuss does not take place in a gigantic factory, but in a very small region in your own body.

The total length of the passage through which food is digested is 10 meters (30 feet). This is 6-7 times the average human height and it is marvellous how such a length is fitted into our bodies. How is it that such a long canal has been placed in a human body? The answer to this question reveals once again that there is a special design in the creation of our bodies.

Since the digestive tract, as you can see in the picture on the left page, is coiled up, it is fitted into a very small area, despite its length. This special shape is the perfect design of our Lord, Who created everything. This feature of the digestive system is only one of the wonders that Allah created in our bodies.

Do you know why your teeth have different shapes?

The reason why they have different shapes is that each has different tasks. For example your front teeth are sharp, so you can bite an apple easily. What if the molar teeth were in the front? Yes, you are right. You would not be able to bite a piece off the apple with your molars. Likewise, if your front incisors were at the back, you would not be able to grind the food you eat.

As in every single part of your body, the teeth in your mouth are also arranged by Allah in the most convenient and advantageous order for you.

Beneficial bacteria live at the back of your tongue

Bacteria are generally known to produce diseases and, to be protected from their harmful effects, people should be careful about the cleanness of both their bodies and the environments they live in. However, not long ago scientists discovered the presence of some beneficial bacteria in the human body, particularly at the back of the tongue. Yes, you've read it correctly; there are beneficial bacteria in your body. The duty of the bacteria behind your tongue is to kill the harmful microbes in your stomach. But surely this is not an easy task and it demands a series of actions. First of all, bacteria convert the nitrate found in green-leafed vegetables like lettuce into nitrite. However, the process is not over yet. Nitrite, in combination with the saliva secreted in the mouth, has an antimicrobial effect. In other words, the bacteria behind your tongue help in the production of a microbe-killing substance. As you know, microbes cause various diseases. Thanks to the beneficial bacteria that produce a microbe-killing substance, you are protected against many diseases. These beneficial bacteria are one of the manifestations of the compassion of our Lord, Who created our bodies in the most perfect way. Allah has given us many beauties and gifts. That these gifts are innumerable is related in a Qur'anic verse as follows:

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

How does the stomach digest food?

Now let's make a more detailed examination of the process of digestion. Consider breathing, swimming, riding a bicycle, eating... These are parts of our everyday lives, yet most of the time we do not even think how they occur. Our bodies need energy. We have already explained that we obtain this energy from the food we eat. But the nutriments required by the body should be simple and in particles small enough to pass through the blood vessels. Otherwise they cannot permeate the cells. However, the foods we consume are in large pieces. Therefore, we need a machine to enable the body to use the food we eat. In fact, we may briefly call this a grinder, which basically reduces the food we eat to smaller particles. This grinding machine in your body is called the "digestive system".

This system, like all machine systems, is composed of various components and

thanks to the perfect functioning of each of these components, we can digest food. It is vital that components of the digestive system be harmonious and complete because the whole system fails unless they are so.

Now let us give an example to illustrate why all the components of a system should be complete for the proper functioning of the system:

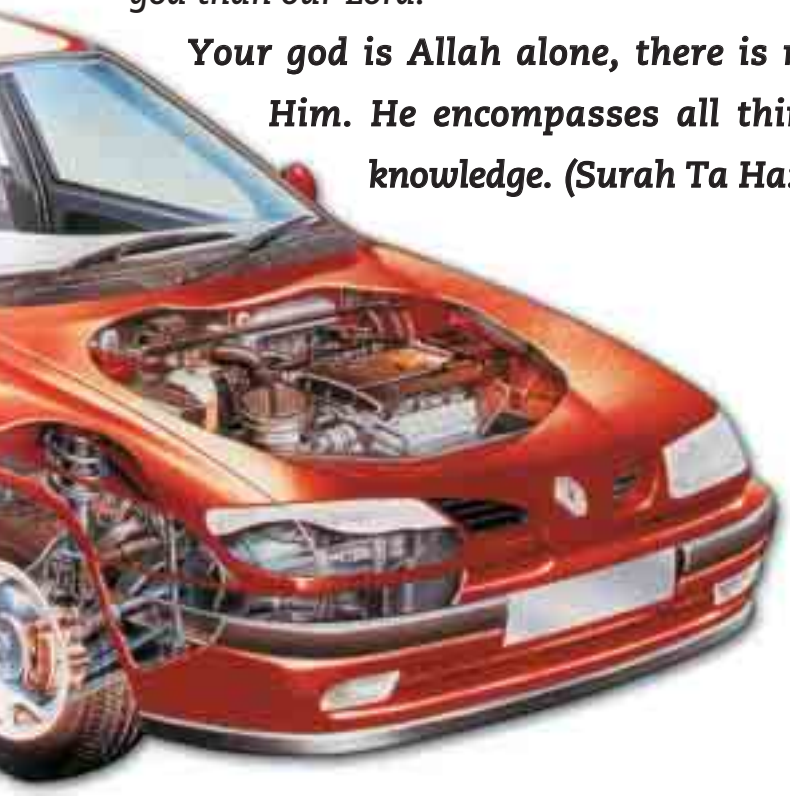
A remote-controlled car is composed of parts such as wheels, a controlling device, motor, batteries, gear, coil, antenna, etc. Likewise, the digestive system is composed of various components. These include the teeth, tongue, oesophagus, stomach, and intestines.

Now think. Would a remote controlled car operate if it did not have antenna or wheels? Of course not. The car can run only if all of its parts are present. The same applies to the digestive system. The presence of the stomach would be meaningless unless there were also an oesophagus, since what carries food to the stomach is the oesophagus. In like manner, intestines cannot possibly be of any use unless there is a stomach, because the foods digested in the stomach are passed into the intestines, where they are given the proper form to be con-

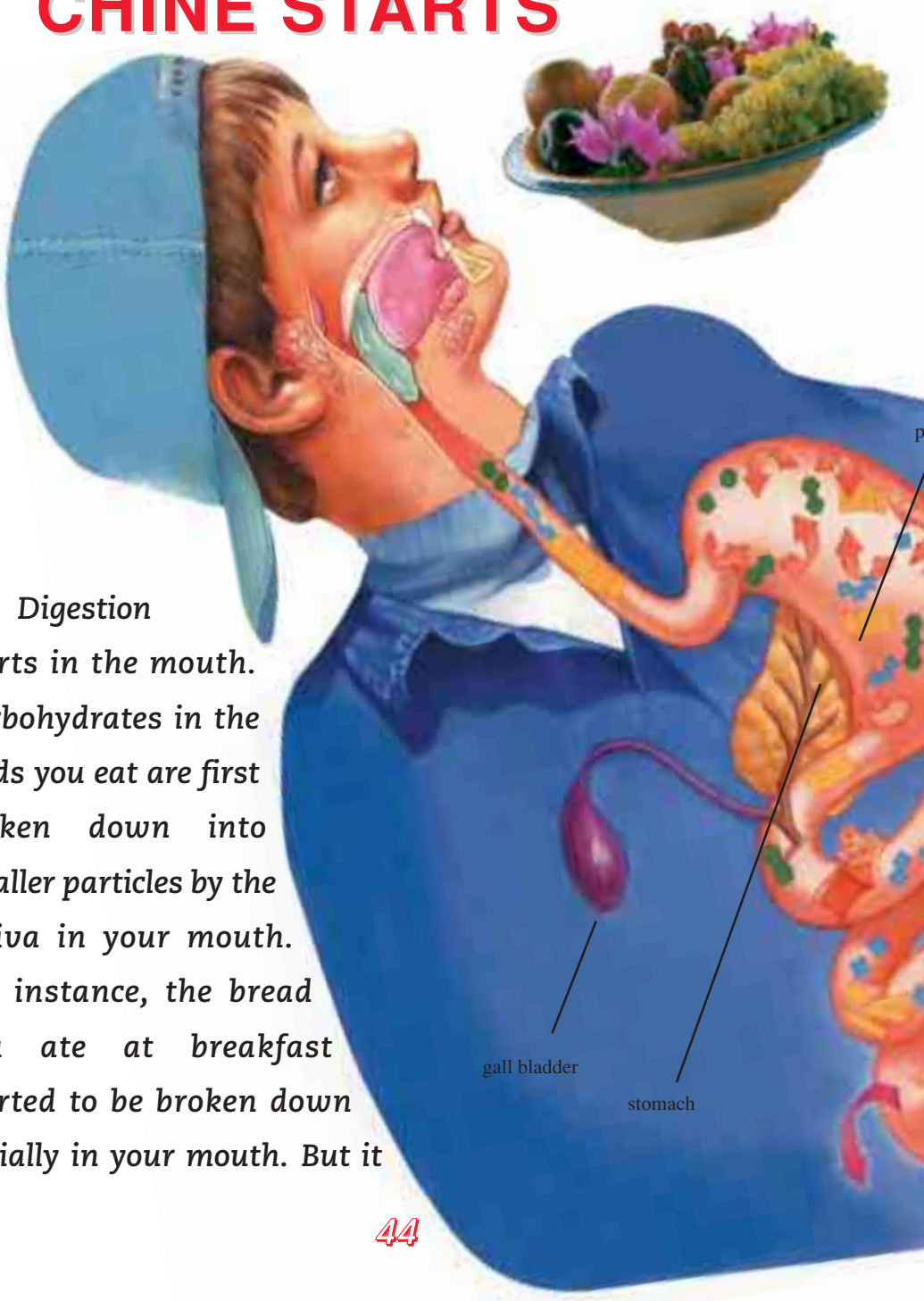
veyed to body cells.

This clearly shows us that our Lord, the Creator of everything, created for us a system that is perfect in every way. This reveals once again that there is no other god than our Lord:

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



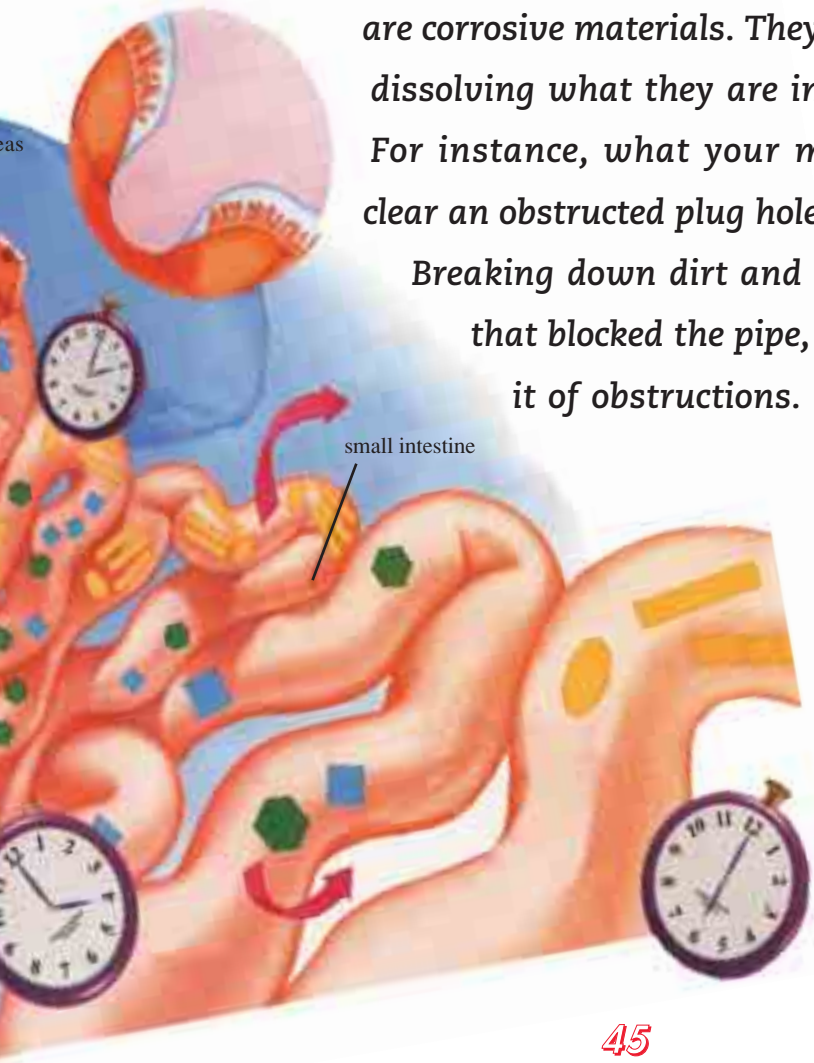
THE DIGESTIVE MACHINE STARTS



Digestion starts in the mouth. Carbohydrates in the foods you eat are first broken down into smaller particles by the saliva in your mouth. For instance, the bread you ate at breakfast started to be broken down initially in your mouth. But it

will take longer for the cheese you ate along with that bread to be broken down.

Nutriments broken down in the mouth pass through the oesophagus and reach the stomach. In the stomach is another marvellous state of equilibrium. Digestion of foods in the stomach is performed by a very strong fluid. This fluid is hydrochloric acid. As you know, acids are corrosive materials. They are capable of dissolving what they are in contact with. For instance, what your mother uses to clear an obstructed plug hole contains acid. Breaking down dirt and waste matters that blocked the pipe, these acids rid it of obstructions. It is thanks to

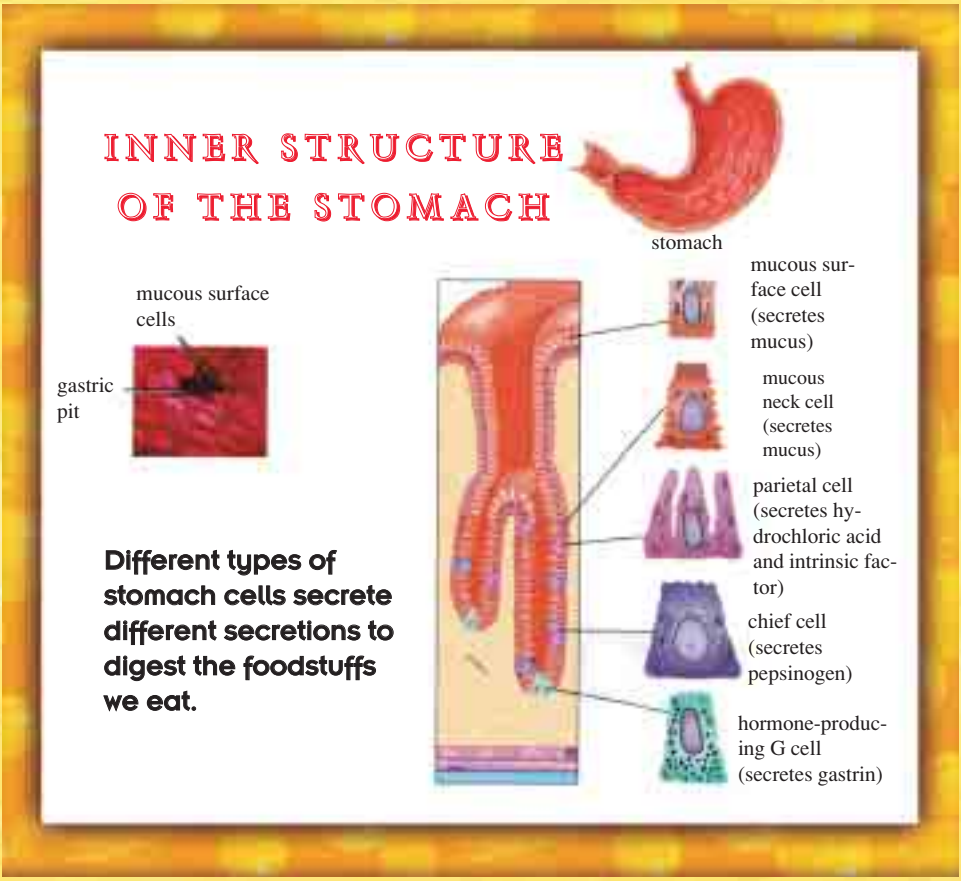


That is Allah, your Lord. There is no god but Him, the Creator of everything. So worship Him. He is responsible for everything. Eyesight cannot perceive Him but He perceives eyesight. He is the All-Penetrating, the All-Aware. (Surat al-An'am: 102-103)

the strong acid found in the stomach that the foods, which are in large pieces when they first arrive the stomach, are broken down into smaller particles that can be used by the body. Yet there is one more point that needs to be noted.

We have mentioned that the food eaten is broken down into pieces by the stomach or gastric acid. So how is it that this acid does not destroy the stomach itself, which is also made of flesh? Now, think about it. The gastric acid digests the meat, for instance, you eat at dinner, yet ignores the stomach, which is in the same way a piece of meat. Why is this so? At this point, the excellence in the creation of our Lord is revealed once again. Allah, Who created everything perfectly, designed a protection so that the stomach itself is not digested.

This protection may be summarised as follows; another fluid, namely "mucous", is secreted during digestion to prevent the hydrochloric acid from breaking down the stomach.



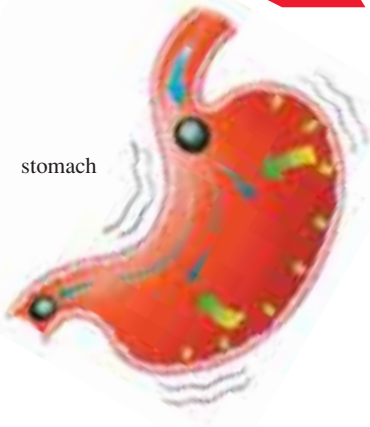
A special mucous layer covers the inner lining of the stomach and protects the stomach from damage by this powerful acid. So the stomach does not digest itself.

The next place on the digestive route is the intestines. Nutriments are broken down into even smaller particles and are made usable by the body as they pass through the two intestines, the large and the small. What is useful in these nutriments is introduced into the bloodstream and the

unnecessary residue is discharged from the body by the excretion system. The phases that the food eaten passes through in the intestines are also very important. Digestion continues in the intestines as in the stomach. Nutriments are broken into even smaller particles. They are now so small that they are absorbed by the blood vessels around the intestines and are involved in the bloodstream to be carried to every part of the body.

Children, you must have realised that the digestive system is planned completely and perfectly. During this journey, which starts at the mouth, proceeds along the oesophagus, the stomach and the intestines, the food eaten passes through several phases. And finally the nutriments that our body cells require are obtained. These are absorbed in the intestines and delivered to the body via the bloodstream. Digestion of food would be very hard if this mechanism did not work so perfectly. First of

One function of the stomach other than digestion is storage: Foods that reach the stomach are kept here for a period. Then they are little by little passed to the small intestine for further breakdown. If the foods you ate were not stored in your stomach, you would have to eat every 20 minutes because your stomach would always be empty and you would feel hungry all the time.


stomach

all, if we lacked teeth, we would not be able chew our food sufficiently and it would not go down the throat. Even if it did, it would seriously injure the oesophagus. If our stomach were not able to digest the food, everything we ate would remain as a large mass in the stomach, which would be quite disturbing. Besides, as a result of not being able to digest foods, our bodies would not be provided with the nourishment they require. An unnourished body loses its strength after a while and body cells start to die. But we do not experience such things, because our Lord created every single part of our bodies perfectly. This excellent system runs flawlessly, and we are quite unaware of it. This excellence in creation is related in the following verse:

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

THE BLOOD'S JOURNEY THROUGH THE VEINS

In previous chapters we referred to a gigantic network of nerves running right through our bodies. There is another such miraculous network. This consists of blood vessels. Like the network of nerves, blood vessels, too, circulate through the body. They are so long that their total length would be about 100,000 kilometres (62,000 miles) if they were spread over a flat surface. In fact, it is not hard at all to understand that there are blood vessels all around our body. Even a small scrape on any part of our body would start to bleed immediately. This proves that blood circulates all through our body. It is vital that we have blood vessels at every point because, as mentioned in the previous chapter, the nourishment required by the body cells is conveyed through the blood vessels. Oxygen that cells need for

proper functioning is also carried to cells by the blood flowing through our veins.

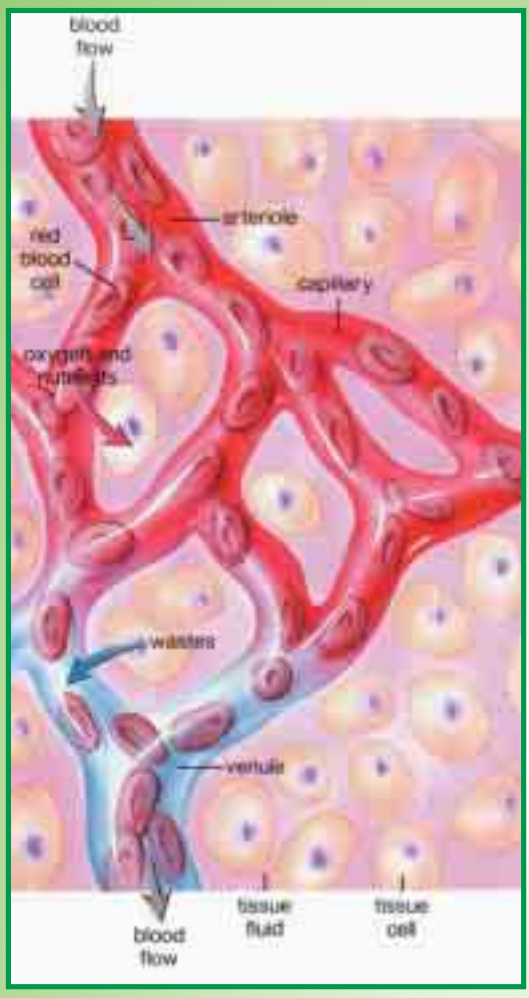
Transportation of the nourishment in the blood vessels may be compared to transporting freight by ship. Prior to shipment, first of all goods are placed upon the ship at the port. Goods should be properly packaged and placed. After all are loaded, the ship sets out and heads for the port of its destination. When it arrives at the port, all packages are unloaded and distributed to the concerned sections. In the blood vessels, nourishment is similarly transported to cells, just as ships transport cargo across the ocean. Oxygen, fats and amino acids flow in the bloodstream in packages and are unloaded at the target cells. This transportation schedule never fails. Proper amounts of required substances are conveyed to relevant cells just on time. Otherwise, for instance, if a cell that needed oxygen received fats instead, this cell would die. It should be noted that even the slightest mistake in this system could result in serious harm. Such mistakes never happen except in unusual cases, however, because none of these came into existence by chance. Allah, the Creator, created this system perfectly for our service.

WHAT IS IN THE BLOOD?

As blood circulates all through the body, it fulfills many tasks. Now let's have a brief look at these tasks.

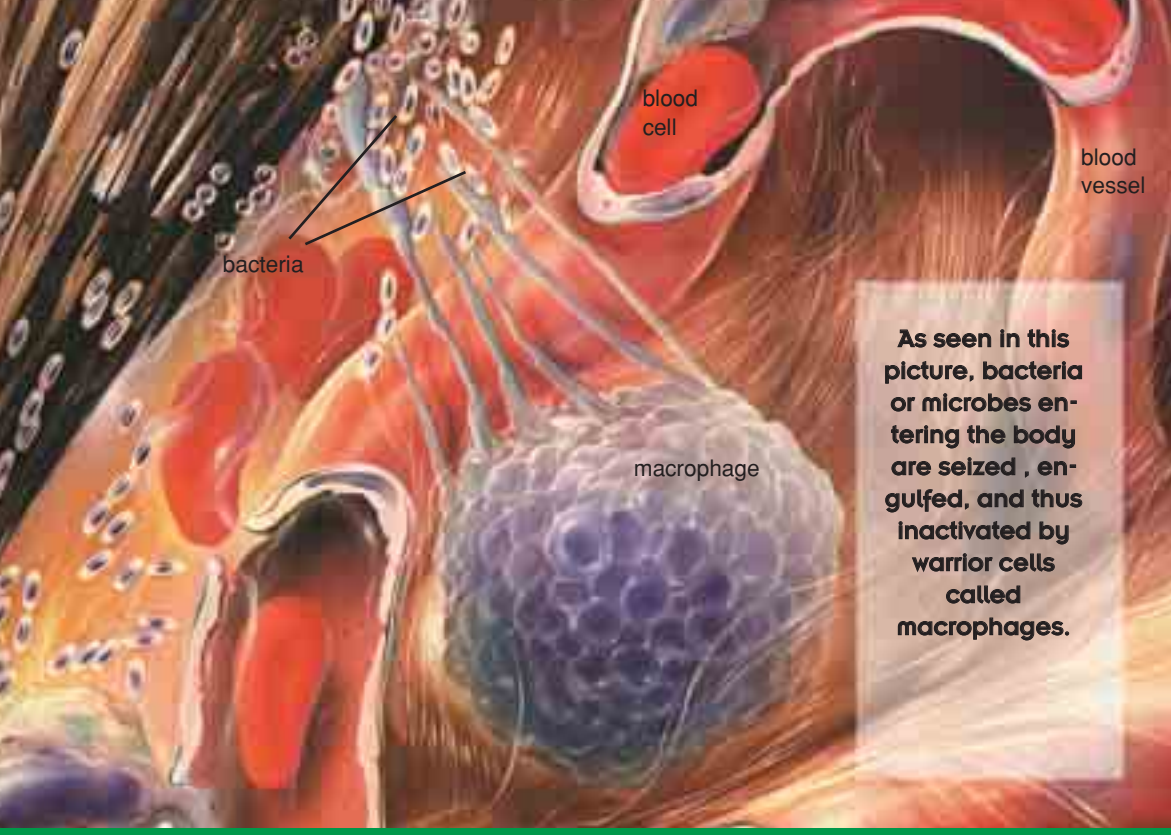
TRANSPORTING CARGO

We have already explained that all the kinds of substances that our body needs are conveyed to the concerned organs by blood. In the meantime, blood cells collect waste matters, like carbon dioxide, and make sure that they are discharged from the body.



In a way, blood acts like a garbage grinder. Stopping by each of 100 trillion cells again and again throughout the day, it leaves the cells what they require and at the same time collect what is not needed.

Blood, which is merely a fluid, can faultlessly perform a task demanding such attention and responsibility. It knows each of the substances it carries, what it will be used for and to where it should be delivered. For instance, it does not mistakenly convey to a cell the carbon dioxide it has taken from another cell as a waste product. It always supplies cells with oxygen and removes carbon dioxide. Blood performs this task with no mistakes or fatigue, because it is a part of the perfect plan that Allah created in the human body. As they unconditionally surrender to the system created by our Lord, all blood cells perform their tasks without making any mistakes.



As seen in this picture, bacteria or microbes entering the body are seized , engulfed, and thus inactivated by warrior cells called macrophages.

SOLDIERS IN THE BLOOD

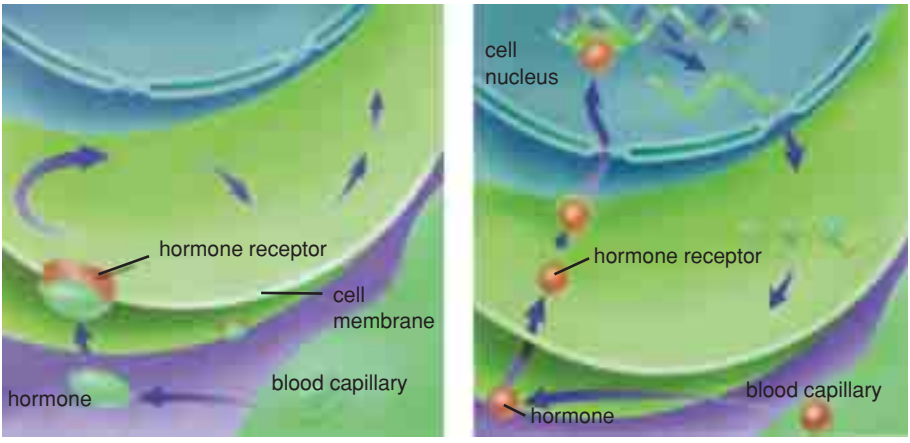
Everyday our bodies struggle against many bacteria, viruses and microbes. Some are prevented from entering the body, while some manage to enter. But there are special defence cells in our bodies to fight against them that are called immune cells. These cells, which are like soldiers fighting against the enemy and protecting our bodies from dangers, move in the bloodstream. Whenever there

There are different types of cells in the blood, each of which performs a different task. As seen in the picture above, some of these cells carry food while some others defend the body like soldiers.

is an enemy attack, they can reach the related part of the body through the blood vessels and easily fight against the enemy. Immune cells have not learnt their missions on their own. They have known them since they came into being. They start performing their duty and protecting the body the minute a baby born. This is an excellent detail in Allah's creation. Our Lord has taught cells which cannot be seen with the naked eye very important knowledge and placed them at our service.

COMMUNICATION

Blood also serves as a means of communication in the body. There are messengers in the blood taking messages from one part of the body to another. These messengers, known as hormones, transport messages to the relevant organs like a postman delivering mails. Many significant processes, including the growth of the body, thirst, perspiration and control of blood sugar levels are thanks to such precisely delivered messages.



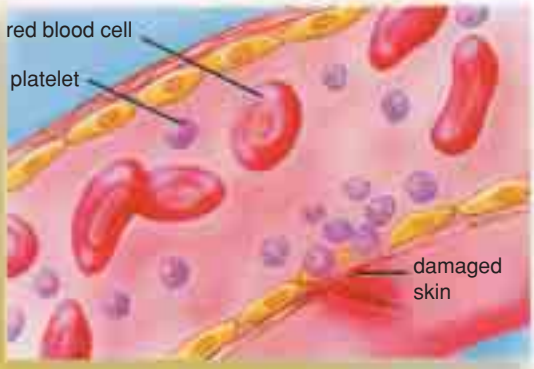
As seen in the picture above, hormones travel through the bloodstream with the messages they carry and deliver these messages to the relevant organs.

BLOOD THAT HEALS WOUNDS

You must have observed that a slight skin wound stops bleeding spontaneously after a little while. This, in fact, is quite thought provoking since, under normal conditions, a liquid flowing from a hole cannot possibly stop flowing of its own accord. To have a better understanding of this fact, suppose that you have a balloon filled with water. If you make a little hole in this balloon using a needle, water will leak out of the balloon. Will it stop leaking after a while with no intervention of yours? Of course not. All the water will keep leaking until the balloon runs out of water. This applies to all liquids in closed spaces.

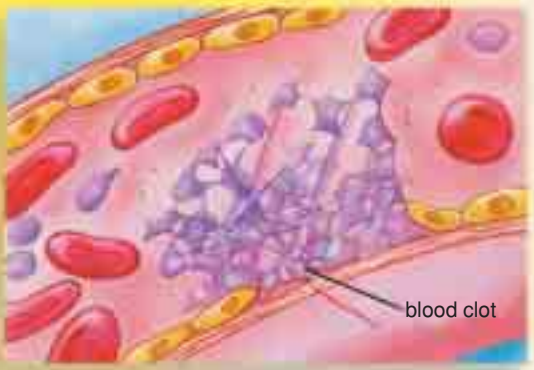
Blood moves through a closed circuit of veins and leaks out in case of even a slight cut. However, it is of great importance for our health to stop its flow. You may have heard of people who die of excessive blood loss in accidents or operations. Well then, what causes blood to stop flowing a little while after a wound starts to bleed?

This is called blood clotting, which is one of the automatic security systems in our bodies. Some substances existing in the blood stop and close the wound. Thanks to the clotting ability of blood, excessive bleeding is prevented. As shown in



Blood leaks through the wound.

Blood surrounding the wound coagulates.

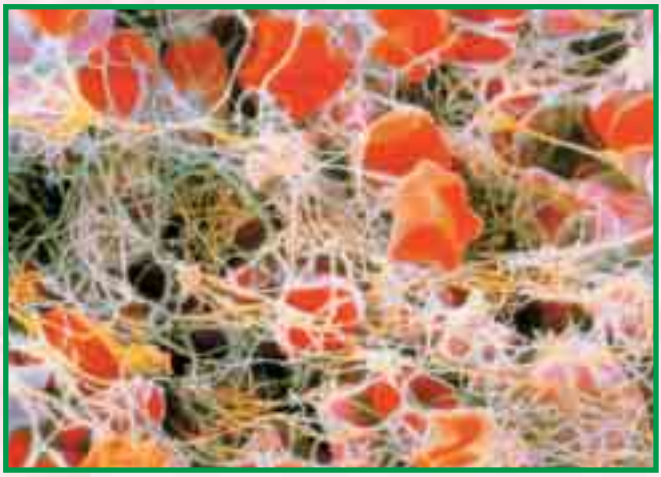


Cells close up the wound like a plug.

A cut on your hand or a wound on your knee heals in a short time. The pictures above show some of what happens in your blood vessels during this healing process.

the illustration on the right, some cells in the blood are informed of the damaged vein and head for that site at once. First they align themselves along the wound and obstruct the flow of blood by weaving a web. This web stiffens in time and forms what we call a scar.

Now let's think together. Can this planned series of actions take place by chance? How is it that some blood cells are informed of damage somewhere in the blood vessels, which is like a gigantic world in relation to their size? Why do they strive to prevent the flow of blood? How do they know that they should close the wound in order to stop loss of blood? Who taught these cells that they should close the wound?



In the picture above, you can see the red blood cells stuck among the fibers of a blood clot. It is thanks to the clotting ability of blood that it stops flowing soon after you are injured.

Cells could neither have learnt all these things by chance nor could they have accomplished them on their own. Even human beings, who have intelligence, cannot possibly originate such a detailed system and teach cells what to do. Certainly, the intelligence demonstrated by these cells does not belong to them. Allah inspires them and they act according to a perfect plan.

Allah informs us of the excellence in His creation as follows:

> ***He created the seven heavens in layers. You will not find any flaw in the creation of the All-Merciful. Look again—do you see any gaps? Then look again and again. Your sight will return to you dazzled and exhausted! (Surat al-Mulk: 3-4)***

A MIRACULOUS FLUID WITH NO REPRODUCIBLE EQUALS: BLOOD

Scientists have conducted many studies in order to produce a fluid similar to blood. However, having failed to do so, they gave up trying to imitate blood and focused on research in other fields.

Scientists cannot imitate blood because blood samples withdrawn from a blood vessel clot at once and the structure of the blood becomes unfit for examination. It does not work to preserve the samples in glass test tubes either, because blood cells do not completely survive in tubes. Therefore, scientists had to separate cells in the blood and examine them individually. Undoubtedly, it is one of the most unreasonable and illogical explanations in the world to claim that such a perfect substance, which cannot even be imitated with all the information human beings have gathered for years, came into existence spontaneously and by chance. Allah created blood as a matchless substance. A blood cell that has many amazing abilities is merely one of the manifestations of Allah's infinite wisdom in the human body.

THE MOTOR OF THE BODY: THE HEART

Have you ever thought how litres of blood circulate unceasingly through our body up and down? Every object needs a motor for continuous motion. Cars, aeroplanes, motorboats and even your remote-controlled toy cars move by means of motors. Likewise, blood circulating through our body needs a motor too. The motor that propels our blood night and day, for months and even for years is our heart.

Place your fingers on your wrist and wait for a while. You will feel the beating of your heart. Your heart beats 70 times in a minute, and pumps some 152 million litres (40 million gallons) of blood throughout your life. That much blood is an approximate equivalent of the amount 10,000 oil tankers will hold. These figures are astonishing, aren't they? Now suppose that you have to bail a cup of water from one bucket to the other, 70 times a minute. In the end your arm and hand muscles would ache and you would need to rest. However, your heart carries out this task all through out your life and it never takes any rest.

THE MOST PERFECT PUMP

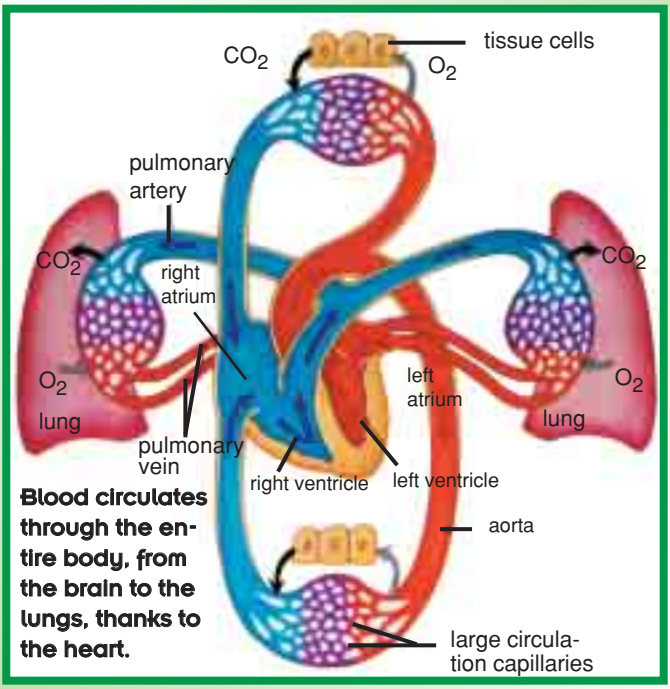
The most perfectly structured pump in the world is now beating on the left side of your chest. With its marvellous design and unceasing contractions, your heart makes the entire blood in your body complete 1,000 full cycles in a day.

The heart is a pump made of flesh, which is approximately as big as one's fist. Nevertheless, it is clearly the strongest, the most durable and the most efficient engine in the world with respect to its capacity. We have many reasons to express the strength of the heart in this way. Most important, the heart uses a great deal of energy when it beats. With the energy used by the heart, blood can be raised up to 3 metres high. It may be helpful to give an example in order to make it easier to comprehend the heart's capacity. In an hour the heart can produce an amount of energy that is enough to lift an average car approximately one metre above the ground.

Your heart is an astonishingly strong muscle. It beats about 70 times in a minute, and pumps 59 cubic centimeters (3.6 cubic inches) of blood at each beat. A heart which beats 2,500,000 times in 70 years pumps some 152,000,000 liters (40 million gallons) of blood during this time. That much blood is the approximate equivalent of the amount pumped into the fuel tanks of 10 Boeing 747 jumbo jets every year.

The fuel tank of a jumbo jet will hold 217,000 liters (71,000 gallons) of fuel when full.

Original Pumps in the Heart



Blood circulates through the entire body, from the brain to the lungs, thanks to the heart.

The heart, which is a muscular organ of about the size of one's fist, consists of two halves. There are two pumps in these sections. The left pump, which is stronger, drives oxygen-rich blood to all parts of the body. The right pump is weaker than the former and pumps oxygen-poor blood to the lungs. This transport from the heart to the lungs is over a short distance and is, therefore, called the "small circulation". The former is called the "large circulation".

Each of these halves of the heart is divided into two further sections. Blood between them passes to the other section through heart valves. These pumps operate unceasingly with a great amount of energy, thanks to which blood circulates through our bodies 1,000 times a day.

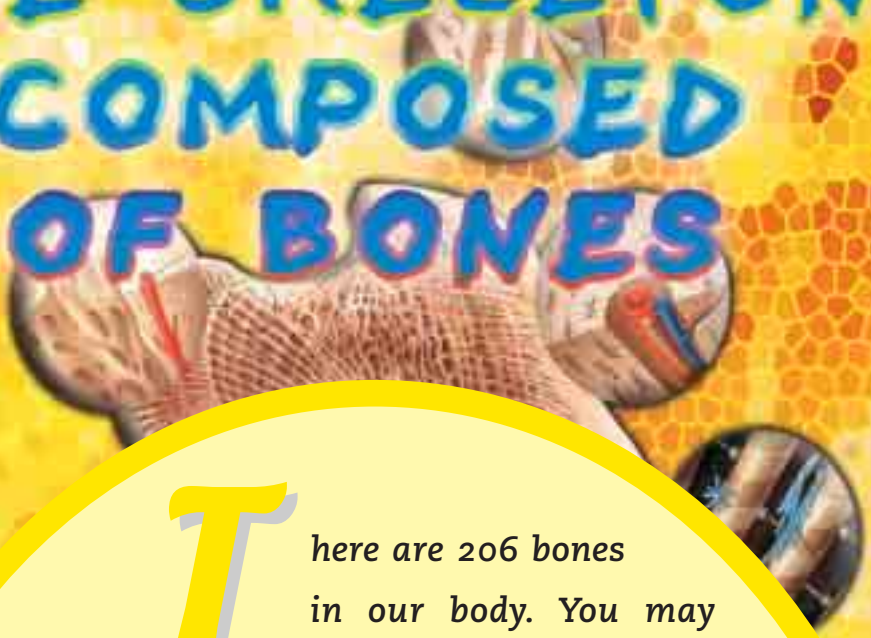
The Heart Maintains Itself

Machinery needs routine maintenance. It may be necessary to maintain some machine parts or to replace those that are worn out. Machines need to be treated with oil after a certain period of operation, so as to lessen wearing down by friction.

Like machinery, the heart, which keeps operating all the time, requires maintenance too. However, the heart carries out its maintenance itself; it lubricates itself.

How do you think a heart lubricates itself? The answer to this question is hidden in the creation of the heart. The outer surface of heart is covered by a sac consisting of two membranes. Between these membranes is a greasy fluid. This fluid acts like motor oil and facilitates easy operation of the heart. This self-protective structure in the heart reveals once again how perfect and complete is Allah's artistry in creation.

THE SKELETON COMPOSED OF BONES



There are 206 bones in our body. You may think that this is too many, but with the example we will give, you will understand how necessary it is to have that many bones. Let's consider the fingers. If each of your fingers consisted of only one bone, you would not be able to hold this book as you are doing now. This is because a stiff bone cannot be bent and will eventually break if you force it too hard. Since you would not be able to bend your fingers, you would not be able to grasp or catch hold of objects either. Neither would you be able to write or eat. What enables you to hold this book easily and maybe to drink your fruit juice at the same time is the existence of 27 interconnected bones, including those of your

fingers, in your hand.

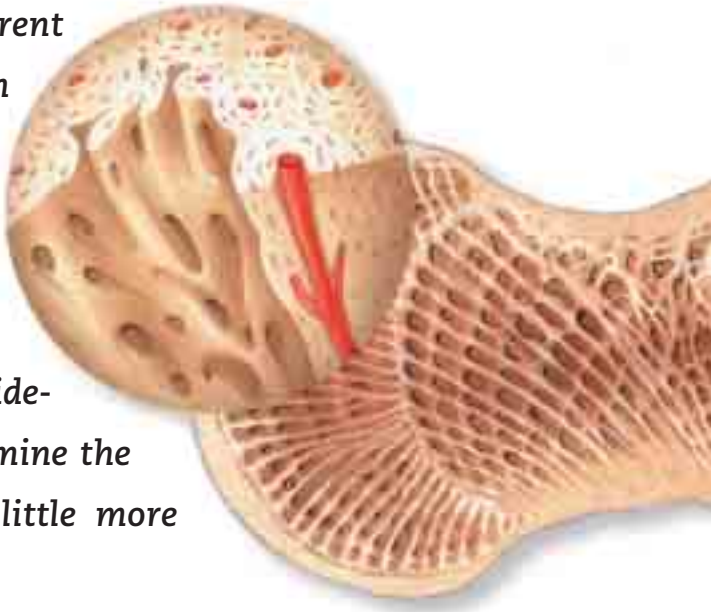
As previously stated, there are 206 bones in our bodies, which are connected to each other like those in the hands. Each of these bones is situated in their places according to an intelligent plan. It is thanks to this perfect plan that you can bend your body forward, kneel and turn your head to the side. But make no mistake: you cannot do all these things just by using your bones, because bones cannot be bent. There are joints at the connection points of your bones. Thanks to these joints, you can easily bend your arm, raise your leg and use your fingers.

Let us give you an example in order to help you better understand how important joints are for the motion of our bones:

Suppose that you made a wooden puppet. What should you do to move its arms? The arms of the puppet will surely not move unless you place a joint where the arms are connected to the shoulder. How will you make its legs movable then? You have to use an articulating piece again where its legs join the trunk. Only then can you move the wooden puppet's arms and legs. Likewise, if you separate the wood you have used for arms and legs into two pieces and place articulating pieces, or joints, between these pieces, then the puppet's arms and legs will also be bendable at the elbows and knees respectively. As may be clearly understood by this example, having many bones and joints placed between them where necessary enables us to move easily.


Swivel joint
Saddle joint
Hinge joint
Ball and socket joint

The Inimitable



There are different types of joints between our bones. While some joints enable bones to move back and forth, others enable bones to move sideways. Now let's examine the joints and bones a little more closely.

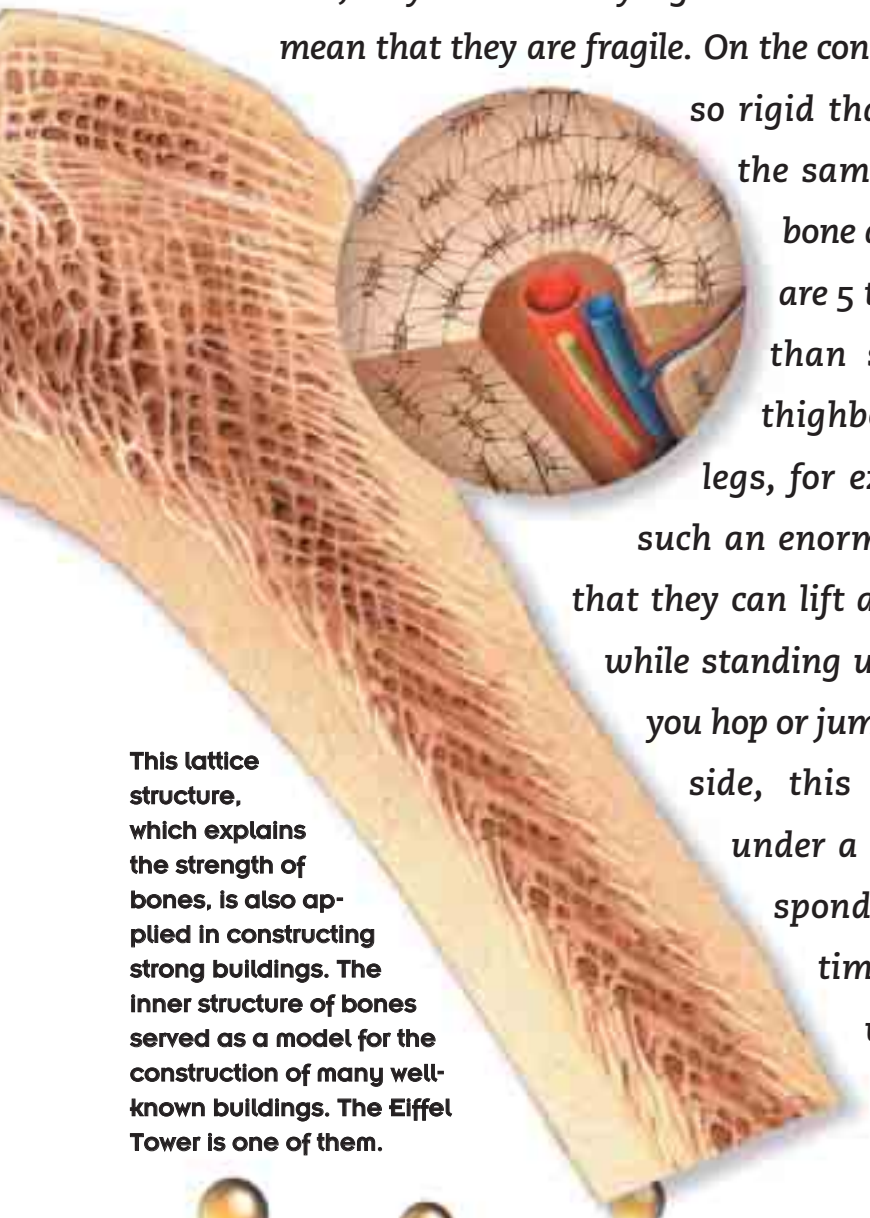
Our bones have undertaken the duties of carrying and protecting our bodies. Certainly, they are created capable and strong enough to perform these hard duties.

The Eiffel Tower

Our bones are light because they are interspersed with small holes like a honeycomb. But even though they are very light thanks to this porous

Properties of Bones

structure, they are also very rigid. However this does not mean that they are fragile. On the contrary, they are so rigid that if you take the same amounts of bone and steel, they are 5 times stronger than steel. The thighbones in our legs, for example, have such an enormous capacity that they can lift a one ton load while standing upright. When you hop or jump from side to side, this bone is put under a weight corresponding to 3-4 times your body weight.



This lattice structure, which explains the strength of bones, is also applied in constructing strong buildings. The inner structure of bones served as a model for the construction of many well-known buildings. The Eiffel Tower is one of them.

THE SKULL: THE ARMOUR OF THE BRAIN

As well as protecting the brain, the skull also provides connection points for the eyes, ears, nose and mouth. Although it may seem to have quite a simple structure, the skull is actually the most comprehensive part of the skeleton. It has 22 different bones connected to each other.

However, you do not suffer any damage thanks to the firmness of your bones.

What makes bones so strong? In fact, the answer to this question is hidden in the matchless creation of bones, which we have briefly mentioned above. Bones are made of porous tissue like honeycomb. It is thanks to this structure that they are both very strong and light enough for easy use. Had it been otherwise, that is, if the inner parts of the bones had been rigid and did not have any spaces like the outer part, the bones would be too heavy. Furthermore, since they would not be elastic at all, you could have your bones broken or cracked with even the slightest of blows, say when you hit your arm lightly against the edge of a closet. However, Allah is All-Merciful and He created our bones so as to afford physical ease and protection.

What bones are made of has interested scientists a lot and they have tried to imitate bone tissue for years. This tissue, which is very strong, despite being very light, and which, most

Right from your birth, all of your bones have grown and lengthened in a perfectly proportional way. It is thanks to this well proportioned lengthening of the bones that we become taller as we grow older.

importantly, is capable of repairing itself, can grow on its own. The reason why your current body length is not the same as your length when you were 4-5 years old and why it will be different when you are 19-20 is the growth of your bones. Amazingly this growth is very well proportioned. Your arms grow while your legs grow; your fingers and toes grow harmoniously and the growth of each bone stops at an exact time. Furthermore, this does not happen only in your body but also in every healthy person's body. Everybody has bones possessing these characteristics.

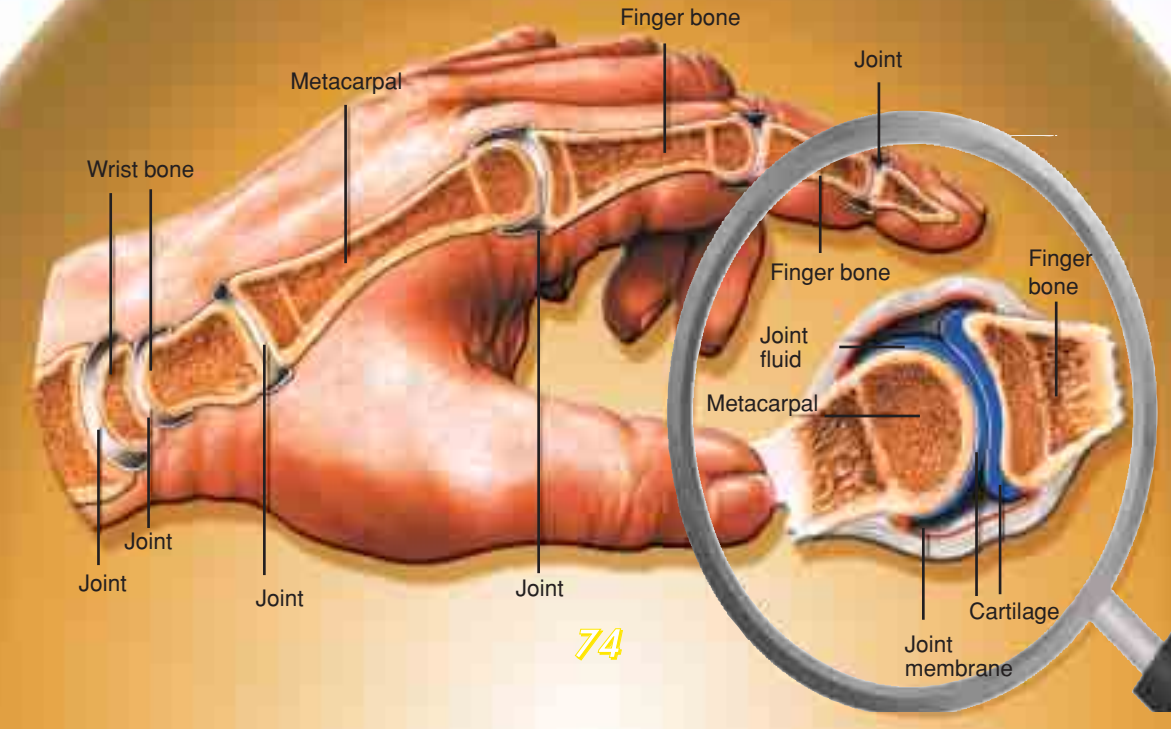
Scientists are conducting studies in order to produce a substance similar to the one that forms the bones in a human body. However, nobody has been able to develop a substance with such advanced characteristics as a bone has.

It is thanks to the compassion of our Lord that our bones enable us to live our lives easily and to do a wide range of movements without difficulty and without suffering any pain.

BONES THAT MAINTAIN THEMSELVES

We have explained that there are joints where bones are connected to each other. For example, we can bend and straighten out our arms and legs thanks to the joints located at our elbows and knees. Although they move throughout our lives, these joints never need to be lubricated. Machines, however, need regular maintenance. For

Your joints enable you to easily bend your fingers. There is a special design between the joints to prevent friction, and therefore wear and tear, and pain.



example, you have to lubricate the pedals or the chain of your bicycle from time to time because the amount of oil is reduced as they are used, which consequently restricts motion. Likewise, the joints between your bones are used all the time, yet you never have to lubricate them. Why is that?

The answer to this question has been sought by scientists, who eventually discovered the following fact: in a joint, a tough, rubbery tissue called cartilage cushions the ends of the bones at contact points. There is a thin membrane lining the entire joint cavity which secretes a special fluid. As the bone exerts pressure on the joint, this fluid is forced out of the membrane and the joint becomes "lubricated".

All these facts reveal to us that the human body is the result of an excellent design and superior creation. It is thanks to this excellent design that we can make many different movements easily and quickly. These features of the bones have been created by our Lord. Allah invites people to reflect on the creation of bones:

... Look at the bones—how We raise them up and clothe them in flesh... (Surat al-Baqara: 259)

how does a broken bone heal?

We have mentioned that bones are very rigid and strong. They may, however, be broken when they are exposed to severe blows. What happens then? The bone repairs itself. Doctors set the broken bone and make a plaster cast so that the bone knits correctly. There is nothing left for the doctors to do because the bone has its own repairing mechanism. It is miraculous that a broken bone heals itself and becomes even stronger than before. This miracle is worked as follows:

The blood surrounding the broken bone coagulates and forms a "haematoma",

1

a large mass of clotted blood surrounds the broken bone

2

a new cartilage tissue appears on the broken region

3

new bone tissue forms.

4

the new bone tissue is brought into shape in a few months.

Acting as skillfully as a sculptor, our cells never go too far and cause harmful effects. They do not mistake the shapes and lengths of our bones. Furthermore, they flawlessly calculate when to multiply and when to stop. Think for a moment—what if your finger bones kept growing or your legs got longer and longer? That would be very terrifying, wouldn't it? But this never happens, and all of your bones lengthen exactly as they should. This is one of the clear proofs of the fact that your bone cells act by the inspiration of Allah.

which is a large mass of clotted blood. This clot is a coating similar to the scab on your skin that occur following a cut. Minerals secreted by bone-building cells transform this clot into a rigid bone. Once this phase is completed, bone-dissolving cells come into play. Acting like a professional sculptor, these cells reduce the new bone with hydrochloric acid, which is a quite strong acid, and give a particular form to the bone. This process continues until the bone regains its original form. Even a year later, these bone-dissolving cells keep reducing the bone like diligent sculptors in order to shape it.

A bone in your foot is different from a finger bone. The lengths, shapes and thicknesses of bones differ from those of another. Still, as you may remember, all are produced by the same bone cells.

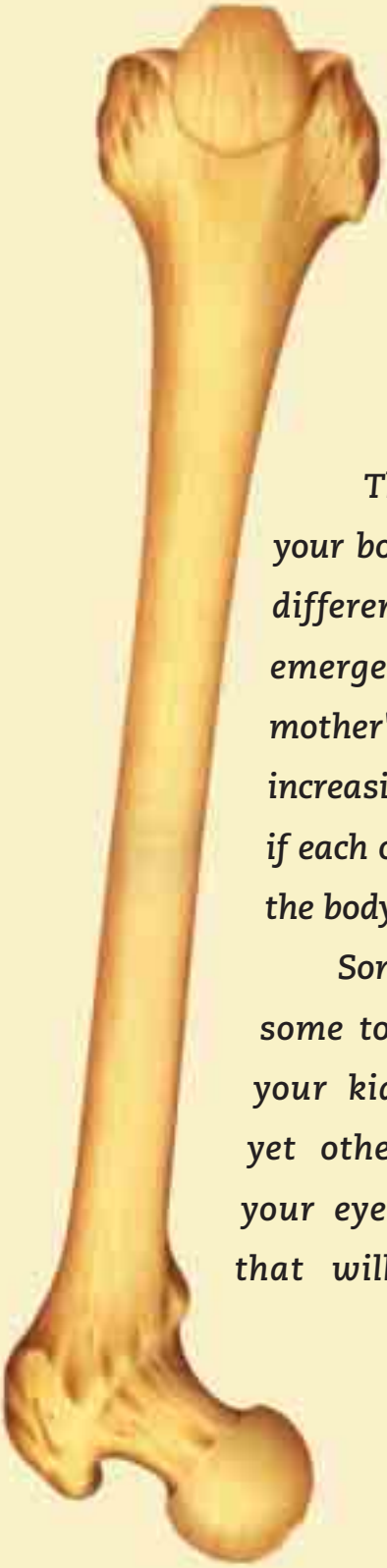
As you have realised, all these tasks that are performed by bone cells, which are too small to be perceived by the naked eye, are signs of a superior intelligence. That is because cells do not have eyes to see with, yet they can build bones. Besides, they can understand when the space between the two broken pieces is filled and thus can decide when to stop. Then bone-dissolving cells notice that the newly built bone needs to be fashioned, and start reducing it. In order to do this, they use a strong acid to break down the bone, and give it the most appropriate form by applying this acid in smaller or greater quantities as necessary.

As you can see, all bone cells know

very well what to do as well as how and where to do it. The system built for healing our bones works perfectly and enables bones to repair themselves. Scientists have admired this astonishing ability of bones for years.

How did bone cells acquire such an amazing ability, which works totally without the awareness of the person concerned? How do cells know what they need to repair a broken bone and what actions to perform in order to heal it? While some of the cells have acquired the ability to build bones, others have taken on the duty of shaping them. Who assigned them their tasks? How come there is no disorder and how is it that each of them carries out its tasks at the exact moment it is required? Did bone cells learn all these things by themselves?

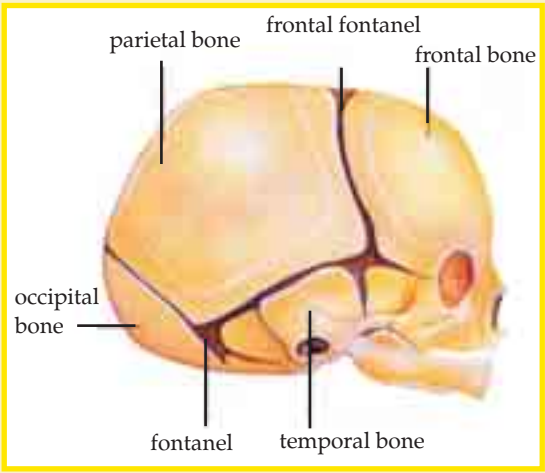
Surely all these extraordinary tasks cannot be performed by some almost invisible cells' own volition. They could not possibly have learnt them by chance either. Acting by the inspiration of the All-Wise Allah, Who created them, our bone cells can give shape to bones like a skillful sculptor.



Have you ever wondered how body cells form bones?

The shapes of most of the 206 bones in your body are different from each other. This differentiation started when they first emerged, that is, when you were in your mother's womb. Cells, which were gradually increasing in number, took different forms as if each of them had been taught which part of the body it was supposed to constitute.

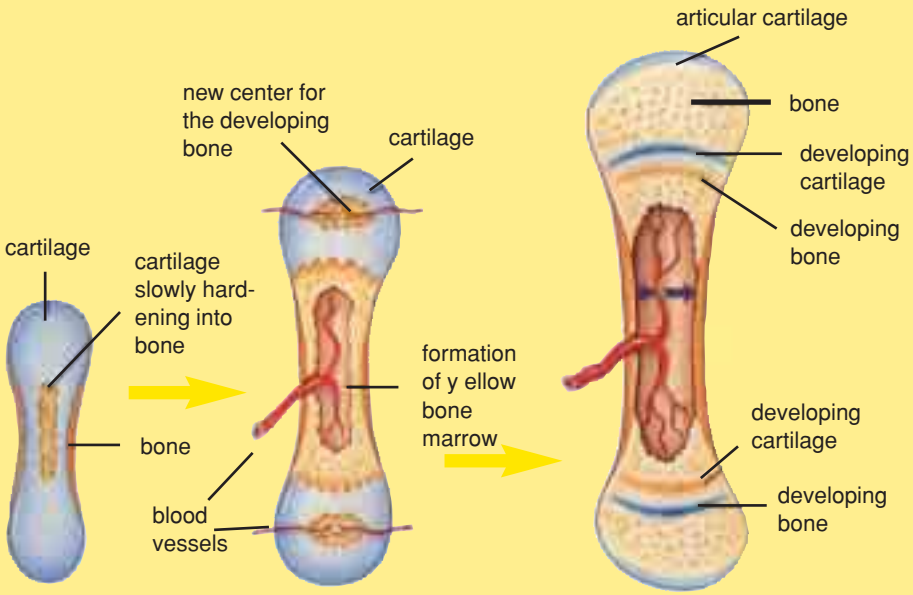
Some cells branch off to form your bones, some to form your liver, some to form your kidneys and so yet others to form your eyes. But cells that will form the



The gaps in the skull bones of a baby disappear in time as the bones grow.

liver, bones or eyes do not merely gather together. They need to branch off even further. For example, bone cells should be aware of the location of the bone that they will form within the body. Then they should go to the correct place accordingly and take the correct form.

The bone cells in your feet act like a professional sculptor and form perfectly curved foot bones with the indentations and projections for the toes. As if they knew the size of the brain, the bone cells forming your skull build a smooth bony skeleton that perfectly encloses the brain. It is neither too small nor too big, so it neither squeezes the brain nor



the earliest stage of a baby's bone in the mother's womb

the advanced stage of a baby's bone in the mother's womb

a child's bone

A baby, while still in the mother's womb, is largely cartilage. Cartilage develops and turns into rigid bones in time, as seen in the diagram above.

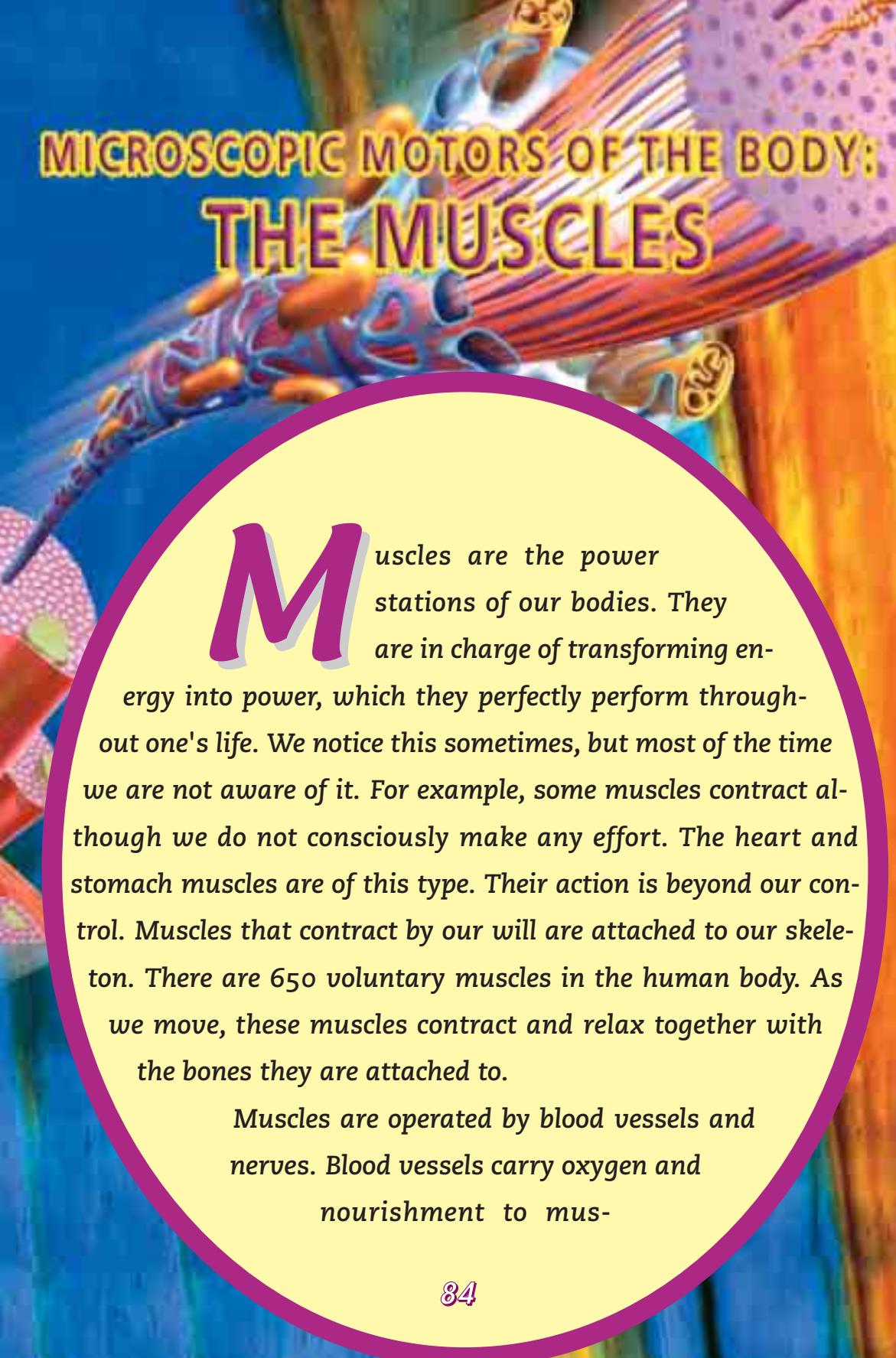
As in all other bones in our bodies, hand bones too, develop as one grows older. What is worthy of note, however, is that each of the fingers grow proportionally to one another.

makes it difficult for you to hold your head high.

What is the source of the consciousness of cells, which gives perfect shapes to bones, knowing which form they should take and which tissue they should constitute?

Our Lord inspires this delicate plan in them. Allah's supreme knowledge is pointed out in the following 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)



MICROSCOPIC MOTORS OF THE BODY: THE MUSCLES

Muscles are the power stations of our bodies. They are in charge of transforming energy into power, which they perfectly perform throughout one's life. We notice this sometimes, but most of the time we are not aware of it. For example, some muscles contract although we do not consciously make any effort. The heart and stomach muscles are of this type. Their action is beyond our control. Muscles that contract by our will are attached to our skeleton. There are 650 voluntary muscles in the human body. As we move, these muscles contract and relax together with the bones they are attached to.

Muscles are operated by blood vessels and nerves. Blood vessels carry oxygen and nourishment to mus-

Your heart operates unceasingly. You do not even wonder whether or not it is operating while you are asleep.

cles, while nerves drive muscle movement.

What would happen if the control of your muscles were completely left up to you? Suppose, for example, that your heart muscles contracted only with your conscious control from now on. You would do nothing but concentrate on the contraction and relaxation of your heart muscles. That is because if your heart muscles did not contract even for a moment, you would die. And death would be inevitable when you were asleep, since you would not be able to control your heart's functioning.

However this never happens since you do not need to think about such things thanks to the perfect

controlling system in your body.

What we need to do, above all, is to give thanks to our compassionate Lord, Who makes everything easy for us, and to act in a way that is pleasing to Him. Allah commands us to worship Him alone in the following verse:

> ***That is Allah, 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)***

Muscles operate harmoniously

Did you know that 17 muscles in your face contract simultaneously when you smile? If one of these muscles did not contract or malfunctioned, you wouldn't be able to smile. Furthermore, you would have an empty expression on your face.

There are 28 muscles controlling your facial expression. With the joint contraction of these muscles, you can assume hundreds of different expressions. You can express anger, bewilderment, happiness and amusement as well as many other emotions thanks to these muscles. Besides the facial muscles, other muscles in your body work in harmony too. In order to take a single step, for

With the joint contraction of your facial muscles, you can assume expressions similar to those above.

example, 54 muscles operate at the same time. Thus we can easily make hundreds of movements, which seem ordinary to us. But having read of all this one should stop and think, because people do not contribute anything at all to the functioning of these muscles. If the muscles did not function properly, it would not be possible to take even a step, let alone run, swim or ride a bicycle. Therefore, we should keep a very important truth in mind: Allah created a perfect system in the human body. This is a gift from our Lord. What we should do in return is to reflect on Allah's infinite mercy, to remember His greatness and to give thanks to Him.

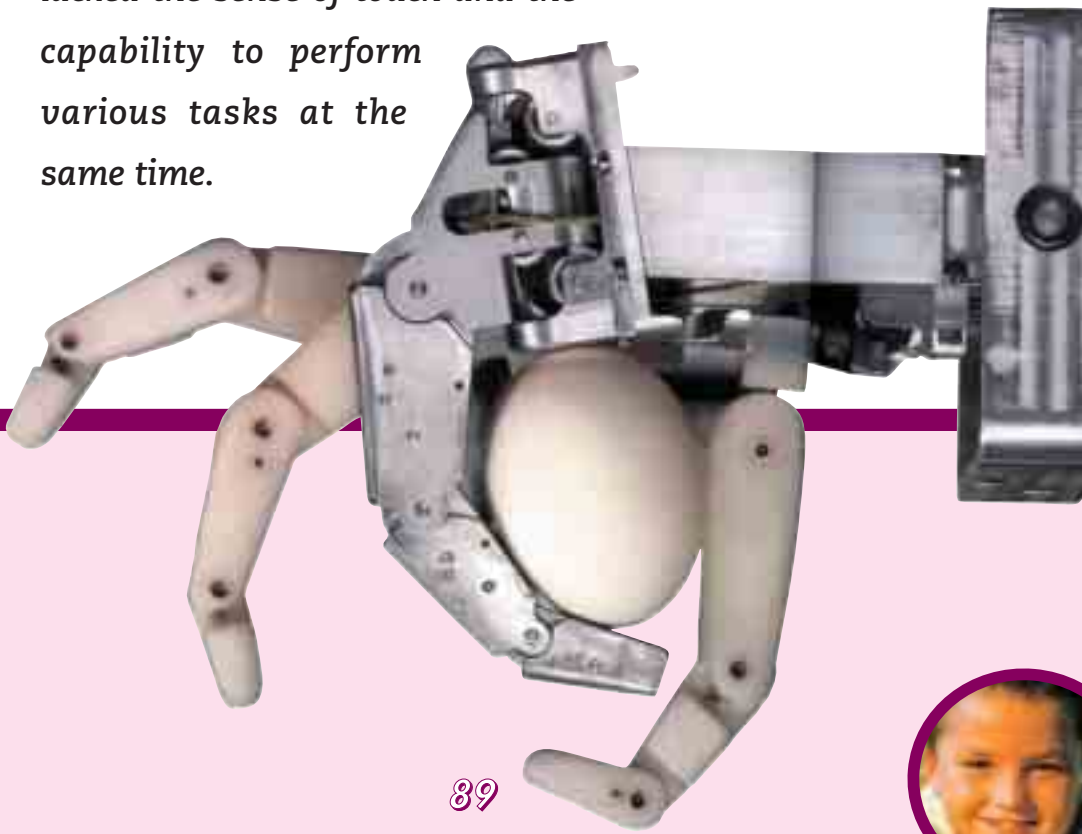
The Hands Handle Everything Skillfully

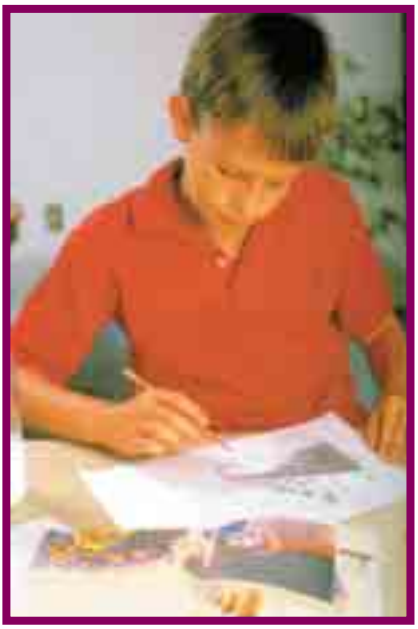
Turning the pages of a book, opening a car door, washing one's hands... These are merely a few of the things that we frequently do using our hands, without experiencing any difficulty. We use our hands in performing hundreds of other acts as well.

A human hand is so strong that it can exert a pressure of as much as 45 kg (100 pounds) on an object without even clenching the fist. Besides such strength, we can also use our hands in very delicate and fine acts, such as threading a needle, whenever we so wish. While one group of actions requires a great deal of strength, the other requires strict accuracy. We, however, do not even realise how remarkable are the achievements which our hands bring about in reality. We never consciously decide

to exercise a force of 500 grams (1.1 pound) in order to pick a piece of paper up from a table or to exercise a force of 5 kilograms (11 pounds) in order to throw a ball. We perform all such things automatically without conscious thought, since Allah created us perfectly. The remarkable competence of our hands is the result of Allah's matchless creation.

Did you know that one of the greatest attempts of scientists has been to make an artificial hand similar to a human hand? Robot hands made so far have been equivalent to the human hand in terms of strength, yet have lacked the sense of touch and the capability to perform various tasks at the same time.





You can freely do anything you wish using your hands. You can write, eat food, wash your face, hold a ball and so on. Furthermore, you can do all these things without experiencing any difficulty. Artificial hands, however, which scientists and technicians have produced after years of study, can perform only a limited number of tasks.

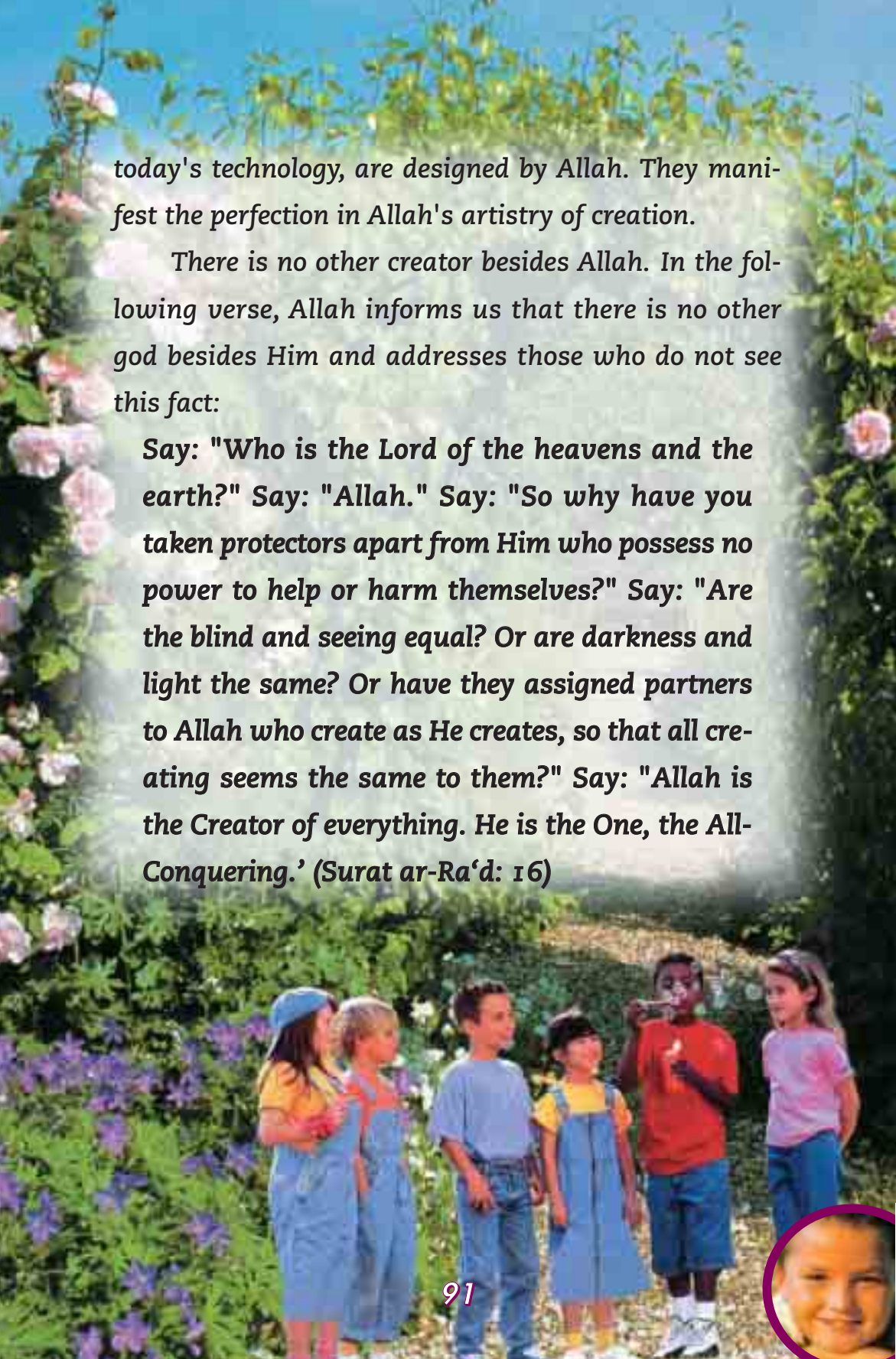
As a matter of fact, it is the opinion of many scientists that a robot hand possessing all the functions of a human hand cannot be made. Engineer Hans J. Schneebeli, who has designed the robotic hand known as "The Karlsruhe Hand", stated that the more he worked on robotic hands, the more he admired the human hand. He added that they still need a lot of time to be able to tackle even a few of the jobs accomplished by the human hand.

Our hands, which cannot even be imitated by

today's technology, are designed by Allah. They manifest the perfection in Allah's artistry of creation.

There is no other creator besides Allah. In the following verse, Allah informs us that there is no other god besides Him and addresses those who do not see this fact:

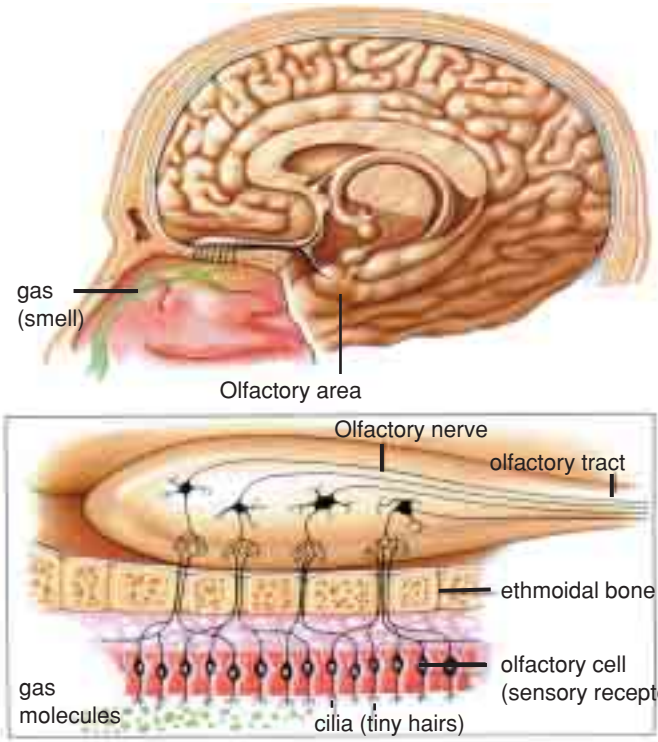
Say: "Who is the Lord of the heavens and the earth?" Say: "Allah." Say: "So why have you taken protectors apart from Him who possess no power to help or harm themselves?" Say: "Are the blind and seeing equal? Or are darkness and light the same? Or have they assigned partners to Allah who create as He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



THE AIR CONDITIONER RUNNING NONSTOP IN OUR BODY

Breathing is one of the acts that you unconsciously perform throughout the day. Many processes take place during this action, in which the nose, windpipe and lungs are involved. In reality, breathing means feeding oxygen to your body cells. Cells cannot survive unless they are provided with oxygen. This is why you can hold your breath for only a brief time. If this duration is lengthened, your cells die, which results in the death of your body.

The air you breathe is first cleaned in your nose. Your nose, which carries out air conditioning, is lined with hairs that function like a filter. These hairs process the polluted or cool air to make it agreeable to the lungs. It is thanks to these hairs that the air we take in is fil-



Hairs lining the nose act as an air conditioner, cleaning and humidifying the air we breathe in. Thus, our bodies are protected against numerous microbes.

tered, cleaned, humidified, warmed and purified of bacteria. Indeed, these tiny hairs protect our bodies against about 20 billion particles of foreign matter every day.

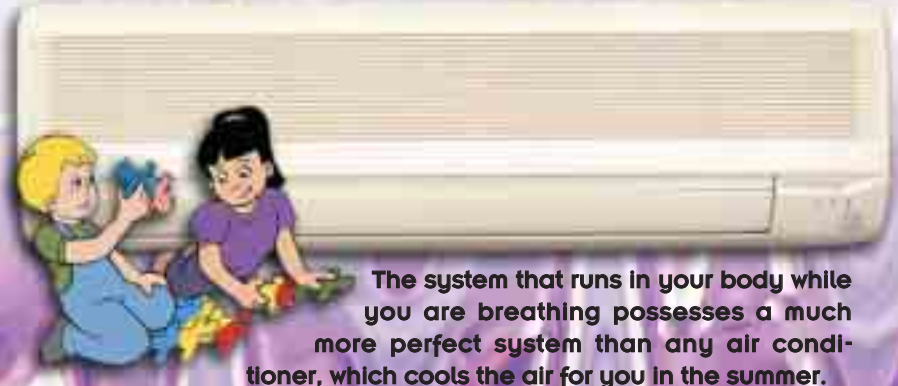
Twenty billion is about 3 times the world population. It is quite a thorough process that the nose knows and by which it distinguishes that many particles of foreign matter. Twenty billion particles of foreign matter cannot possibly be recognised and hindered from passing through the nose by chance. This clearly reveals the greatness of Allah's power of creation. Some people, however, claim

that this happens by chance, even though they are well aware of the truth. Such people, who believe in the theory of evolution, maintain that all living beings, including everything what we have dealt with so far in this book, came into existence spontaneously and as a result of random occurrences sometime in the past. Do you wonder why they do so? They claim so in order to deny Allah's existence. And to do that they think there is only one way, which is to claim that everything occurs by chance. However, one merely has to give it a little thought to grasp how senseless this claim is. Now let's take the system in the nose as an example to refute this claim.

The air conditioning system in the nose is another perfect part of the human body. Surely such a perfectly running system could not have come into existence as a result of coincidences. Making a comparison may help us to comprehend this impossibility better. Consider an air

conditioner, which controls the temperature so as to protect you from heat in the summer and to warm you up in the winter, and which is remote-controlled. Could such a system have come into existence by chance? What would happen if all of its parts were disassembled and left in that condition? Would they come together in time and turn into a complete air conditioner on their own?

Certainly not. For any machinery to come into being, some intelligent person should work on it. This is quite incontrovertible. Let alone machinery, even in a jigsaw puzzle somebody has to reassemble the pieces correctly in order to get the picture. Your nose, which functions as an air conditioner, is composed of numerous components too and possesses a much more perfect system than any air conditioner in the world. Just as an air conditioner cannot come into being by chance, neither can a nose, which is even more advanced. This fact reveals to us that this organ,



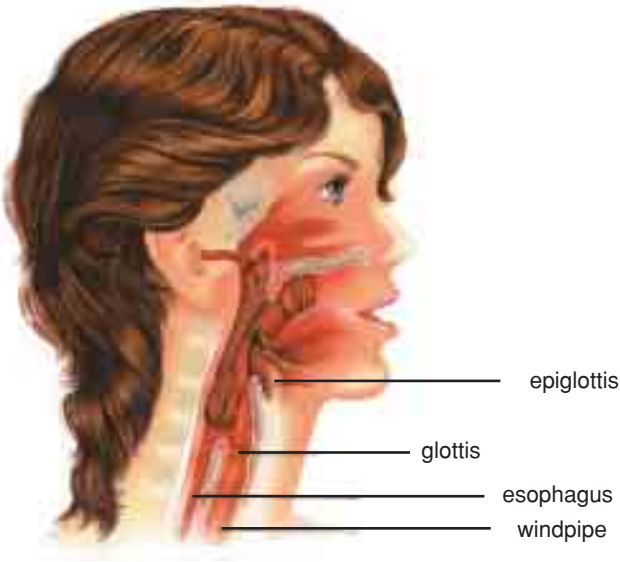
The system that runs in your body while you are breathing possesses a much more perfect system than any air conditioner, which cools the air for you in the summer.

which is known as "the best air conditioning system in the world", is created by our Lord. Allah stresses His attribute of Creator in the following verse:

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

Hairs in the Windpipe That Can Navigate Faultlessly

The air that is purified in the nose will proceed through the respiratory tract. The next area for the inhaled air after the nose is the windpipe. In this air, there is still foreign matter—like dust—that is harmful to one's health. Therefore, it is necessary to have the inhaled air go through another security check before it reaches the lungs. This security is ensured by the slippery layer that lines the surface of the respiratory tract. This membrane is called mucous layer.



In the air we inhale, there are many microbes and harmful substances. We are protected against many of these thanks to the hairs lining the respiratory tract. They cannot harm us thanks to this system that Allah created for us.

Mucous, which forms this layer, grasps tiny particles like dust that we've taken in together with the air and hinders them from entering the lungs. Yet, in addition to this, the accumulated foreign matter must also be eliminated from the body. At this point, another security mechanism comes into play. This mechanism consists of tiny hair-like structures called cilia, which lie under the mucous layer. These tiny hairs rhythmically beat upwards towards the mouth. This can be compared to ears of wheat waving in the wind all in the same direction. Thanks to this movement of the cilia, mucous, which holds the foreign matter, is carried upwards in the wind-

The hairs in the windpipe, seen in the picture above, grip the foreign particles and prevent them from entering the respiratory tract.

pipe.

Once this foreign matter is drawn up to the throat, you naturally feel the need to swallow it. So all the foreign matter that could harm your health is passed to the stomach, where it is disintegrated and destroyed by the gastric juice.

The cilia placed in the windpipe do not have eyes to see, nor do they have brains to give them intellectual ability. Still they can determine the position of the pharynx, which is too far from themselves in comparison with their sizes. Besides, being aware of the possible harm of foreign matter,

Why is the air we breathe is so important? Why do people die if they are unable to breathe for more than a certain period? Let us answer these questions as follows: Oxygen is the main nourishment of body cells. The muscle cells in your hands are continuously fed with oxygen so that you can hold this book. And for this, you have to breathe air.

they do not let them enter the body. Despite years of scientific research, the mechanism of these hairs has not been fully discovered. But remember that these hairs, whose system has not been found out by human beings yet, have been working perfectly like all other components of the body since the first man was created on the face of the earth.

Sometimes a chunk of food or drink accidentally slips into your windpipe, which triggers the reflex to cough. Coughing forms a high-pressure air burst, by means of which the piece that slipped into your windpipe is expelled out at a speed of up to 960 km (595 miles) per hour. Considering that the maximum speed of the fastest race cars is 250-260 km (155-160 miles) per hour, we can better comprehend what a wonderful protective mechanism our bodies are equipped with.

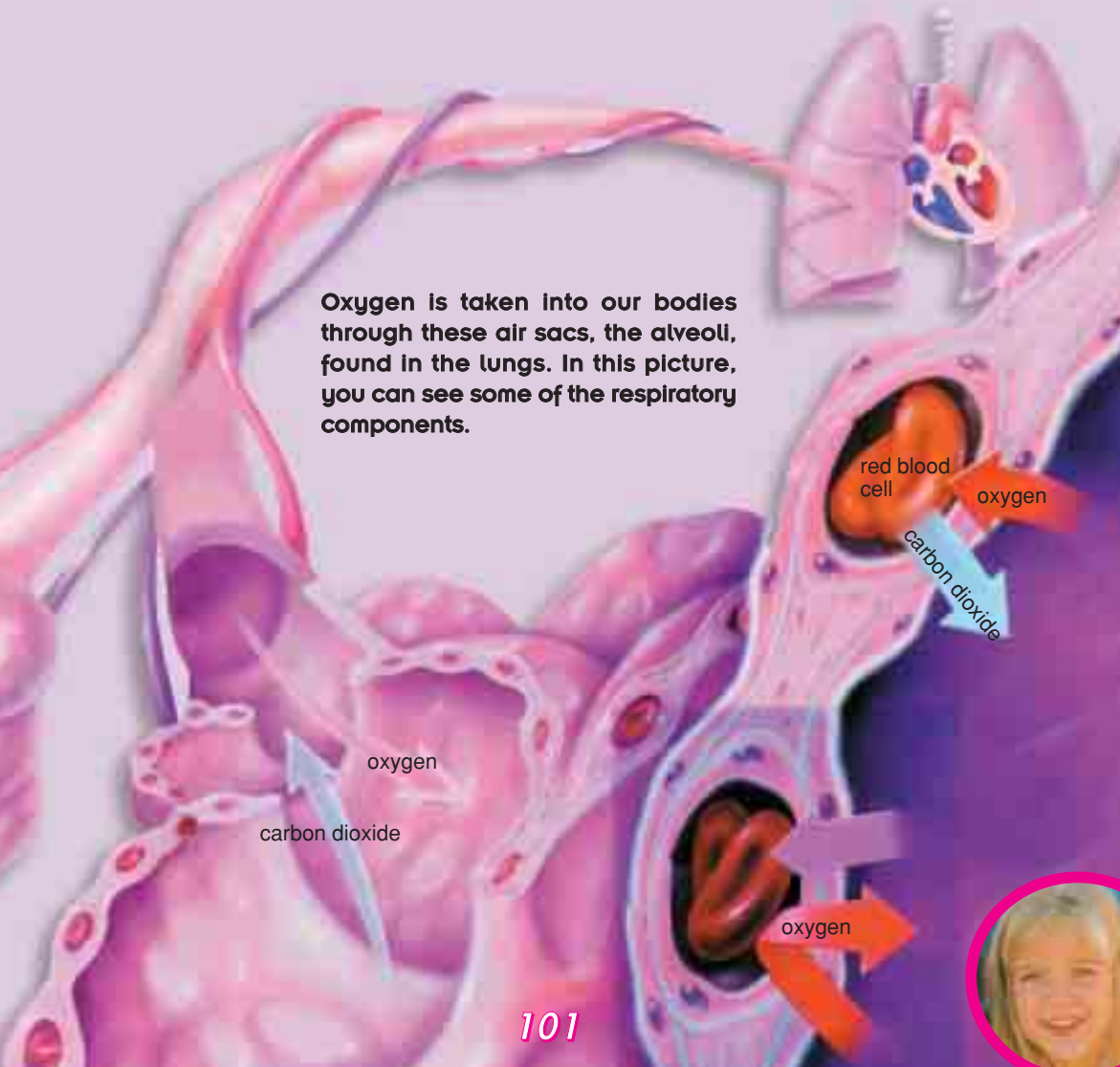
the breathed in air is now IN THE LUNGS...

The air that comes to the lungs is ready for use as it has been cleaned and its humidity has been regulated through the windpipe. By means of blood circulation from the lungs, it is conveyed to all cells of the body to nourish them. In the meantime it receives from the cells carbon dioxide, which is a waste material. When we expel breath, we give out this carbon dioxide that is collected from our cells.

You may consider breathing a simple process, but a significant exchange of oxygen and carbon dioxide takes place deep inside your body. All these are Allah's gifts to us; He created all of them and placed them at our service. Consider how it would be even if merely respiration were under our conscious control. We would not be able to faultlessly carry out this process. We would get tired and would eventually give up after some time. Our Lord knows that we cannot perform this task on our own. So He created the respiratory system which

runs perfectly like all other systems as we have explained throughout the book. This is one of the gifts that Allah has given us in this world. As stated in a verse:

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



Oxygen is taken into our bodies through these air sacs, the alveoli, found in the lungs. In this picture, you can see some of the respiratory components.

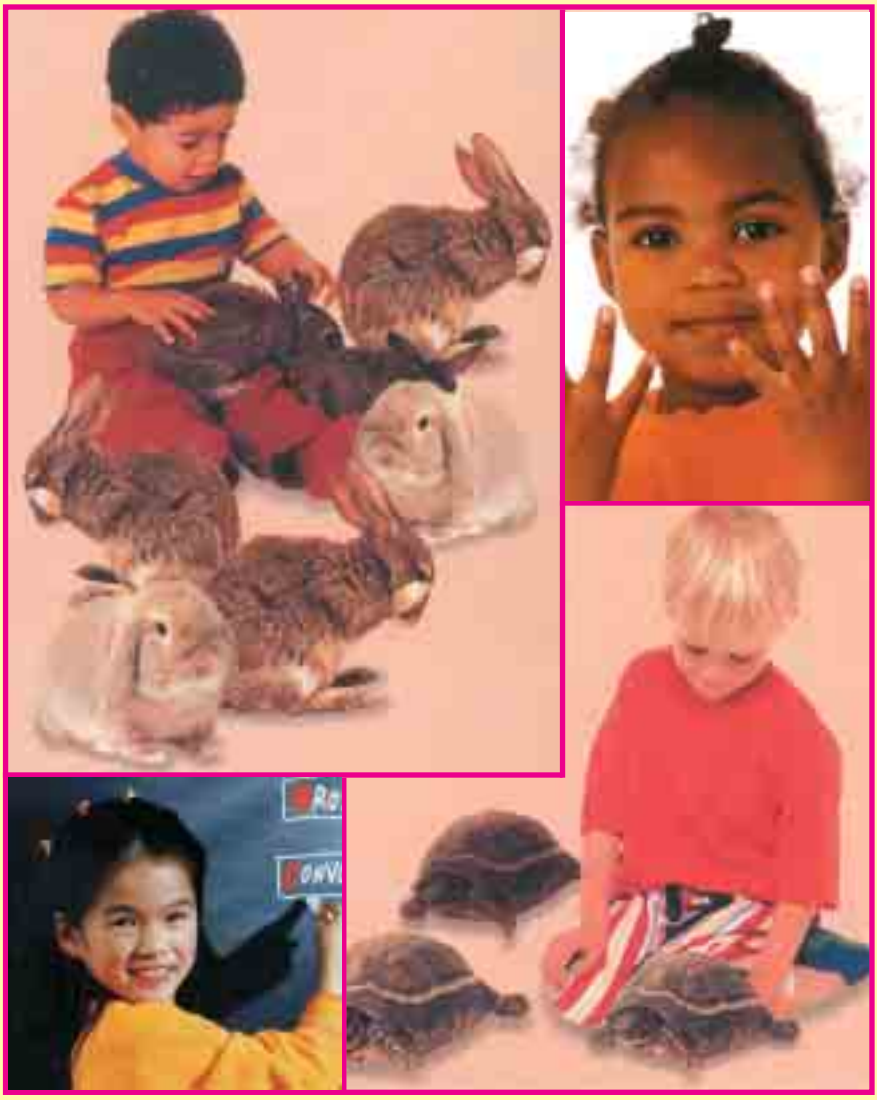
CONCLUSION

In this book we gave some examples and explained that there are many processes taking place in our bodies while we are completely unaware of them. Every organ and every cell of our bodies run with an incredible speed and function perfectly at the same time. All perform the tasks that they are appointed to in harmony. Blood keeps conveying to cells the nourishment that they need to live. The stomach and intestines break down this nourishment into pieces and make it suitable for use by cells. Nerve cells keep sending stimuli to all parts of the body; the brain evaluates these stimuli, as a result of which we see, hear, taste and per-

ceive all other senses.

When one of these tasks is delayed or not performed, the regular order of the bodily functions deteriorates. If nerve cells become impaired, our limbs will not work; if stomach cells become impaired, we cannot digest the food we eat; if the cells in the tongue become impaired, we cannot taste the chocolate cakes, oranges, bananas or cookies we eat. However, except in the case of certain diseases, none of the above happens. Every component of your body keeps performing its regular functions non-stop while you are living your everyday life. The perfection that you are blessed with at every instant of your life surely has a cause. Nothing can originate on its own to have such a complete and faultless mechanism.

Your television, refrigerator, computer, the pens you



use while writing, briefly everything has a designer and a producer. A car or a plane cannot come into being on its own. Their operation is enabled by engineers and technicians who designed and produced them. This being the case, it is simply not possible for such a perfect entirety of

systems as the human body to come into existence by chance.

You must be wondering how it is that some people think that their bodies function so perfectly as a result of mere coincidences. This is indeed the most unreasonable claim that could ever be put forward. The excellent order in the human body could not have come into existence by chance. This excellent order proves that it is designed by a Being with supreme intelligence and wisdom. It is the creation of a supreme Creator, our Lord.

Allah informs us in the Qur'an that He is All-Compassionate to His servants. What we should do is be submissive to Him, obey His commands completely and give thanks to Him for all the beauties He has given to us. In a Qur'anic verse, Allah addresses us as follows:

That is Allah, 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)

They said, "Glory be to You! We have no knowledge except what You have taught us. You are the All-Knowing, the All-Wise." (Qur'an, 2:32)