

Brain, Heart & Liver

Tell their Own Stories

Dr. Shamsul Islam Farooqi (Alig.)

Foreword

Almighty Allah has created this vast universe. The planet Earth is but a small speck of it. Yet to us, the human beings, it appears so huge, majestic and diverse. It harbours an enormous variety of plants, animals and non-living things. The living beings on the Earth alone are said to be living 15 lakh species. The man appears on top of all of them endowed with such magical faculties that he assumes the leadership of them all.

It is why Allah has appointed the man as His deputy (*Khalifa*) on the Earth and has appointed him to rule this planet till a definite term which is known to Him alone. The human beings have been gifted with diverse talents which can work miracles and create wonders on the earth.

The human body has around 100 trillion living cells. The body is like a machine which stands on a frame made of 206 bones wrapped with 50 muscles which power the man to perform a range of activities. The medical science has not even been able to name all the muscles so far.

The human body is an extremely complicated structure with elements like oxygen, carbon, hydrogen, nitrogen and calcium being at the base of it. If an individual weighs 70 kilogram, the abovementioned base elements would weigh 69 kgs. Other elements such as phosphorous, sulphur, potassium, sodium, chlorine and magnesium would be about 0.25 kg. Iron is just around 4 grams, zinc 2.3 grams and silicon would constitute about a gram. But it is not possible for anyone in this world to produce a human being if all these elements are given to him in the appropriate proportions. It was only Allah's miraculous might that put soul into a combination of such elements and gave rise to a man who can speak, eat, work, sleep, sit, stand, run, lift, see, hear, and above all think and innovate. No one else has this wonderful capacity to put together a species like human being.

The most important organs in a human body that continually function and perform varied physiological activities are called 'vital organs'. Most important among them are brain, heart and liver.

Our respected friend, a renowned scientist, Dr. Shamsul Islam Farooqui, has put together this booklet throwing light on these three vital organs of the human body and has unveiled the breathtaking range of their functions that keep the human body in functioning mode. These hide in themselves a treasure trove of Divine miracles that they keep

going routinely without a minute's pause. One would be surprised to know their vital importance in their entirety.

Just ponder over the fact that our brain consists of 100 billion cells. All our sensory functions such as hearing, seeing, tasting, speaking, smelling, thinking and countless other functions are controlled by the brain. It is also worth contemplating that nearly a lakh of brain cells die every day and never get regenerated. But don't be afraid, for even if one attains an age of 70 years, he would lose merely 2.5 billion brain cells and would still be left with more than 97 billion brain cells to work for the rest of the life.

The human heart starts beating in the womb of the mother long before the child is delivered into this world. It beats at a rate of one lakh times in the span of 24 hours and pumps blood to fulfill the various requirements of the entire range of organs and limbs all across the body travelling through 100,000 kilometres of arteries and veins. One would be surprised to know that it pumps 350 million litres of blood in the body of a man during 70-year lifespan. If the heart stops, the man dies and life comes to an end.

The role of liver too is no less amazing. It performs around 500 diverse functions and produces around a thousand useful enzymes.

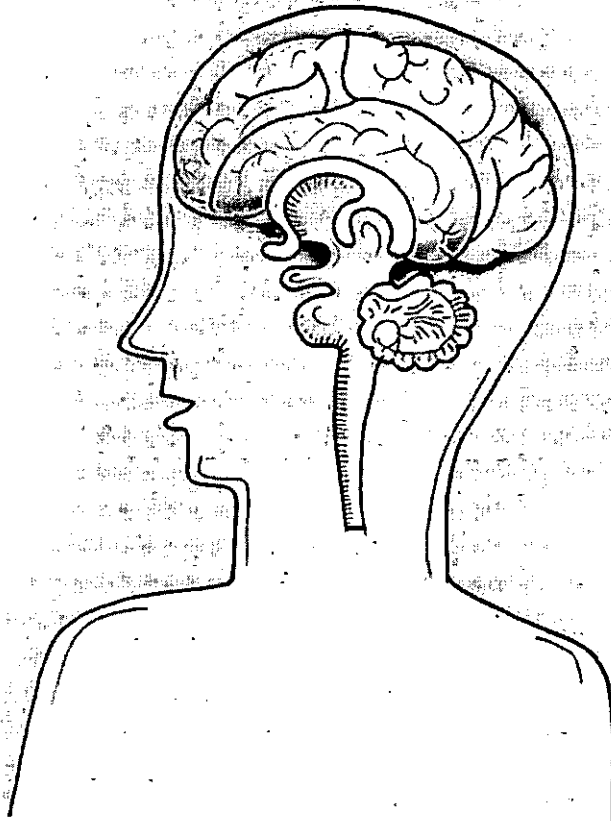
If you could think over merely the functioning of brain, heart and the liver, that should be enough to make you aware of the magnificent workmanship of Allah. The study of this booklet is all likely to set you thinking and pondering over the majesty of Allah and the complications of Nature shaped by Him. It is being presented in English in order that all those who read it can achieve the proximity to their Creator and the Lord. We hope that this useful and interesting booklet will increase your faith, bring you closer to Almighty Allah, and enhance your piety and devotion. And more than that, create in you a genuine taste to know more about other signs of Almighty Allah spread all around us.

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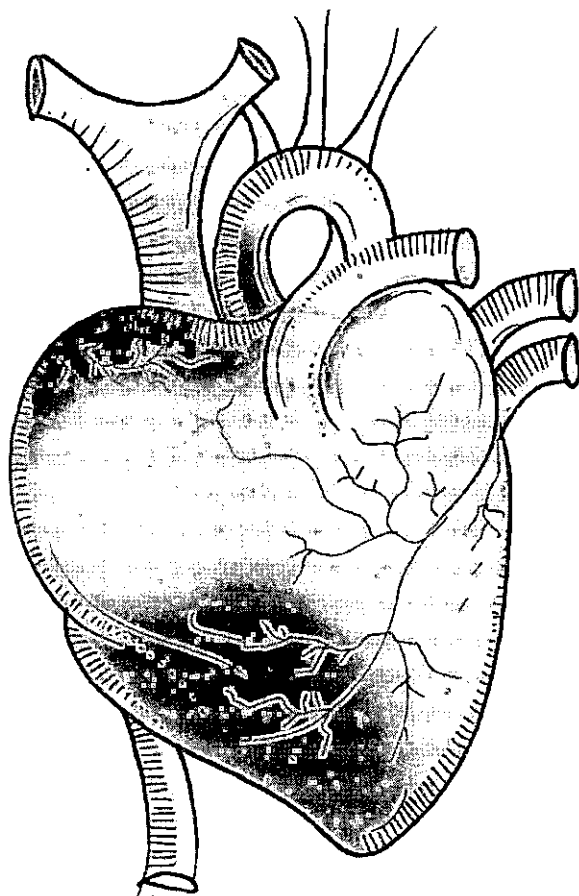
Brain, Heart & Liver Tell their own stories

After dinner when children gathered to chat, somehow a discussion sprang which part of our body is supreme and most significant. Aiman and Ameen were saying that out of all organs, our Brain is the most significant one. That is the reason it has been given the highest position in the body. Our Creator has provided protection



Brain kept in uppermost part of the body

by keeping it inside a strong skull. If at times, it gets hurt, people may become blind, dumb, deaf or indolent. Some even die also. Such a thing does not happen if any other part of the body is injured. Ali Abdullah and Ali Saad were of the opinion that Heart is more important as we are alive on account of its beating. If Heart-beat stops, take a person to be dead. It is our Heart only which sends blood to each and every part of our body which keeps it warm and provides energy as well. We all know when due to some disease, a person becomes very weak, doctors suggest to give blood for recovery.



Heart beating all the time

Abid who was the youngest was giving more importance to his hands and feet. He was telling that without them we can not do any work. Among all children, Shifa was the eldest. She said that it is correct to say that both the Brain and Heart are important parts of our

body but besides there is one more organ in the body and is called Liver. It is so very strange that common people are not even aware of it. One can't think of life without Liver. If its just a single quality is missing, we may not feel hungry. If hunger is not there, we will not take food and without food energy can not be managed. Many more essential functions are very silently performed by the Liver which keep us alive. This discussion went on till late in the night. But no conclusion could be drawn and the gathering dispersed.



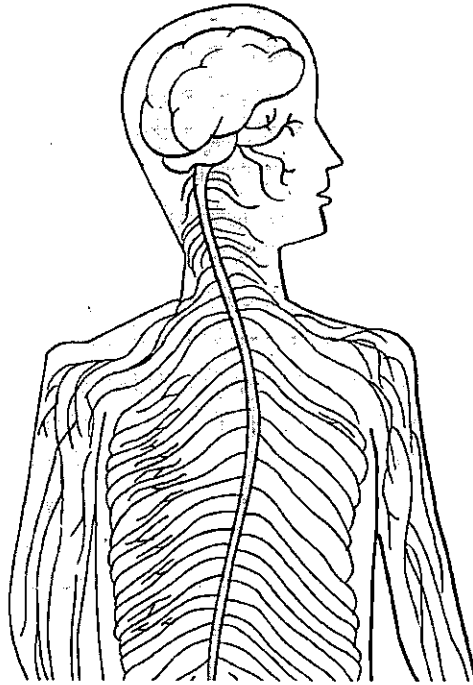
Liver connected with stomach through gall bladder

Out of these children, Shifa was the eldest. She was now twelve years old and studying in seventh standard. Aiman and Ameen had attained an age of eleven and ten years respectively and were in sixth class. Ali Abdullah and Ali Saad were in fifth class and were nearly nine years old while Abid was the youngest. He was only eight years old and was in third standard. Among these children, only Ali Abdullah was bestowed with extra intelligence by Allah. He would try

to reach to the depth of every thing after lot of thinking. He will not be at rest until a thing is fully understood. The discussion about Brain, Heart and Liver was in his mind when he reached his bed. Infact, he was desirous of knowing which part of his body is more important. At last thinking about them, he fell asleep.

He had hardly slept for a while when he found himself in a big hall. He was sitting on a chair kept at the centre of a dais and was chairing a meeting. Among guests were his brothers and sisters who were sitting on his right and left on the dais. Among audience in front rows were his neighbourers and his parents and grand parents. Three strange person were also sitting at the corner of the dais who had to deliver their talks. In fact they were Brain, Heart and Liver in person who had come to express their contributions. As proceedings of the meeting started, Ali Abdullah addressing the audience said:

“Friends you will be happy to learn that in our today’s meeting, M/S Brain, Heart and Liver have come. We are grateful to them for



Brain sends nerves to all parts of the body

accepting our invitation. All three guests will enlighten us on their role in human bodies. After listening to them, it will be easy for us to decide who among them is the most significant. First of all, I am requesting Mr. Brain to come and present his views.”

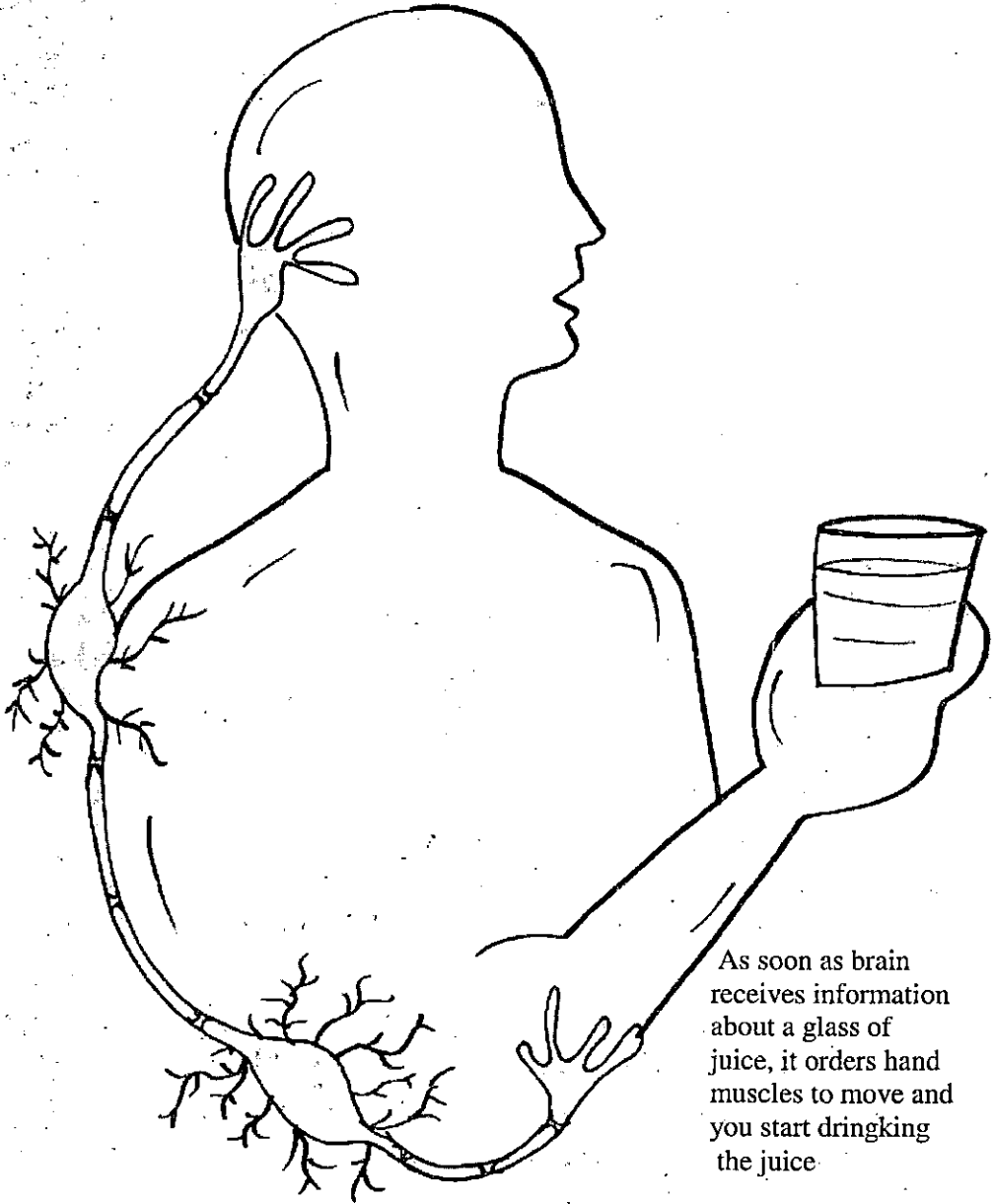
Among loud applauses, Mr. Brain got up and addressing the audience said:

“Respected chairman and listeners! I am thankful to you for providing me an opportunity to say something. You already know that I have been provided the highest position in the human body. This itself is the greatest evidence in support of my importance. I am housed in a strong skull which is seven to eight inches long and a little less broad. My weight is nearly one and a half kilogram, and I look like a sticky pulp of white-grey colour. But you will be highly surprised to know that within such a small place, nearly one hundred billion cells combine to form my egg like shape. Call it a good or bad quality but it is a fact that fresh cells are not added to me like other parts of the body. This means when old cells of other parts die, they are replaced by new cells but similar process is not repeated for my cells. When some of my cells die, they die for ever. However this does not mean that my working suffers. Even after the death of these cells, all my activities continue as before.

Common people consider me as part of their body which is not correct. If they see with their eyes, it is because of me. In case they smell with their nose, or taste with their tongue, they smell and taste because of me. Sense of cold, heat, peace, happiness or sadness is possible because of me. Similarly their hands, feet and all their organs work because of me only. In fact no work is possible in my absence.

Friends! You must be thinking why I say so. Let me explain. Think about your eyes. When light rays enter them after being reflected from various objects, the lense present there makes an image at the back of your eyes but you are unable to see it. First an image gets converted into a chemical code within the eye cells and then

conveyed to me through a network of those cells of mine which spread in the whole of your body. I again convert code into image and then show it to you. Same thing happens while listening, smelling and tasting also. You lift a glass of juice from the table and drink it. This is



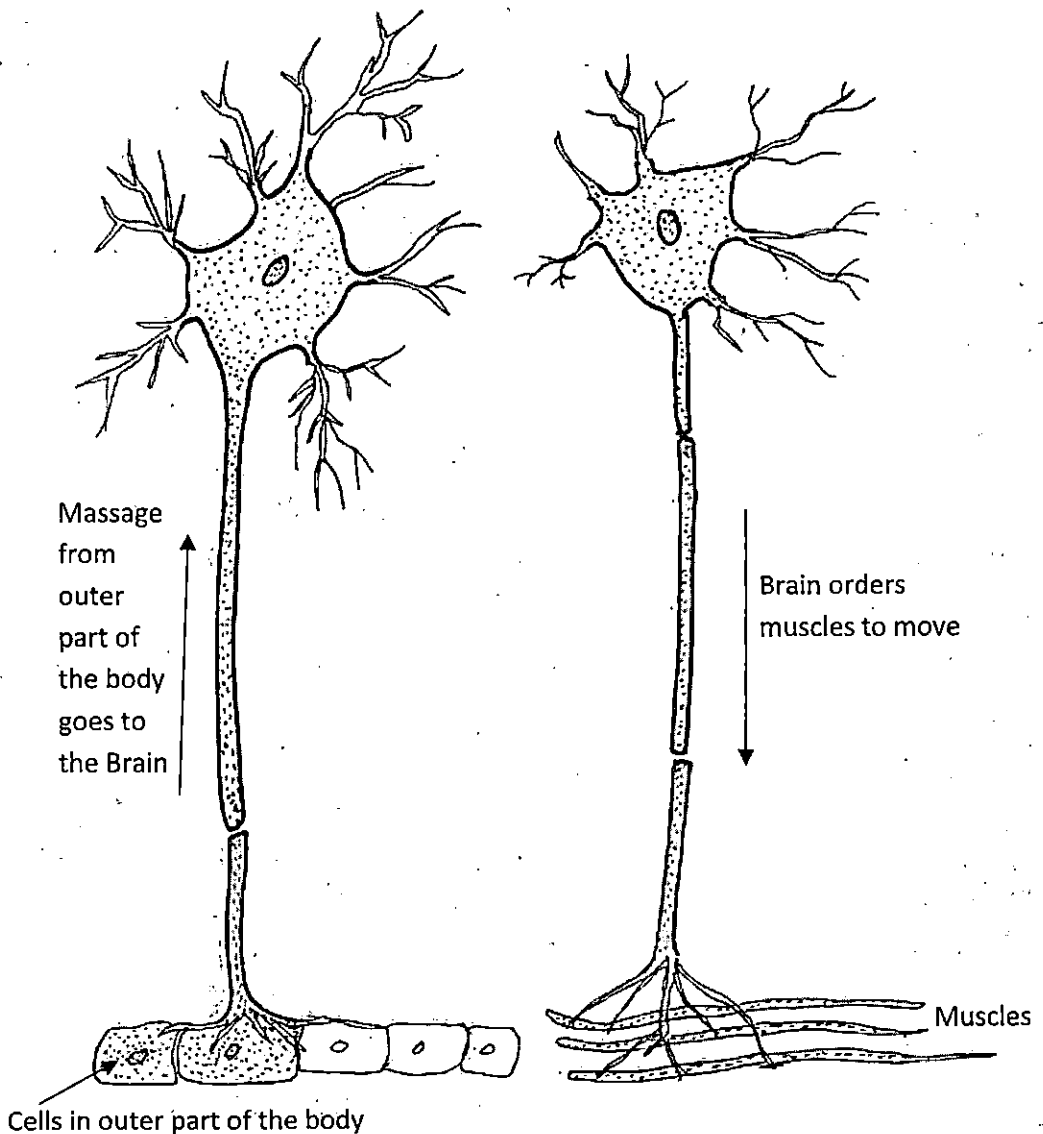
As soon as brain receives information about a glass of juice, it orders hand muscles to move and you start drinking the juice.

only possible when I get the information about the presence of glass and issue orders to your hand muscles which make you to lift the glass and drink it.

Did you ever think that you breathe at your own will or it is by itself? Think it continues all the time whether you are sleeping, awake or doing some work. Your chest muscles continue to expand and retract by my orders. When it expands, the breath goes in but when retracts it comes out. You do not have any control over it. At times, you run fast. Your chest quickly goes up and down like a bellows with which you breathe fast. Do you think it is because of running? Certainly not. The fact is that because of running fast, your body muscles consume more oxygen and a shortage is created. This information is given to me and I issue orders to chest muscle to expand and retract with a greater speed so as to quickly consume more oxygen and compensate the loss. The moment it is compensated, you start breathing normally.

It is true that I am locked within your skull but my fibrous cells spread throughout your body. They are connected with me through your nerve cord. Through the network of my fibers, innumerable massages continuously reach me from various parts of the body and I issue orders for each one of them with an electrified speed.

You may not even think with what tremendous speed I work. You only feel as if every work is being done automatically. The moment your eyes fall on an object, you see it. The moment someone calls you, you hear his voice. The moment something is brought near to your nose, you smell it. The moment an eatable touches your tongue, you know its taste. Similarly as soon as you look at a glass of juice, you lift and drink it. In fact I do all these works in one thousandth of a second. Perhaps you may not visualize how short is this period. You just close your eyes and then open slowly. This takes place in one second. Now imagine how small will be one thousandth of a second.



Recall, at times this speed becomes still faster. Unknowingly you touch a hot utensil. Think with what electrified speed you remove your hand. Similarly if suddenly you come across a danger, you save yourself with remarkable swiftness, which you can't even imagine. Such messages do not reach me as the nerve cord itself issues necessary orders.

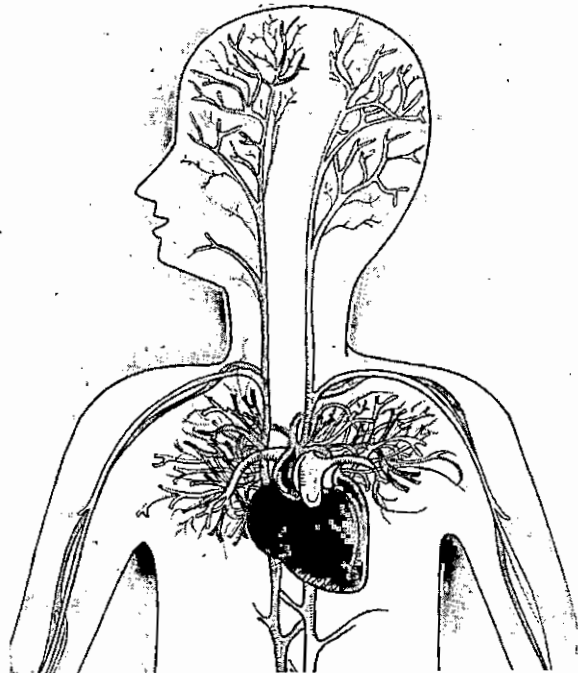
Perhaps you are not aware that I never take rest. At night when you are asleep, I remain awakened. Lying longer on one side creates

numbness, then I issue orders to your muscles and you will be on the other side during sleep.

One quality of mine is extraordinary. What all events happen in one's life are safely preserved in me. This being the reason that one is able to narrate one's childhood mischives even at old age. Whatever you had read in books also gets preserved. In the absence of this, appearing in exams, quoting references while talking to someone, writing or giving a speech was not possible. Innumerable smells or tastes are safe in me which can be recalled from your memory.

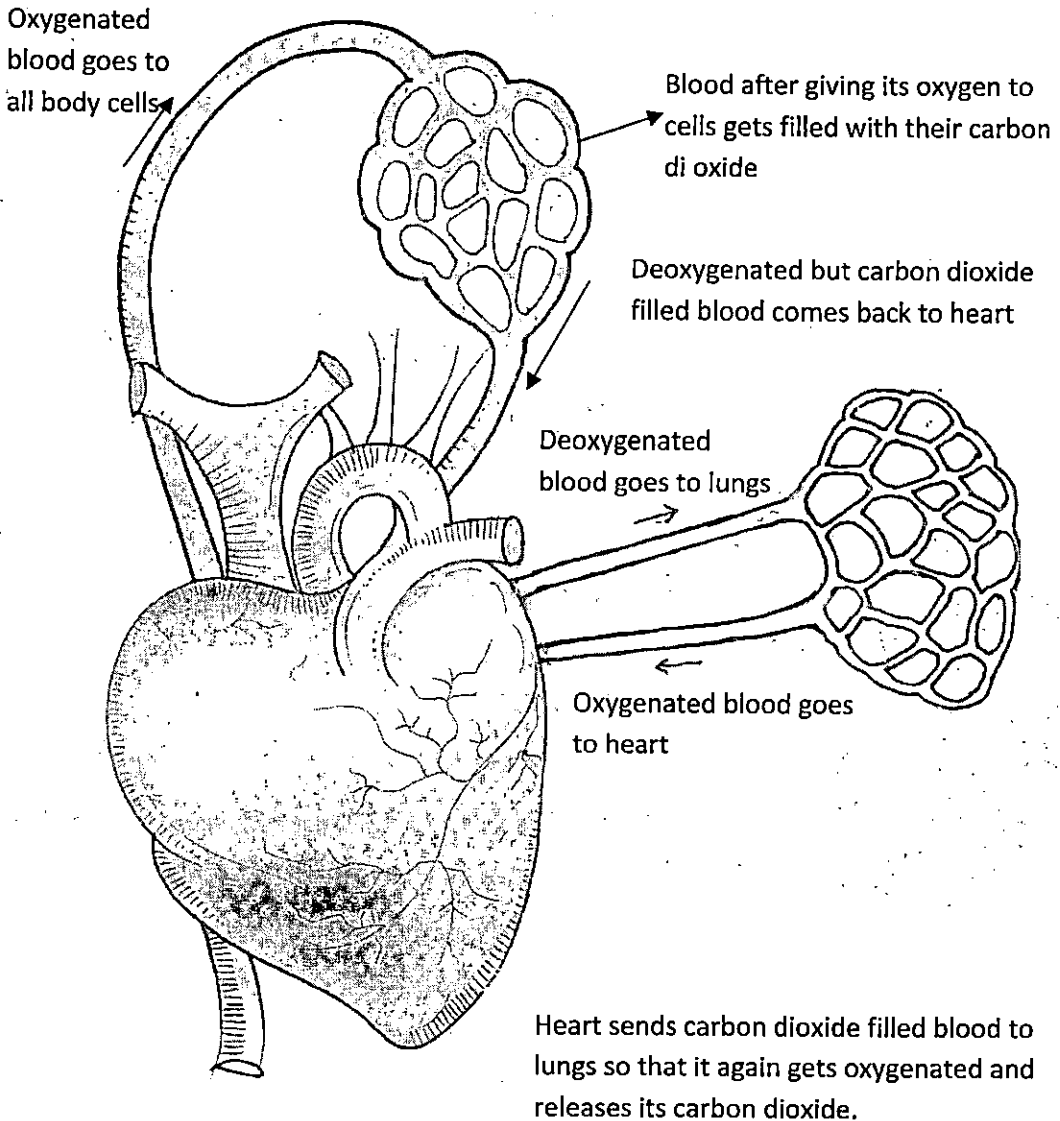
On the one hand, I can remember thousands of events but forgetting several of them is also my quality. Every person is bound to come across many sad events during his life. If these events become a permanent part of the memory, the life may be awful and unbearable. All such events are continuously thrown out of my memory.”

With this, Mr. Brain completed his talk and sat down on his chair after which, Ali Abdullah invited Mr. Heart to come and present his views. He came and said:



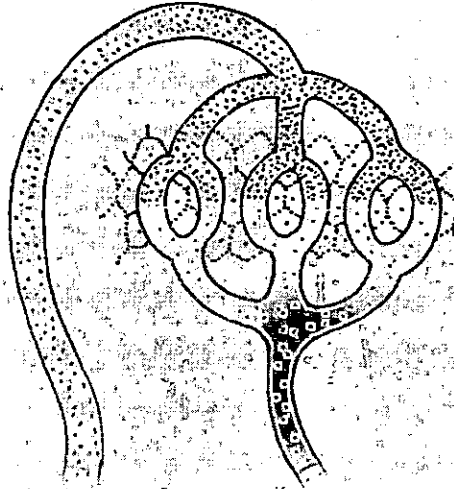
Blood Vessels spreading in all parts of the body

“Friends! Just now my friend Brain told you about his qualities. Undoubtedly, whatever he said was correct. No one can deny his services for the human body. Certainly he forms an extremely important part of the body but you just enquire if he can keep himself alive even for a while without his essential diet glucose?¹ Who provides this glucose to him? In his comparison, I am too small, just like your fist only but it is me only who maintains a regular supply of



¹ Glucose: A type of sugar

the required quantity of glucose to him. My body constantly works day and night like a powerful pump and sends blood, a blessing of Allah, to all cells of the body through my vessels so as to keep the body alive and healthy. It is the blood that gives a regular supply of glucose to the Brain.



Oxygen from blood diffuses through their vessels into cells and similarly carbon dioxide present there comes in them

I admit that I am very small. I am nearly 6 inches long and 4 to 5 inches wide. I am broader above but taper downwards, giving me a shape of a pear. With the help of special membranes, I am hanging inside your chest somewhat towards the left in between the strong ribs and nerve cord. In spite of being small, my muscles periodically expand and contract like a powerful pump and keep the blood flowing with oxygen and other nutrients. My periodic expansion and contraction is called "Beating". I had started beating even before your birth and will keep beating till the end. I never feel tired. I repeat my action of beating 72 times in one minute and have to do this work four thousand three hundred twenty times in one hour while one Lac three thousand six hundred eighty times in a day. You yourself can find out

how many times I might be doing this work during an average life of seventy years. I hope it will not be possible for you to calculate.

As a pump, I am really as small as I told you. But could you separate me from my innumerable vessels of varying size? These, after coming out of me get spread out and branch in the whole body like a network. Microscopic ends of these vessels reach in each and every cell of the body. Perhaps you may not be in a position to visualize the total length of these vessels. If all these blood vessels are spread out in a line, their length will reach upto about 60,000 miles. You must have startled up but this is a reality. With these vessels of mine, I perform such significant services which keep a person alive and healthy.

Could you visualize how much energy I require for contracting once? You take it like this that with this much energy, I can push the blood up to the height of three meters. In fact this is called blood pressure. When I contract, this pressure is 140° and when I relax, it comes down to 90°. Former is called Systolic while the latter as Diastolic blood pressure. Often this pressure starts rising which means my rest is insufficient and I am working hard. This is an indication of disease and appears only when people start using more of ghee, oil and sweets. This adds fat over stomach and hips. At the same time, the vessels become narrow due to deposition of fat particles. I have to work hard for pumping blood in these narrow vessels. If hard work continues longer, then who could stop me from falling ill.

If some times you are disturbed or worried, then also my speed increases from normal. Similarly fear, anger, hatred and jealous feeling also put pressure on one's mind. Bidi, cigarettes, tobacco and other intoxicating things increase one's blood pressure adding to my hard work.

You may estimate my strength by the fact that during each systolic beat, it pushes and makes the blood to travel a distance of 60,000 miles. During an average age of a person, I pump nearly 152

million liters of blood. If on an Heart doing this much of labour, you increase the load of work by eating unhealthy food, you will really do great harm. If you wish that I may continue to serve you better, it is necessary to have a control over your diet.

My vessels are elastic like rubber. When I forcefully pump, they get distanced but when I take rest they contract to resume the original thickness. Regular contraction and distention makes the blood to flow in the form of waves. Due to blood flow, a sound of *Dhak Dhak* is produced which can be felt by putting your fingers, with slight pressure, on your wrist just below your thumb. As blood goes forward in the vessels, its pressure diminishes till it reaches in the microscopic ends in body cells where the pressure becomes minimum.

Vessels reaching cells are called arteries. Blood after completing its work returns via other vessels which are known as veins. In these, the blood pressure becomes zero and hence the onward flow is made possible with the help of body muscles. During movement, the muscles press the veins due to which blood moves forward. This is similar to an action where by pressing a water pipe at a point, the speed of the flowing water is increased. Since this blood is deoxygenated and contains carbon dioxide, the creator has made valves at various places in the veins which do not allow a backward flow of the blood. You will be surprised to know that it is during Salah only when blood flows with a maximum speed. The reason being that during Salah your joints repeatedly move due to which muscles press the veins and make the blood to flow forward.

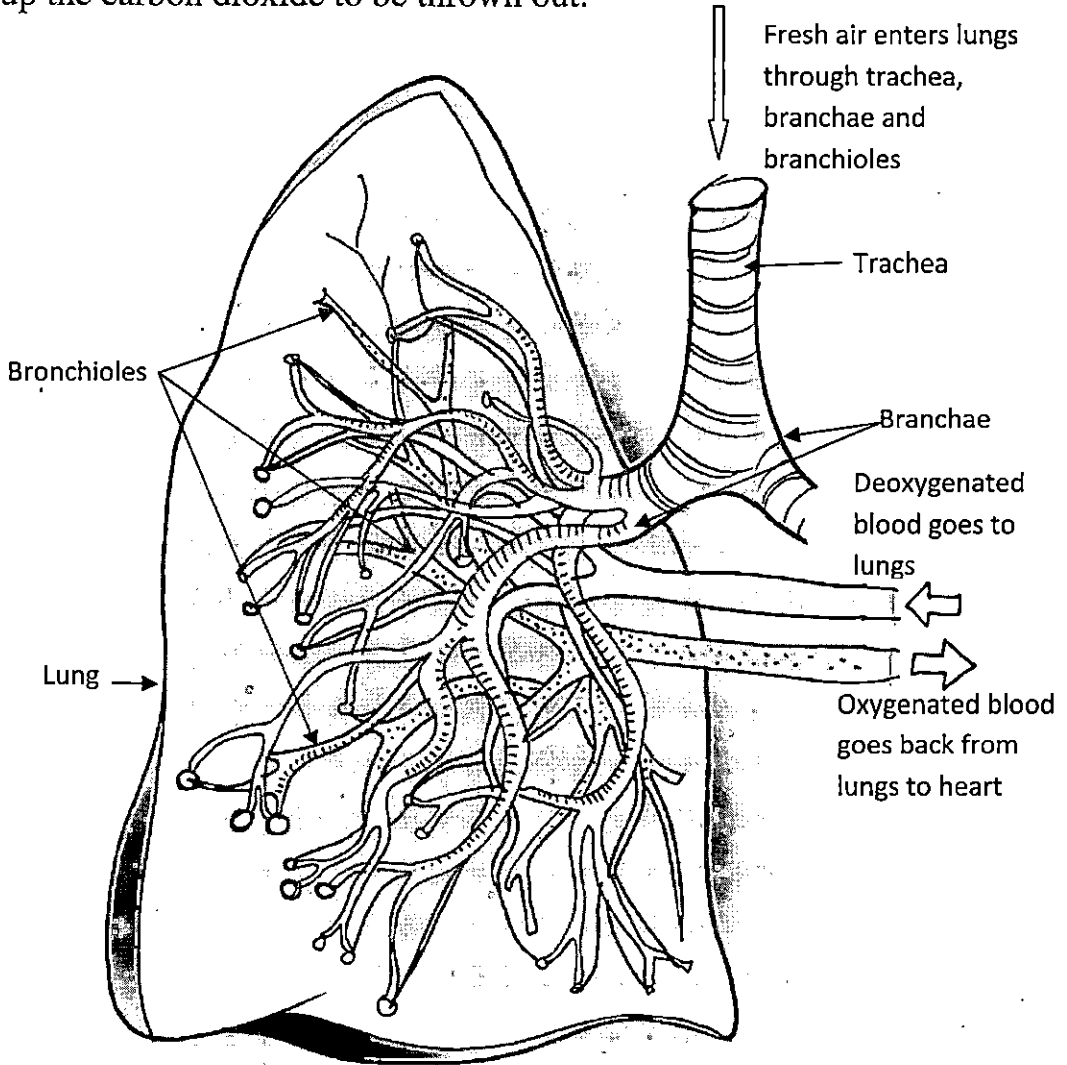
The blood, which reaches to each cell by my action contains white blood corpuscles which destroy germs, energy producing sugar, cholesterol¹, fat, amino-acids², enzymes³ and minerals. Various

¹ Cholesterol: Fatty material an important part of cellwall. Its excess in blood blocks the arteries, resulting in heart disease.

² Amino-acid: An organic acid having two parts, one acidic and other basic. Hundreds and thousands of amino acids combine to form proteins.

³ Enzyme: complicated proteins, enhancing body functions.

bacteria, viruses and other harmful organisms that make an entry into the body are destroyed by white blood corpuscles as they feed on them. Other nutrients produce energy after reaching the cells. They produce harmful things also such as carbon dioxide whose elimination from the body is necessary. This is also done by the red blood corpuscles which after giving their oxygen to cells in turn collect their carbon dioxide. I send them to lungs to refill oxygen again and give up the carbon dioxide to be thrown out.

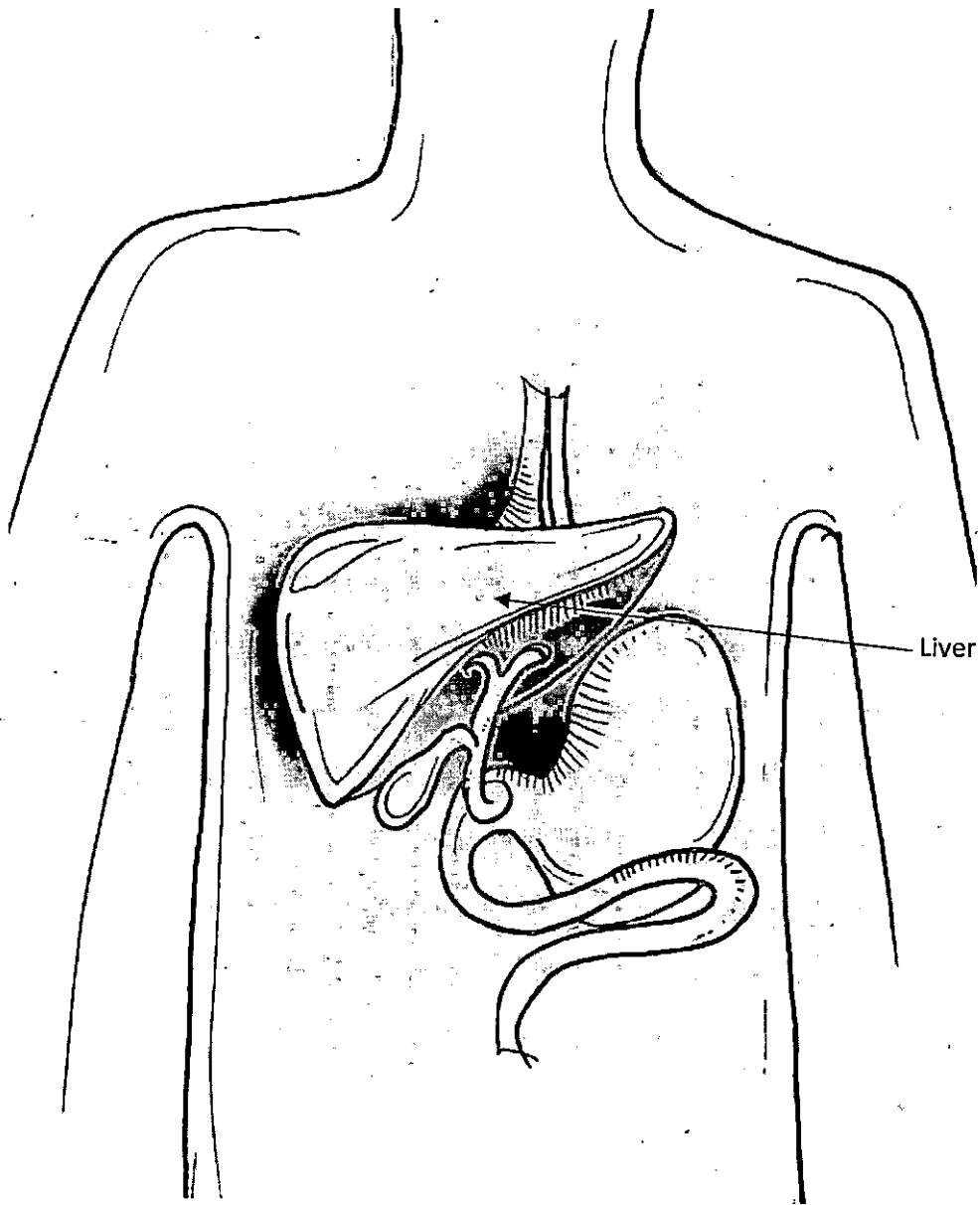


In the end, I will appeal to all of you. You may continue to give you a good service, then you will have to extend your cooperation. To keep me healthy, you keep yourself calm and peaceful as far as possible. Do not have unnecessary desires whose achievement makes you worried. Anger and jealousy should be avoided. Minimise use of ghee and oil and take simple diet. Add morning walk and exercise in your daily routine and be always regular for your Salahs.”

As Mr. Heart finished his talk, Ali Abdullah thanked him and invited Mr. Liver to come and express his views. First of all both Brain and Heart were praised by him for their extremely important role in the human body and then he started saying:

“Ladies and gentlemen! As compared to Brain and Heart, I am not only larger in size but more important with regard to functions also. My weight is nearly 1.36 Kg., shape triangular and colour brownish red. Keeping in view the importance, my creator has provided me a very safe place in the body. My place is in the lower side of the body in between the ribs and the nerve cord. I am the only organ of your body which has been provided the property of regeneration by the Lord. If due to some disease or injury, my two third is removed, I have the ability to regenerate my whole body within six weeks. No other organ has this property.

No one can deny the importance of Brain and Heart but you will see that both carry out only one type of function. Brain receive messages and accordingly issues orders to various organs to do their work whereas Heart is responsible only for the supply of blood to various parts of the body. On the contrary, I very silently discharge at least five hundred such functions of fundamental nature which keep you alive and healthy. Believe it that each function is so important that slight negligence could prove fatal.



Place of liver in the body

Various types of chemical compounds are manufactured in my factory. Few people know that I am responsible for preparing at least one thousand enzymes, which are necessary for carrying out various body activities.

Recall when it is dark and there is no light still you are able to walk and see to some extent. This is the miracle of a special vitamin.

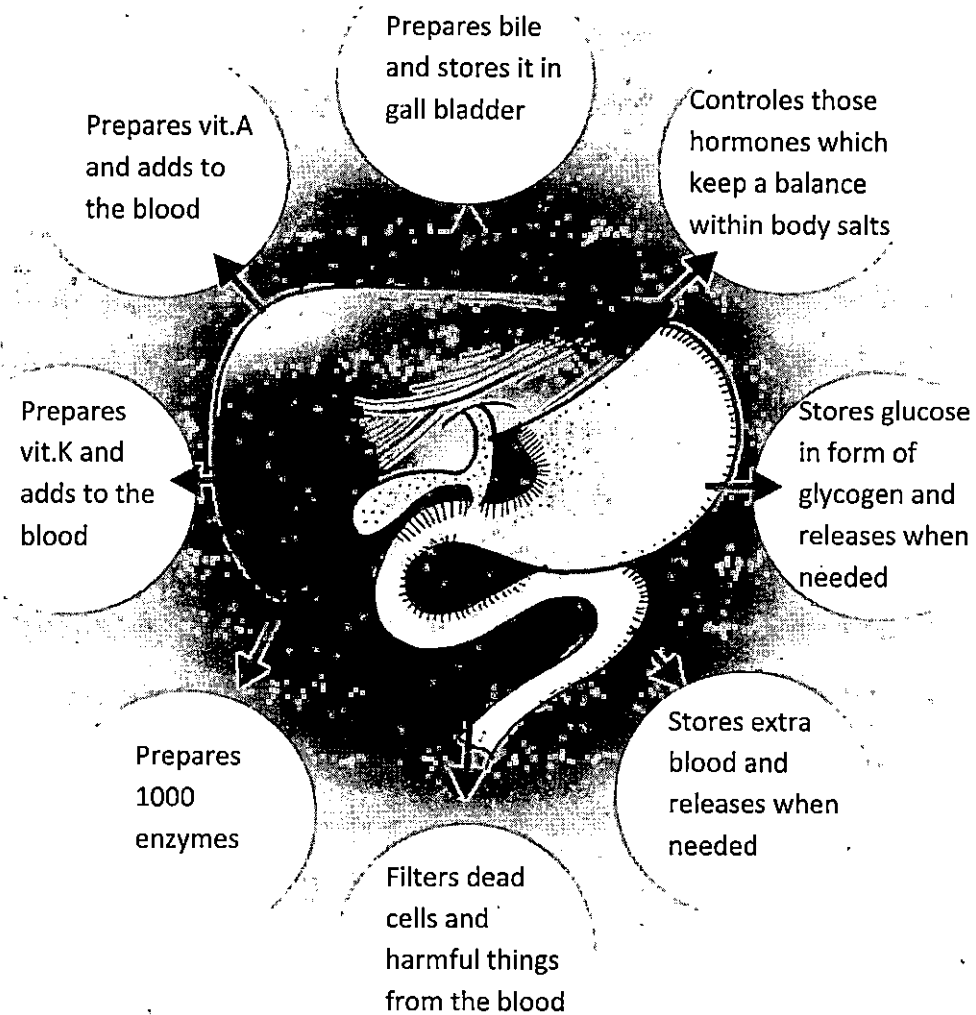
In fact vitamin A enables you to see and walk in darkness and this is prepared by me.

A very special juice called bile is also prepared in my factory. After preparing this yellowish green juice, I store it in a small organ called gall bladder. The latter is connected with food canal by a small tube. When needed, the juice is sent there for digesting fat. If fat is not digested by me, it can get itself deposited in blood vessels and block them. Not only body vessels get blocked but vessels within me can also be choked which is extremely harmful for the body.

The bile is prepared by me from dead blood cells whose life is only 120 days. Although new cells are formed after the death of old ones, the presence of their dead bodies in the blood is also harmful. The Lord has given me an ability to prepare that much of bile and fill in the gall bladder which is needed during the day. If due to some disease, I am unable to do so or bile is unable to be stored in the bladder, it starts mixing with the blood. Both in bile and the dead blood cells, there is a yellowish chemical which gives yellow colour to the blood. This yellowness makes the colour of your eyes and skin also yellow. This is not a disease of blood but of mine which is called jaundice. If such signs appear, you must consult a doctor and I should be properly treated.

If you have an injury or there is a cut in your body, blood starts coming out. However this gets stopped outometically after a short while and a crust is formed at the place. This happens when certain compounds which are always present in your blood, combine with each other. Out of these, one is vitamin 'K'. I manufacture this in my factory and continuously add to your blood. In some newly born children, I am unable to do this work. These children vomit blood and have to be given injuctions of vitamin K. If due to any disorder, I becom unable to make this vitamin, even ordinary injury may result in lot of blood loss and ultimately prove fatal.

On the upper side of your kidneys, there are certain glands. These prepare certain hormones which do not allow certain body salts to be lost. If these hormones are prepared in large quantities, the quantity of body salts will also increase which will make the body to swell up like a balloon. It's I who keep the hormones under control so that body salts remain balanced.



When fresh blood receives lot of nutrients from the elementary canal, it does not go straight to the Heart but comes in me. I first sieve out dead cells and other harmful elements and then send it to Heart via a special duct. Often blood is in large quantity. Believe me, if this blood goes straight to Heart, the latter will stop working. When it goes via me, then I not only sieve out harmful things but also retain excess blood in me and due to this, I myself get swell up.

If due to some accident, you suffer an heavy blood loss or you give blood to some needy person, I immediately compensate the loss by flowing blood from my reservoir to your vessels and you do not feel this loss.

In a similar way, I store in me an important thing like Glucose. At least half a pound of sugar is always present inside me. While running or doing exercise, sugar quickly burns in your muscles. As a result, a dangerous thing Lactic acid is produced. I convert this poisonous thing into glycogen and store it inside me. If sometimes suddenly your body requires sugar, I in no time, convert glycogen into glucose and add to your blood through which the loss is compensated. Similarly, if at times the quantity of glucose increases in blood, it is also dangerous and can make you unconcious. At that time also, I help you converting extra glucose into glycogen and storing it inside me.

Besides, sieving out many poisonous things from the blood is also my responsibility. Several drugs like Nicotine, and Caffeine are in regular use of human beings. If I allow blood containing these poisonous elements into the Heart, the latter will immediately stop working.

To what extent I should cause you to count my qualities? What have already been told are more than sufficient to emphasise my importance. However in the end, I must tell you that if you wish me to serve you better, then please do care for me. You have not to do much but take a simple diet with least amount of ghee, oil and fried things.

Do not consume unnecessary drugs and particularly avoid insecticides.”

Every body listened to Brain, Heart and Liver with great interest and praised them. In the end, Ali Abdullah thanked all, after which the meeting came to an end and people started going out. Ali Abdullah also started towards his house. On the way, he was thinking that undoubtedly there were lots of information about Brain, Heart and Liver but still it was not possible to conclude who among them was supreme. After listening them it was not possible to take such a decision because each had a very important role for the body. Life would turn difficult if work of any one of them would be deficient. He was thinking that undoubtedly man has been created in the best possible form. None of his body parts can be called inferior and unimportant. It is not possible to over look the working of even smallest organ. For this, we must extend our thanks to our Creator who has bestowed us with such a body which perfectly fulfils all our requirements.

