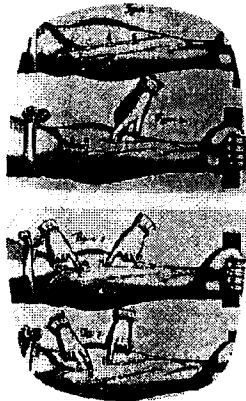




March-April 2007

### BLOOD IS LIFE

In 1616 (almost 400 years ago) an English doctor named William Harvey discovered that blood moving through the body is one of the most important things needed



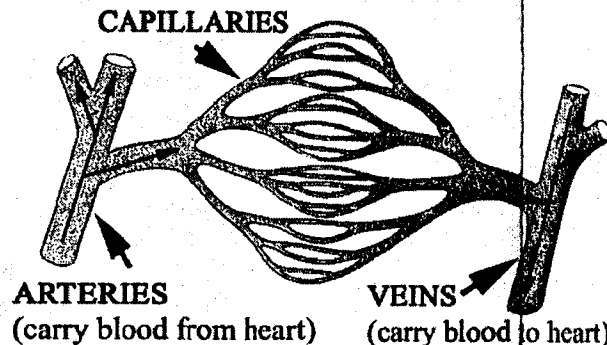
for life. Amazingly, God said in the Bible life is in the blood 3300 years before man discovered it: *“For the life of the flesh is in the blood...”* Leviticus 17:11. (Also look up Leviticus 17:14 and Genesis 9:4.)

Blood is necessary for life in every part of the body. The human body is made up of 60 to 100 trillion tiny

little parts called cells. The blood circulates (travels) through the body reaching every one of these trillions of cells. Blood carries all the things that cells need to live. It brings food, water, and oxygen to each cell; carries away waste products; carries special chemicals; helps the body fight infection; and many other things including helping the body keep the right temperature.

Most people have a little over six quarts of blood in the body. This blood is made up of a fluid in which different kinds of cells are floating. The liquid part of the blood is called “plasma,” and makes up a little more than half of the blood. It is a clear, slightly yellowish fluid. The plasma in your body is like a river, which carries the many things dissolved in it. As the blood plasma travels next to the stomach and intestine, it picks up digested “food” and water, which it then carries to the cells to eat and drink. The blood also delivers special chemicals (hormones) to the cells that it picked up from different glands. Some of these chemicals help the cells to grow and others help fight off disease. It also carries the waste materials (like garbage) from the cells to the kidneys, where the garbage is cleaned out of the blood.

The plasma also carries red blood cells. These cells get their color from some stuff called hemoglobin. Scientists believe that there are about 35 trillion tiny, round, flat red blood cells moving around in your body. There are so many red blood cells in the blood that it all looks red. As the blood goes through the lungs, the hemoglobin of the red blood cells grabs onto oxygen (air). As the red cells go by the cells, the cells “take out” the oxygen they need. At the same time the cells give back to the blood its “used-up air” (called carbon dioxide)



that it carries back to the lungs. In about four months the red blood cells are worn out or destroyed. Don't worry though – new red blood cells are always being made in the marrow (center part) of the bones!

Blood also has white blood cells that protect the body. Some white blood cells act like army “scouts”. Once they find germs that have gotten into the bloodstream, they herd them together and cover them with special chemicals. Other special white blood cells, acting like “soldiers”, take the coated germs into themselves and destroy them. In this battle, some soldier cells die. Your body is constantly remaking them. Other white blood cells have the job of cleaning up the dead soldiers and dead germs. Most of the time the white blood cells win a battle without you even knowing it was going on. We can help our white cells win by eating right, getting plenty of rest, and taking medicine when we are sick.

The blood moves through the body in “pipes” called arteries, veins, and capillaries. The powerful muscle of the heart pumps blood into the arteries, which carry blood to the cells. Like the branches of a tree, arteries split several times, becoming smaller and smaller as they carry blood from the heart. Capillaries are small, thin blood vessels (tubes) that connect the arteries and the veins. Their thin walls allow oxygen, food, water, carbon dioxide and waste products to pass to and from the cells. Capillaries are so tiny that the small red blood cells have to

line up in single file to get through. Once the blood makes its delivery and pick up, it flows back to the heart through veins. Veins become larger and larger as they get closer to the heart. The blood is then sent to the lungs where it picks up fresh air (oxygen). It takes your blood only 20 seconds to make a round trip through your body. If you could line up all of the body's arteries, capillaries, and veins end to end they would stretch around the earth 2 ½ times. That's 60,000 miles!

When you cut yourself or are hurt, round things in the blood called platelets rush to repair the cut. Then the blood gets busy repairing the wound with very fine threads of stuff called fibrin. These threads run every which way trapping all the blood cells like flies in a spider's web. The blood cells are held together in a clot, stopping the flow of blood. Fibrin does not float in the blood all of the time, because it would plug it up; so it is made only when needed.

The life of the flesh is truly in the blood! Without it we would surely die. Someone very mighty and very smart must have designed and made blood, and that Designer is God!

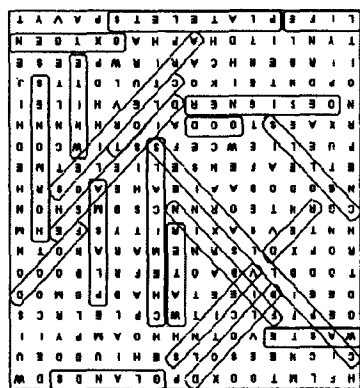
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L	I	F	E	P	L	A	T	E	L	E	T	S	P	A	V	Y	T

Look for the words hidden in the puzzle from the words in the WORD LIST. The hidden words might be up, down, sideways, or slanted (not backwards).

## WORD LIST

- ARTERIES
- BLOOD
- CAPILLARIES
- CELLS
- CHEMICALS
- CLOT
- DISEASE
- DESIGNER
- FIBRIN
- FOOD
- GLANDS
- GOD
- HORMONES
- LIFE
- OXYGEN
- PLASMA
- PLATELETS
- RED
- VEINS
- WASTE
- WATER
- WHITE

Two hundred years ago it was common for doctors to bleed (often with leeches) the blood out of sick people to make them well. Most doctors at that time mistakenly thought that the body held 12 instead of 6 quarts of blood. Shortly before his death, 4 quarts of blood were bled out of George Washington in 24 hours for an infected throat and he died not long after. Many historians believe that George Washington's bleeding caused his death. Ironically, by his bedside was a Bible that stated in Leviticus 17:11: "For the life of the flesh is in the blood." !!!



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