



PWOC

Protestant Women of the Chapel

WORKSHOP: Science and the Bible

by Jennifer Holt

PARTICIPANT'S GUIDE

RELEVANCE: 2 Timothy 3:16 says, "All Scripture is God-breathed and is useful for **teaching**, rebuking, correcting in righteousness" (NIV, emphasis added). Most would agree that Scripture is valuable for moral teaching, but what about historical teaching? Did the events described in Biblical narrative actually take place exactly as described? Can the Bible be useful for scientific teaching? The answer to all of these questions is yes. Despite what many are taught, scientific evidence actually confirms the Bible. Knowing a few bits of evidence can bolster one's faith, help someone begin to see the world through a Biblical lens and build confidence for taking part in apologetic conversations.

POINT 1: Biology- Mutations

- The Creation perspective is based on Genesis, chapter one, which states that people and animals are *created* beings.
- The Theory of Evolution suggests that random genetic mutations over a long period of time led to animals and humans evolving from simple chemicals.
- Genetic mutations result in a loss of information and, therefore, a less desirable state. The overall outcome is negative.
- "Mutations are essential to evolution; they are the raw material of genetic variation. Without mutation, evolution could not occur." - UC Berkeley website

ACTIVITY 1: Research Sickle Cell Anemia

You will be working with one or two other people. You and your partner(s) will take a few minutes to look at information about the physical effects of Sickle Cell Anemia. In Appendix A, you will find information from the Mayo Clinic. Please pay special attention to the **positive and negative symptoms** and complications mentioned in the article—you may choose to take notes in the space below. You will have the chance to share your findings.

- **Romans 5:12** *Therefore, just as sin came into the world through one man, and death through sin, and so death spread to all men because all sinned.*

POINT 2: Geology- The Fossil Record

- The fossil record shows evidence of a world-wide flood.
- **Genesis 7:11-12** (NIV) ¹¹ *In the six hundredth year of Noah's life, on the seventeenth day of the second month—on that day all the springs of the great deep burst forth, and the floodgates of the heavens were opened. ¹² And rain fell on the earth forty days and forty nights.*
- **Genesis 7:17-20** (NIV) ¹⁷ *For forty days the flood kept coming on the earth, and as the waters increased they lifted the ark high above the earth. ¹⁸ The waters rose and increased greatly on the earth, and the ark floated on the surface of the water. ¹⁹ They rose greatly on the earth, and all the high mountains under the entire heavens were covered. ²⁰ The waters rose and covered the mountains to a depth of more than fifteen cubits.*



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ACTIVITY 2: Matthew Maury

You may work with your partner(s) to explore the life and work of Matthew Maury by taking a look at two articles, found in Appendix B. As you and your small group read, answer the following questions:

1. What did Matthew Maury do as a scientist? When did he live?
2. What differences do you notice between the two articles?
3. What inspired Matthew Maury's research?

FYI, *Answers in Genesis* (answersingenesis.org) has a whole section of their website dedicated to short biographies of Bible-believing scientists.

POINT 3: Astronomy- The Age of the Universe

Even though the Bible was written long before telescopes and key discoveries about our planet and its place within our galaxy, and our galaxy within the Universe, the wording supports what we know to be true in our day and age.

- **Psalm 19:1-6** *The heavens declare the glory of God, the skies proclaim the work of his hands. ² Day after day they pour forth speech; night after night they reveal knowledge. ³ They have no speech, they use no words; no sound is heard from them. ⁴ Yet their voice goes out into all the earth, their words to the ends of the world. In the heavens God has pitched a tent for the sun. ⁵ It is like a bridegroom coming out of his chamber, like a champion rejoicing to run his course. ⁶ It rises at one end of the heavens and makes its circuit to the other; nothing is deprived of its warmth.*



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Before telescopes:

- **Jeremiah 33:22** *I will make the descendants of David my servant and the Levites who minister before me as countless as the stars in the sky and as measureless as the sand on the seashore. (c. 600bc)*

Before secular scientists discovered that the Universe is expanding:

- **Isaiah 40:22** *He sits enthroned above the circle of the earth, and its people are like grasshoppers. He stretches out the heavens like a canopy, and spreads them out like a tent to live in.*
- **Jeremiah 10:12** *But God made the earth by his power; he founded the world by his wisdom and stretched out the heavens by his understanding.*

When people believed that the earth was a flat disc floating in water:

- **Job 26:7** *He spreads out the northern skies over empty space; he suspends the earth over nothing. (c. 2000bc)*

The age of the Universe is a highly debated topic. If you believe the days of Creation refer to a 24-hour period and you add up all of the genealogies in the Bible, you get something around 6,000 years old. Secular scientists, however, believe that the Universe is somewhere around 14 billion years old.

- The moon is moving away at a rate of about 1.5 inches per year. If you take that data and extrapolate it back, the Moon would crash into the Earth somewhere between 1.4 and 1.5 billion years ago. However, if you believe in the Biblical account of Creation, and you hold to the fact that the Earth and Moon were both created about 6,000 years ago, that pulling away of the Moon is no longer a problem. It would only put the moon about 730 ft closer to the Earth than it is today.
- Scientists have calculated that the typical comet can last about 100,000 years. If you believe in the Biblical account of Creation and that the Universe is only about 6,000 years old, comets do not pose a problem. However, if the Universe is 14.5 billion years old, comets should not exist. Because of this, secular scientists have proposed the existence of an "Oort Cloud." In short, the Oort Cloud is a purely theoretical comet-generator. It has never been observed. It was a proposed solution to the problem of the existence of comets.



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- Jupiter gives off about twice as much heat as it takes in. Because of that, it should eventually run out of heat. If Jupiter were billions of years old, it would no longer be able to give off more heat than it takes in and should be frozen by now. Neptune has the same problem. Both of these planets could emit heat for thousands of years, but not billions.

ACTIVITY 3: Topics for Further Investigation

Now we are going to come up with a few questions. What do you want to investigate? If you had an expert in Creation Science or Biblical interpretation of scientific evidence, what would you ask? What is one thing you have been taught that can only be interpreted in a way that would go against Bible? Take a few minutes to think about it. Discuss it with your partner(s). Write down your questions. When we come back together, each group will share at least one of their questions.

APPLY IT TO LIFE:

The point of all of this is pretty simple... God's Word is truth. Just as 2 Timothy 3:16 says, "All Scripture is God-breathed and is useful for **teaching**, rebuking, correcting in righteousness" (NIV, emphasis added). ALL SCRIPTURE. Many of us have been taught to believe that scientific evidence counters what God's Word says. However, there is probably a different way of interpreting the evidence. The next time you see an article talking about millions of years, ask yourself how it would fit into a Biblical timeline. The next time you hear about the Theory of Evolution as fact, don't be afraid to question it. It's still a "theory" and not a "law" for good reason. Let's remember to ask ourselves what God's Word says. If you start with His Word, you can't go wrong!



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Appendix A



Sickle cell anemia

Overview

Sickle cell anemia is an inherited form of anemia — a condition in which there aren't enough healthy red blood cells to carry adequate oxygen throughout your body.

Normally, your red blood cells are flexible and round, moving easily through your blood vessels. In sickle cell anemia, the red blood cells become rigid and sticky and are shaped like sickles or crescent moons. These irregularly shaped cells can get stuck in small blood vessels, which can slow or block blood flow and oxygen to parts of the body.

There's no cure for most people with sickle cell anemia. But treatments can relieve pain and help prevent problems associated with the disease.

Symptoms

Signs and symptoms of sickle cell anemia, which vary from person to person and change over time, include:

- **Anemia.** Sick cells break apart easily and die, leaving you without enough red blood cells. Red blood cells usually live for about 120 days before they need to be replaced. But sickle cells usually die in 10 to 20 days, leaving a shortage of red blood cells (anemia).
Without enough red blood cells, your body can't get the oxygen it needs to feel energized, causing fatigue.
- **Episodes of pain.** Periodic episodes of pain, called crises, are a major symptom of sickle cell anemia. Pain develops when sickle-shaped red blood cells block blood flow through tiny blood vessels to your chest, abdomen and joints. Pain can also occur in your bones.
The pain varies in intensity and can last for a few hours to a few weeks. Some people have only a few pain episodes. Others have a dozen or more crises a year. If a crisis is severe enough, you might need to be hospitalized.
Some adolescents and adults with sickle cell anemia also have chronic pain, which can result from bone and joint damage, ulcers and other causes.
- **Painful swelling of hands and feet.** The swelling is caused by sickle-shaped red blood cells blocking blood flow to the hands and feet.
- **Frequent infections.** Sick cells can damage an organ that fights infection (spleen), leaving you more vulnerable to infections. Doctors commonly give infants and children with sickle cell anemia vaccinations and antibiotics to prevent potentially life-threatening infections, such as pneumonia.
- **Delayed growth.** Red blood cells provide your body with the oxygen and nutrients you need for growth. A shortage of healthy red blood cells can slow growth in infants and children and delay puberty in teenagers.
- **Vision problems.** Tiny blood vessels that supply your eyes may become plugged with sickle cells. This can damage the retina — the portion of the eye that processes visual images, leading to vision problems.

When to see a doctor

Although sickle cell anemia is usually diagnosed in infancy, if you or your child develops any of the following problems, see your doctor right away or seek emergency medical care:

- Unexplained episodes of severe pain, such as pain in the abdomen, chest, bones or joints.
- Swelling in the hands or feet.
- Abdominal swelling, especially if the area is tender to the touch.
- Fever. People with sickle cell anemia have an increased risk of infection, and fever can be the first sign of an infection.
- Pale skin or nail bed

- Yellow tint to the skin or whites of the eyes.
- Signs or symptoms of stroke. If you notice one-sided paralysis or weakness in the face, arms or legs; confusion; trouble walking or talking; sudden vision problems or unexplained numbness; or a headache, call 911 or your local emergency number right away.

Causes

Sickle cell anemia is caused by a mutation in the gene that tells your body to make the red, iron-rich compound that gives blood its red color (hemoglobin). Hemoglobin allows red blood cells to carry oxygen from your lungs to all parts of your body. In sickle cell anemia, the abnormal hemoglobin causes red blood cells to become rigid, sticky and misshapen.

The sickle cell gene is passed from generation to generation in a pattern of inheritance called autosomal recessive inheritance. This means that both the mother and the father must pass on the defective form of the gene for a child to be affected.

If only one parent passes the sickle cell gene to the child, that child will have the sickle cell trait. With one normal hemoglobin gene and one defective form of the gene, people with the sickle cell trait make both normal hemoglobin and sickle cell hemoglobin. Their blood might contain some sickle cells, but they generally don't have symptoms. But they are carriers of the disease, which means they can pass the gene to their children.

Risk factors

For a baby to be born with sickle cell anemia, both parents must carry a sickle cell gene. In the United States, it most commonly affects black people.

Complications

Sickle cell anemia can lead to a host of complications, including:

- Stroke. A stroke can occur if sickle cells block blood flow to an area of your brain. Signs of stroke include seizures, weakness or numbness of your arms and legs, sudden speech difficulties, and loss of consciousness. If your baby or child has any of these signs and symptoms, seek medical treatment immediately. A stroke can be fatal.
- Acute chest syndrome. This life-threatening complication causes chest pain, fever and difficulty breathing. Acute chest syndrome can be caused by a lung infection or by sickle cells blocking blood vessels in your lungs. It might require emergency medical treatment with antibiotics and other treatments.
- Pulmonary hypertension. People with sickle cell anemia can develop high blood pressure in their lungs (pulmonary hypertension). This complication usually affects adults rather than children. Shortness of breath and fatigue are common symptoms of this condition, which can be fatal.
- Organ damage. Sickle cells that block blood flow through blood vessels immediately deprive the affected organ of blood and oxygen. In sickle cell anemia, blood is also chronically low on oxygen. Chronic deprivation of oxygen-rich blood can damage nerves and organs in your body, including your kidneys, liver and spleen. Organ damage can be fatal.
- Blindness. Sickle cells can block tiny blood vessels that supply your eyes. Over time, this can damage the portion of the eye that processes visual images (retina) and lead to blindness.
- Leg ulcers. Sickle cell anemia can cause open sores, called ulcers, on your legs.
- Gallstones. The breakdown of red blood cells produces a substance called bilirubin. A high level of bilirubin in your body can lead to gallstones.
- Priapism. Men with sickle cell anemia can have painful, long-lasting erections, a condition called priapism. As occurs in other parts of the body, sickle cells can block the blood vessels in the penis. This can damage the penis and lead to impotence.

Prevention

If you carry the sickle cell trait, seeing a genetic counselor before trying to conceive can help you understand your risk of having a child with sickle cell anemia. He or she can also explain possible treatments, preventive measures and reproductive options.

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Appendix B

Matthew Fontaine Maury

American hydrographer



Matthew Fontaine Maury, (born Jan. 14, 1806, Spotsylvania county, Va., U.S.—died Feb. 1, 1873, Lexington, Va.), U.S. naval officer, pioneer hydrographer, and one of the founders of oceanography. Maury entered the navy in 1825 as a midshipman, circumnavigated the globe (1826–30), and in 1836 was promoted to the rank of lieutenant. In 1839 he was lamed in a stagecoach accident, which made him unfit for active service.

In 1842 he was placed in charge of the Depot of Charts and Instruments, out of which grew the U.S. Naval Observatory and Hydrographic Office. To gather information on maritime winds and currents, Maury distributed to captains specially prepared logbooks from which he compiled pilot charts, enabling ships to shorten the time of sea voyages. In 1848 he published maps of the main wind fields of the Earth. Maury's work inspired the first international marine conference, held in Brussels in 1853. He was U.S. representative at the meeting that led to the establishment of the International Hydrographic Bureau. Provided with worldwide information, Maury was able to produce charts of the Atlantic, Pacific, and Indian oceans. He also prepared a profile of the Atlantic seabed, which proved the feasibility of laying a transatlantic telegraph cable. In 1855 he published the first modern oceanographic text, *The Physical Geography of the Sea*. In that year his *Sailing Directions* included a section recommending that eastbound and westbound steamers travel in separate lanes in the North Atlantic to prevent collisions.

On the outbreak (1861) of the American Civil War, Maury returned to Virginia to become head of coast, harbour, and river defenses for the Confederate Navy, for which he attempted to develop an electric torpedo. In 1862 he went to England as a special agent of the Confederacy, and at the war's end (1865) he went to Mexico, where the emperor Maximilian made him imperial commissioner of immigration so that Maury could establish a Confederate colony there. In 1866, when the emperor abandoned this scheme, Maury went back to England. He returned to the United States in 1868 and accepted the professorship of meteorology at Virginia Military Institute, a post he held until his death. Maury Hall at Annapolis, Md., is named in his honour, and his birthday is a school holiday in Virginia.

<https://www.britannica.com/biography/Matthew-Fontaine-Maury>

Matthew Maury's Search for the Secret of the Seas

His Faith in the Bible Led Him to Some Great Scientific Discoveries

Originally published in *Creation* 11, no 3 (June 1989): 30

<https://answersingenesis.org/creation-scientists/profiles/matthew-maurys-search-for-the-secret-of-the-seas/>

American naval officer and oceanographer Matthew Maury (1806-1873) was a Christian who loved reading his Bible. He also had no doubts about its accuracy. And these facts led him to some remarkable discoveries in science.

Maury entered the US Navy in 1825, but an accident in 1839 partially disabled him, so he left active sea duty. Three years later, still with the Navy, he was appointed superintendent of the US Naval Observatory in Washington, and also of the US Depot of Charts and Instruments.

Over the next 19 years Maury devoted himself to studying the winds, clouds, weather, and ocean features ... as well as the Bible. In his Bible studies, the words of Psalm 8 stuck in his mind: ...*whatsoever passeth through the paths of the seas.*¹ Maury determined that if God's Word said there were "paths" in the seas, then there must be paths. So he set out to find them.

He studied old ships' logs. From these he compiled charts of ocean-wind and sea currents. To study the speed and direction of the ocean currents Maury set adrift weighted bottles known as "drift bottles." These floated slightly below the surface of the water, and thus were not affected by wind. Instructions were sealed in each bottle directing anyone who found one washed ashore to return it. From the location and date on which the bottles were found, Maury was able to develop his charts of the ocean currents—the *paths of the seas*—which greatly aided the science of marine navigation.

In 1855, Maury wrote the first textbook on modern oceanography, *The Physical Geography of the Sea and Its Meteorology*. In this work, Maury presented oceanography from a delightfully Christian view. He included Biblical passages of meteorological and other scientific importance, such as the Scripture quote from the book of Job (28:25) which refers to God's making *the weight for the winds.*² He explained the Biblical statement this way:

... though the fact that the air has weight is here so distantly announced [in Job], philosophers never recognized the fact until within comparatively a recent period, and then it was proclaimed by them as a great discovery. Nevertheless, the fact was set forth as distinctly in the book of nature as it is in the book of revelation; for the infant, in availing itself of atmospherical pressure to draw milk from its mother's breast, unconsciously proclaimed it.

Maury subsequently prepared charts of the bottom of the Atlantic Ocean between the United States and Europe, which showed the practicability of laying undersea cables. Maury died in 1873. He was elected to the Hall of Fame for Great Americans. A monument erected in his honor on Monument Avenue, Richmond, Virginia, reads:

Matthew Fontaine Maury, Pathfinder of the Seas, the genius who first snatched from the oceans and atmosphere the secret of their laws. His inspiration, Holy Writ, Psalm 8:8; Ecclesiastes 1:6.³

It is often claimed that the Bible is not a scientific textbook. Yet the Bible's accuracy when touching on scientific subjects has led many great scientists, including Matthew Maury, to some outstanding scientific discoveries.

¹**Psalm 8:3-9** When I consider your heavens, the work of your fingers, the moon and the stars, which you have set in place, what is mankind that you are mindful of them, human beings that you care for them? You have made them a little lower than the angels and crowned them with glory and honor. You made them rulers over the works of your hands; you put everything under their feet: all flocks and herds, and the animals of the wild, the birds in the sky, and the fish in the sea, all that swim the paths of the seas. LORD, our Lord, how majestic is your name in all the earth!

²**Job 28:20-28** Where then does wisdom come from? Where does understanding dwell? It is hidden from the eyes of every living thing, concealed even from the birds in the sky. Destruction and Death say, "Only a rumor of it has reached our ears." God understands the way to it and he alone knows where it dwells, for he views the ends of the earth and sees everything under the heavens. When he established the force of the wind and measured out the waters, when he made a decree for the rain and a path for the thunderstorm, then he looked at wisdom and appraised it; he confirmed it and tested it. And he said to the human race, The fear of the Lord—that is wisdom, and to shun evil is understanding.

³**Ecclesiastes 1:5-7** The sun rises and the sun sets, and hurries back to where it rises. The wind blows to the south and turns to the north; round and round it goes, ever returning on its course. All streams flow into the sea, yet the sea is never full. To the place the streams come from, there they return again.

Appendix C: Where Do I Go From Here?

Christian Resources:

Answers in Genesis- lots of books and dvds and free information on their website

Jonathan Park- An amazing audio drama that includes scientific facts presented in a Biblical Worldview. It is made for kids, but adult will definitely get into the story and learn, too.

Is Genesis History?- A feature-length documentary starring Del Tackett (the same man that was featured in the "Truth Project" study that was popular a few years ago).

The Institute for Creation Research- they are all about scientific research from a Biblical Creation perspective.

Ray Comfort- Living Waters is the name of his ministry. I am not as familiar with him as I am with other, but he does have a few books on scientific facts and the Bible.

Intelligent Design:

Center for Science and Culture- <https://www.discovery.org/id/>

Intelligent Design Network- <http://www.intelligentdesignnetwork.org/>

Stephen C. Meyer- well-known scientist that believes in Intelligent Design

William A. Debmski- well-known scientist that believes in Intelligent Design

Evolutionist:

Richard Dawkins- well-known Evolutionist

UC Berkeley- <https://evolution.berkeley.edu/evolibrary/home.php>

National Science Teachers Association- <http://www.nsta.org/evolution/>