



# CREATOR

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## TO THE CREATOR OF ALL LIGHTS

*In Your light we see light. Psalm 36:9*

O Lord Jesus, the heavens and the Earth came into being by Your mighty command (Colossians 1:16). And the first thing You established within creation was *light* (Genesis 1:3). Light shines Your love, O God! It allowed our original parents to experience and enjoy Your glory in the Garden. And it continues to illuminate Your character throughout nature. Few things in the universe better reveal the essence of Your being than light.

If the light of Your glory brings a holy joy to our hearts—and it does (Psalm 105:3)!—then how much time and effort should we be willing to invest seeking it out? Are we willing to travel far to see the fireflies You fashion? Will we venture out of the comfort of our bed to experience a meteor shower or, if possible, search for the elusive will-o'-the-wisp?

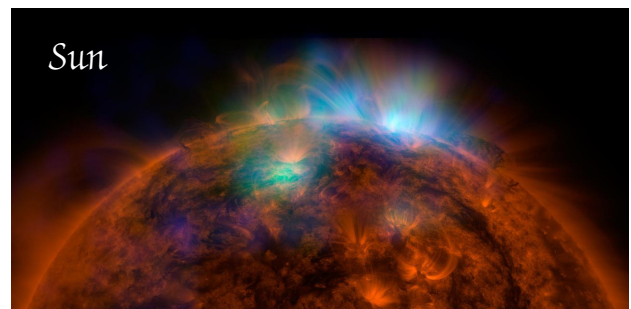
As always, we dedicate this issue to You, O King, and Your great Father. There are countless sources of light that You have woven into the universe—the immense and powerful, the gentle and mysterious. It is our hope sweet Lord that this study will stimulate in us a sincere and eager desire to experience these beacons of Your character.

## *Christ's Brilliance and Beauty Revealed in:*

## OUR SUN AND THE STARS

From our vantage point here on Earth, stars appear tiny and delicate, like flickering flames of distant candles disturbed by the slightest breeze. Stars are not fragile lights though. They are immense, extremely hot balls of gas that radiate the majesty and power of our Heavenly Father.

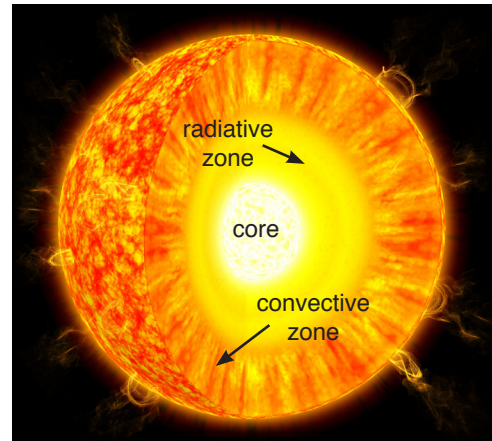
Each morning, an average-sized star makes its faithful appearance in the east. This closest of heaven's fiery lights—the Sun—produces incredible energy, both day and night. Only a small portion of this energy bathes our planet, yet it is enough to warm us and nourish life. Without the Lord's gift of the Sun, nothing could exist on Earth.



Otherworldly X-rays emerging from the Sun's surface

Sunlight traverses a distance of 93 million miles to reach Earth—it takes more than eight minutes to get here. But where does it begin, and how is it produced in the Sun?

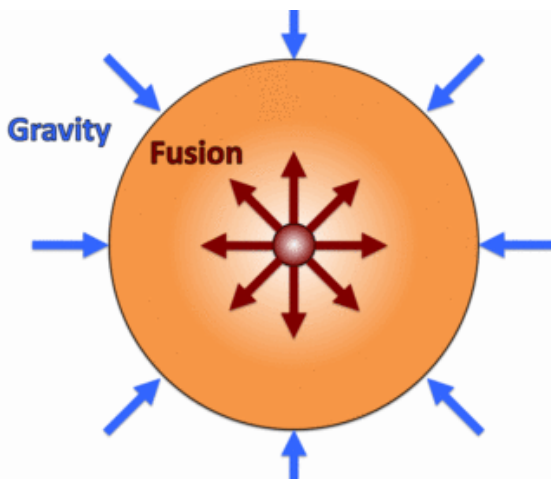
Within the heart of every star, God placed an immense nuclear furnace. The furnace is essentially an exploding hydrogen bomb of unbelievable power and size. Our Lord Jesus applies the force of the Sun’s massive gravity, however, to keep this “bomb” in check. This enormous gravity—the result of the star’s sheer mass—prevents the Sun from blowing itself apart and incinerating every planet in the Solar System. In turn, Christ uses the constant pressure of heat and radiation pushing out from the Sun’s center to prevent the star from collapsing in on itself. He thus balances a star’s gravity with the immense nuclear furnace located inside.



electromagnetic radiation (including x-rays), which flows out in all directions. Within the core of the Sun, our Lord fuses hydrogen atoms to make helium atoms. When this happens, energy is released. Each second, 600 million tons (545 billion kg) of hydrogen is converted into helium, with 5 million tons (4.5 billion kg) of matter being transformed into pure energy.<sup>2</sup>

For hydrogen fusion to occur, however, the center of a star must be heated to an astronomical temperature. Jesus achieves this in the Sun by applying the crushing weight of its outer layers upon the core, which is equivalent to 200 billion times Earth’s atmospheric pressure. Our Lord has set the Sun’s thermostat to 27 million degrees F (15 million degrees C). By comparison, the hottest temperature ever recorded on Earth was 134° F (56.7° C) in Death Valley, California on July 10, 1913. The extreme temperature of the Sun’s core is thus needed to maintain the thermonuclear reactions which allow hydrogen to fuse into helium.

Our Lord Jesus also wisely designed most stars to be *self-insulating*. A majority of a star’s energy remains in its core due to the immense density of gas surrounding it (the result of gravity). If Christ had not insulated the Sun in this way, the amount of energy released from its surface would be magnitudes



The balance of nuclear fusion with a star’s gravity

In summary, the Sun, and every other star in the universe, is perfectly controlled by its Creator, our Lord Jesus Christ. He tames the Sun in meekness,<sup>1</sup> and causes its heat and light to warm and brighten Earth. As we grow in our understanding of God’s perfect control of the Sun’s fiery heart, we should be greatly comforted in our souls.

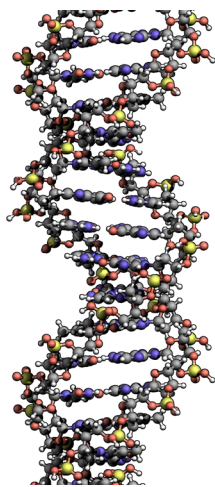
As gasoline is to a car, Christ uses hydrogen to power the Sun and produce

<sup>1</sup> One definition of meekness is, “power under control.”

<sup>2</sup> The conversion of mass into energy is summarized by the equation  $E = mc^2$ .

greater than it is now, instantly destroying Earth with searing heat.

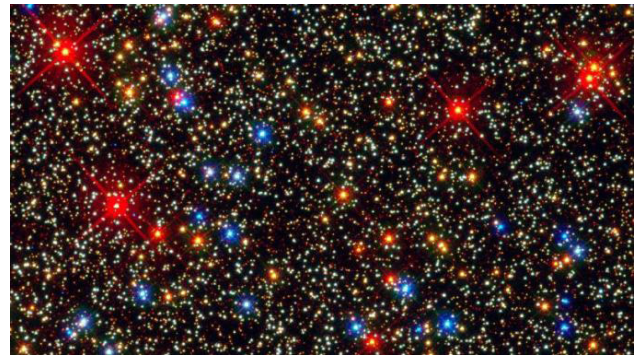
Despite its awesome power and brilliance, God made the Sun, and almost all stars, with the simplest of elements—hydrogen and helium. In stark contrast, our relatively frail bodies were created with countless complex chemicals. Like precious gems, most of the materials forming our bodies are extremely rare in comparison with the substance of stars. Christ uses the uncommon “jewels” of the universe to make us, the most precious of His creations (Psalm 139:14)!



- Hydrogen
- Oxygen
- Nitrogen
- Carbon
- Phosphorus

Complex  
DNA  
molecule

The color of the Sun and other stars are directly related to their internal temperature. And this temperature is dependent upon the star’s mass. The larger and heavier a star, the hotter and the brighter it will be. (The most brilliant stars in the universe are massive compared to our Sun and one million times brighter.) If we look at stars through a telescope—starting with the smallest and progressing toward the largest—we will notice that their colors change from red to orange to yellow (our Sun) to white-hot. The largest and hottest of all stars are blue.

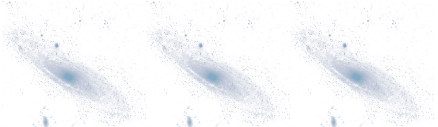


There are, of course, exceptions to this rule, pointing to our Lord’s wonderful creativity. Antares, in the constellation Scorpio, belongs to a class of stars known as *red giants*; Antares is almost 900 times larger than the Sun, yet its color is red. And the fuel it “burns” is helium rather than hydrogen. Antares is so big that the planets Mercury, Venus, Earth, and Mars would all be swallowed up inside it if God had placed it in the location of our Sun.

At the other extreme, are the incredibly hot *white dwarfs*. White dwarfs are compact stars, only one-tenth the diameter of the Sun. In effect, a white dwarf has been squeezed together so tightly by God, that a teaspoonful of its matter would weigh as much as a full-grown elephant!

In order for a star to burn helium as fuel, Christ sets the thermostat of the core to a mind-boggling 200 million degrees F (111 million degrees C). When all the helium in a large star is consumed, our Lord further increases the setting of its thermostat to as much as 900 million degrees F (500 million degrees C). At this temperature, the element carbon begins to fuse.

Eventually, all of the available fuel in a large star is exhausted. With no fuel for nuclear fusion, the pressure in the core dwindles and can no longer resist the star’s crushing gravity. Once this happens, the star suddenly collapses upon itself—in just a matter of seconds—causing a violent





Remnants of a supernova that was observed in 1054 A.D.

explosion that rips it apart. When a star ends its life in this manner, it is known as a *supernova*. The exploding star's internal temperature can reach more than one billion degrees. So great is the light produced by the death throes of a supernova that it can shine as brightly as all of the stars in the galaxy combined. Supernovas have been observed throughout history, sometimes even visible in the daytime sky.

Astronomers believe that occasionally the remnants of a rather large star shrink down to an object unbelievably small. Yet this shrunken and ultra-dense object continues to reflect the awesome power of our Lord God. Its gravity, many trillions of times that of Earth, is so great that not even light can escape, and a *black hole* is formed.<sup>3</sup>

This brief study of the Sun and the starry host gives us a glimpse into the terrifying and unapproachable brilliance of our Heavenly Father (1 Timothy 6:16) seen through the creative power of His Son.<sup>4</sup> If we continue our exploration into Christ's extensive creation, we can also get an idea of the utter immensity of His divine handiwork, pointing us to *the God who is without limits*.

<sup>3</sup> You can read about black holes in *HIS NATURE* #16.

<sup>4</sup> Christ's power knows no limits and He is properly given the title, the Almighty.

## SEEMINGLY ENDLESS GALAXIES

If the Sun were the size of an orange in Denver, Colorado, then the nearest visible star, Alpha Centauri, would be located in Detroit, Michigan, some 1300 miles away! Despite their vast distances from Earth, thousands of stars populate the night sky. What we behold, however, is only a very limited portion of all the stars that Creator Jesus has made.<sup>5</sup> There are an estimated  $10^{24}$  or 1,000,000,000,000,000,000,000 stars in the known universe. Why did God create so many? Like pixels forming a beautiful picture, each star is used by our Lord to paint a portrait of His glory across the heavens (Psalm 19:1).

As such, our Lord Jesus did not position stars evenly throughout the universe, but gathered them into huge arrays and gave



them fascinating shapes with striking beauty. These special collections of stars are known as *galaxies*.

On a cold, clear night, well away from city lights, you can see a band of faint, misty light stretching across the sky from north to south. This is the Milky Way. The Milky Way is composed of billions of stars and is only a

<sup>5</sup> On a clear, moonless night, we can see about 4,500 stars.

portion of the galaxy in which we live, seen on edge.<sup>6</sup> In all, there are 200 billion stars in our galaxy. The brightest, most spectacular part of the Milky Way is the center where the majority of the stars reside. This central portion, however, is largely blocked from our view by an expanse of dust clouds that lies in front of it, so we can only observe a tiny fraction of the whole.

Essentially, our galaxy is in the shape of a huge pancake with a large dollop of butter in the center. The entire galaxy whorls around itself—like a gigantic bicycle wheel—held together by its own gravity. The Earth and our nearby Sun are located in one of its many arms. Caught in an ever-moving eddy of stars, the solar system circles the center of the Milky Way at 500,000 mph (800,000 km/h).

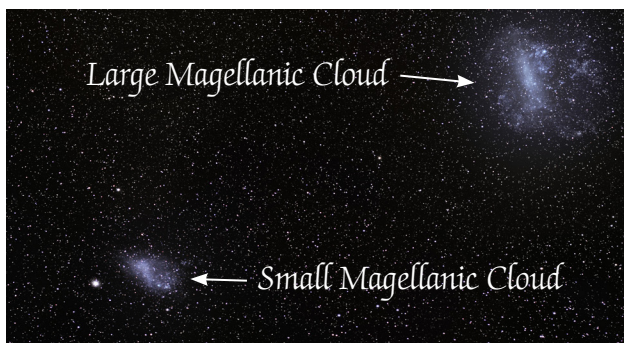
The size of the Milky Way Galaxy is truly staggering. If we could travel at the speed of light (6 trillion mph/ 9.7 trillion km/h) it would take 100,000 years to get from one edge to the other. Our galaxy is so huge that several dwarf galaxies orbit around it. Two of the most often observed are the Large and



*Andromeda Galaxy*

The closest galaxy to us—that is similar in shape to our own—is Andromeda. The Andromeda Galaxy is located in a constellation of the same name. Viewed from the Northern Hemisphere, this enormous congregation of stars appears as a fuzzy splotch of “paint” on Christ’s celestial canvas. It is the furthest thing we can see at night without a telescope. Our Lord Jesus placed the Andromeda Galaxy 2.5 million light-years from Earth, a distance quite difficult to grasp.

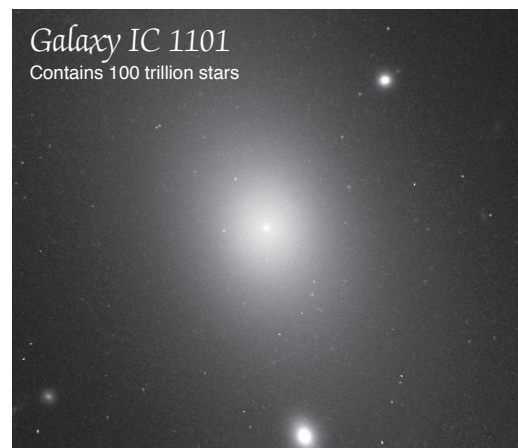
Using infinite creativity, Christ fashioned galaxies in many different sizes and shapes. Some galaxies are “small” and contain only a few million stars, but the biggest possess 100 trillion (million million) stars. These largest of stellar landscapes are 100 to 1,000 times the size of our Milky Way Galaxy. Some are so huge that their overwhelming gravity pulls in and swallows up other galaxies.



*Large Magellanic Cloud* →

← *Small Magellanic Cloud*

Small Magellanic Clouds, 160,000 light-years from Earth.<sup>7</sup> They cannot be seen from the Northern Hemisphere, but are easily spotted with the naked eye in the night sky of South America, Africa, and Australia. They are classified as irregular galaxies because they assume no special shape of their own.



*Galaxy IC 1101*

Contains 100 trillion stars

<sup>6</sup> When observing the Milky Way, we are looking toward the center of our galaxy.

<sup>7</sup> They are named after explorer Ferdinand Magellan who observed them in 1519–1522.

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Only God knows the exact number, but astronomers now estimate that there may be as many as two trillion galaxies in the universe! Although the cosmos is finite, scientists continue to revise its size upward with the aid of better measurements. The ancients believed that all observed stars were located just beyond the orbit of Saturn. One hundred years ago, the Milky Way was thought to represent the entire universe. With the progressive revelation of His glory over the centuries, Christ's kindness has allowed mankind to get a glimpse of how big the universe really is. Its diameter is now thought to span 93 billion light-years. Yet we must remember that our Creator God is infinitely bigger (1 Kings 8:27). *He is limitless*, knowing no bounds!

It's difficult to imagine the scale of His handiwork; it's impossible for us to grasp His infinite being. But by studying this gallery of countless and fantastically distant galaxies, we can surely stand in awe of His matchless majesty, which fills the universe.

*He who descended is the very One  
who ascended higher than all the heavens,  
in order to fill the whole universe. Ephesians 4:10*

## A SHOCKING WAY

Nature is rich with the glory of Christ (Isaiah 6:3), yet nothing on Earth reflects God's holiness quite like the awesome spectacle of *lightning*. Often accompanying summer thunderstorms, these blinding veins of glowing air dimly radiate the brilliant purity and unimaginable power of our Lord.

No one fully understands the mechanics of lightning or exactly how God creates it. (Oh, that we could know His mind—Romans 11:33-36!) Tremendous heat and brilliant light are left in the wake as electricity



tunnels its way through the atmosphere. The air surrounding a lightning bolt can reach 50,000 degrees F (28,000 degrees C)—five times hotter than the surface of the Sun. This sudden heating of the atmosphere causes it to expand violently and explode. A shock wave of thunder is then sent in all directions.

Compared to man-made electricity, the power of a thunderstorm is staggering. A single bolt of lightning can deliver an electrical punch of 200 million volts and 100,000 amps. It's not difficult to see how much greater our Creator is than us—a *holy God greatly to be feared*.

Scientific curiosity has given us a glimpse into the incredible engineering skills of our Lord. The violent turbulence of a thunderhead, with its powerful updrafts and swirling downdrafts, is thought to generate the potential for lightning. Like a dam breaking under a surge of water, an electrically-charged thundercloud bursts open, plunging electrons downward toward Earth. A brilliant rush of light then travels *upwards* at 60,000 miles per second (96,500 kilometers per second),<sup>8</sup> followed by a deafening flood of sound.

The current of electricity that causes a lightning flash may travel many miles through the air but is only an inch in diameter. As a result, most lightning appears long and slender. Our Lord Jesus fashions each bolt with several distinct upward and

<sup>8</sup> This is known as a return stroke.



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downward strokes. These strokes move so quickly that our eyes cannot tell them apart. What we do see is a “flickering” to the lightning flash.

The Bible uses the spectacle of lightning to paint a picture of Christ’s heavenly glory. Several passages in the book of Revelation describe a close mingling of lightning with the holy presence of God (Revelation 4:5; 8:5; 11:19; 16:18).

Christ’s holiness can be understood as his “absolute purity” and his “otherworldliness.” God is without sin, and he is utterly different from us (Isaiah 55:8). In this sense, lightning is an apt reflection of God’s holy character—lightning is composed of pure electrons and nothing else. Electricity also has an “otherworldly” quality, making it potentially very dangerous.

No person has ever seen electricity because it is invisible. No one has ever seen God either (John 1:18). The lightning we experience in the night sky is the afterglow of a stream of electricity digging its way through the air, creating heat and light as it goes; we don’t actually see the electricity itself. Likewise, if we desire to know our Creator we must look to the brilliance of Jesus (Hebrews 1:3). There is no other way to see our invisible God.

The effects of electricity are stunning, to be sure, but the Son of God possesses infinitely greater beauty and power. Some people are understandably frightened by lightning and thunder. Many others are simply amazed. Hopefully, these “flickers” of God’s glory will inspire us with a deeper wonder for our Creator. And in the end, may we all tremble with joy and awe before the breathtaking throne of our loving and holy Lord.

*From the throne came flashes of lightning,  
rumblings and peals of thunder. Revelation 4:5*

## AN OTHERWORLDLY GLOW

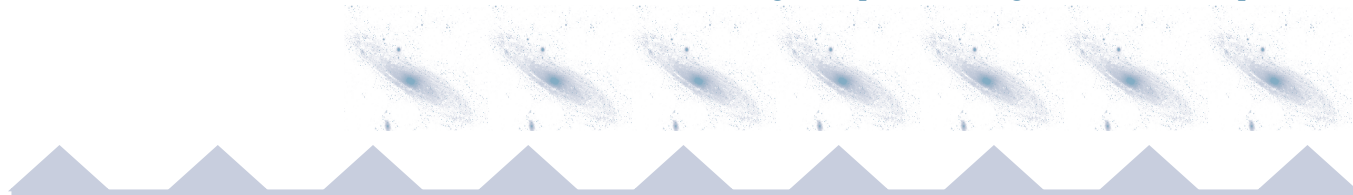
Every second, a lethal “tsunami” of energy—in the form of electromagnetic radiation and solar wind—streams out from the Sun and sweeps past Earth. But how does our Lord Jesus Christ keep us from being consumed by this radiation, and what does this tell us about our Creator?

Gamma rays, X-rays, and most ultraviolet rays produced by the Sun are absorbed in the upper 90 percent of Earth’s atmosphere. It’s only at or near the planet’s surface that we are relatively free of deadly solar radiation. Our kind and loving Creator engineered the layer of air surrounding Earth to act as a transparent filter to screen out the Sun’s most harmful rays. At the same time, He allows life-giving sunshine to pass through this atmospheric shield and gently bathe His creation.

The *solar wind*, on the other hand, presents the world with a different challenge. A constant barrage of supercharged electrons and protons shoot out from the Sun at one million mph (1.6 million km/h). Our Lord Jesus protects the world from this onslaught of subatomic bullets by positioning our planet at the center of an enormous, teardrop-shaped magnetic field. The *magnetosphere*, as it’s called, deflects the high-speed missiles of the solar wind away from Earth.

Since the beginning of time, our Creator has hinted at the presence of this magnetic mantle and His incomparable grace of protection. He allows a wee bit of the solar wind to leak into the atmosphere around the north and south poles, creating the breathtaking *aurora borealis* in the northern hemisphere and *aurora australis* in the southern hemisphere.

These auroras mirror God’s splendor and love, for it is Christ’s design of the magnetosphere, along with the atmosphere,





that protects all of mankind from certain death.

The Lord reduces the intensity of the Sun's radiation a millionfold as it travels from its fiery heart to Earth. So, the next time we're tempted to complain about something, let's remember that God lavishes infinite kindness upon us every moment of every day!

*"By the meekness and gentleness of Christ . . ."*  
2 Corinthians 10:1

## GENTLE LIVING LIGHTS

Our Lord Jesus does not use the seething palette of unapproachable light to paint all of nature. He also created a gentle source of illumination no less beautiful than stars. Its flame is cool to touch, the product of a complicated chemical process. This "fire" does not blaze from outer space but radiates from within the bodies of living creatures. It is a delicate, divinely-fashioned glow called bioluminescence (bi - oh - loo - mi - NES - ens).

Many of us are familiar with the flashing of fireflies or lightning bugs. But numerous other organisms produce their own light as well: mushrooms, fish, insects, algae, bacteria, squid, worms, jellyfish, shrimp, and clams. God supplied each with a light-producing chemical called *luciferin* (loo - SIF - er - in). When luciferin is exposed to oxygen,

light is given off. Oxygen is needed to produce this life-light just as a candle flame needs oxygen to burn.

Green, yellow, and blue are the most common hues produced by bioluminescent creatures. More rarely, animals may shine with red lamps. Unlike stars and the artificial lights that people have invented, the energy produced by a firefly, for instance, is almost all light and essentially no heat.<sup>9</sup> Scientists thus refer to it as a "cool light."

Jesus, our ever-caring Shepherd, provides for all our needs (Psalm 23:1). He supplies our bodies with numerous species of bacteria to help us digest food and stay healthy. In the Red Sea, there is a creature called the flashlight fish that also possesses bacteria. And like fireflies, God gave these deepsea fish the ability to glow. The flashlight fish is so named for the sacs under its eyes that are filled with bioluminescent bacteria. It uses these spotlights in the darkened depths of the Red Sea to find its way around and search for food.

The care of our Creator is seen in the marvelous design of other bioluminescent fish as well. Smaller fish are often eaten by larger animals. To prevent being noticed by hungry creatures in the water below, some fish can light up their bellies and adjust the intensity to match the sunlight filtering through the water from above. They become essentially invisible.



<sup>9</sup> LED lights give off heat, though much less than incandescent or halogen bulbs.

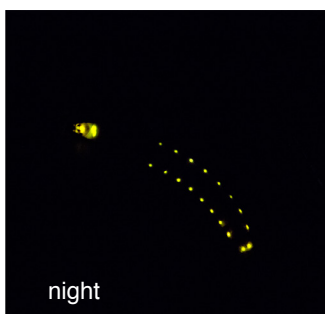


The Lord's *winsome creativity* can also be seen in creatures displaying these delicate lights of life. The fire beetle of Central and South America has an intense beam located on each shoulder. They give the appearance of car headlights, allowing the insect to see in the dark. Another South American beetle—the wingless railroad worm—illuminates its small world with a series of lamps. If jostled, it transforms into a miniature “train” with nine sets of greenish-yellow lights on the sides of its body, shining like the windows of a train coach at night.

*Railroad worm*



day



night

Bioluminescence supplies the owner with a means of searching in the dark, finding food, communicating, escaping from enemies, and defending its home. It also gives joy to our Lord and us by the fragile beauty it exhibits.

Bioluminescence has some practical human applications as well. Native people of South America keep fire beetles in small cages and use them to light their homes. About forty fire beetles produce as much illumination as a sixty-watt light bulb.

The delicate, creative touch of our Lord can easily be seen in these living lights. They shine in utter contrast to the searingly hot and blinding stars of heaven. The one and same God produced them both, giving us another glimpse into the wonder of His all-powerful, yet lavishly gentle character. He is truly the God to be feared and adored!

## MYSTERIOUS LANTERNS

It goes by many names: will-o'-the-wisp (U.S.), aleya (Bangladesh), chir batti (Japan), pixy-light (Great Britain), and boi-tatá (Brazil). And it may be the most mysterious form of light ever seen in nature. For almost 700 years, bogs and marshes have been visited by these elusive, ghostly lamps of unknown origin.

The will-o'-the-wisp has been observed throughout history. It presents itself as a small blue and yellow flame, hovering above the ground, often appearing near standing water and reeds. Observers have reported that the light produces no heat, is easily disturbed by moving air, and lasts no more than 15 minutes.

Over the past 300 years, many theories have been put forward to explain this strange phenomenon, but none seem satisfactory. Part of the problem is that the will-o'-the-wisp is rare and no scientific investigation has been possible. The best explanation thus far is that decomposing bacteria in waterlogged marsh soil produce the gases methane and phosphine, which then somehow ignite.

Whatever the cause, it seems that our Creator Jesus uses these “swamp candles” to advertise the far greater mystery of decomposition. And maybe they are meant to remain one of the secret things that belong to the Lord our God (Deuteronomy 29:29).



Painting by Josiah Wood Whympier 1849.

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## FINAL REFLECTION

In Scripture, light represents many things: physical illumination (Genesis 1:3), God's glory (1 Timothy 6:16), truth (Psalm 43:3), obedience (Isaiah 2:5), the earthly ministry of Christ (Matthew 4:16), Gospel hope (Isaiah 49:6), holiness (Isaiah 10:17), Christ's kingdom (1 Peter 2:9), true Christians (2 Corinthians 6:14), righteousness (Romans 13:12), love (1 John 2:10), life (Psalm 36:9), salvation (Psalm 27:1), justice (Isaiah 51:4), and Jesus (John 12:36, 46). Jesus is the Light of God (2 Corinthians 4:6)—and we either love this Light or not. There is no middle ground.

In this life, the beauties and glories of our Creator are on display for everyone to see and enjoy. At night, Jesus pulls back the blue veil of the atmosphere allowing us to “hear” the celestial spokesmen of His magnificence (Psalm 19:1). But in Heaven, there will be no veil, only the light of His glory! In Heaven, God Himself and the Lamb are its light. And if we belong to Christ, we will forever enjoy His splendor—directly and ever-more brightly.

Not so with those of this world who, though they observe the glory of God in creation (Romans 1:20), reject His Son (Acts 4:11). Sadly, their eternal destiny will be darkness. Not the darkness of a shadowy night, but *utter darkness* where there is no light at all. No stars, no fireflies, no lamps, nothing. “They will be punished with everlasting destruction and shut out from the presence of the Lord and from the majesty of His power” (2 Thessalonians 1:9), and “for whom blackest darkness has been reserved forever” (Jude 13).

So, what do we do? Will we cling to the blackness of our sins and our rebellion against God? Or will we turn from the evil we do and receive Christ by believing His Gospel (John 1:12)? If, like most people, we say that we are “basically good,” then “we claim to be without sin, we deceive ourselves and the truth is not in us” (1 John 1:8). Scripture says that “all have sinned and fall short of the

glory of God” (Romans 3:23). No one will be admitted into Heaven clothed in their sins. But God's Son came to Earth, took on human flesh, lived a perfect life, and died on a cross to satisfy the holy justice of the Almighty. If we believe this—repenting of our sins—then we will experience His eternal Light.



*To Him who is able to keep you from stumbling and to present you before His glorious presence without fault and with great joy—to the only God our Savior be glory, majesty, power and authority, through Jesus Christ our Lord, before all ages, now and forevermore! Amen. Jude 24 & 25*



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