



CREATOR

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VOLCANIC LESSONS

How great are Your works, O LORD!
Your thoughts are very deep. Psalm 92:5

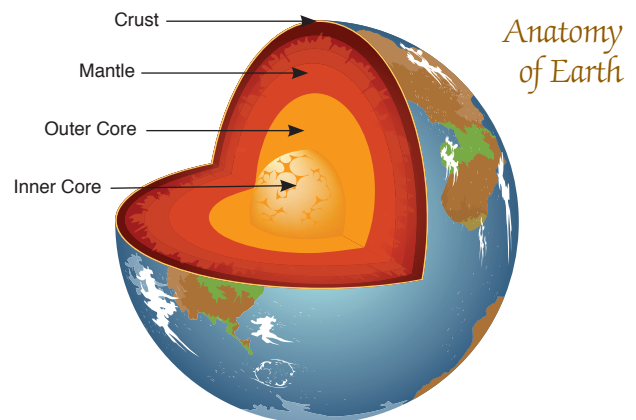
“Now where did I put that sample of lava? Oh, hi, I’m Professor Seismo,¹ and I’m running some experiments on volcanoes today. Welcome to my laboratory! . . . It must be around here somewhere. Ah, here it is . . . in my lunch box? Oh no, the lava has roasted my apple.”

The professor blows on the apple and very carefully takes a bite. “Mmm, tastes pretty good.” Professor Seismo is a dedicated scientist and he loves the Lord Jesus with all his heart. He spends much of his waking hours searching God’s Creation in order to discover the attributes of our Lord radiating from nature (Romans 1:20). The professor is also a bit absent-minded and clumsy—we must forgive him for that.

“My friends at His CREATION said you would be visiting today and I’m so glad to have you in my lab. Let me take a moment to explain what I’m doing. I believe that all Creation communicates the greatness of our Lord Jesus Christ. After all—with His Father and His Spirit—Jesus made everything and He keeps it running. Well, today I’m trying to discover exactly how volcanoes speak of God.

“I hope Italy won’t mind me borrowing Mt. Vesuvius one more day.² I’ve got so many experiments to run. But before I go further, why don’t I tell you how God creates volcanoes?

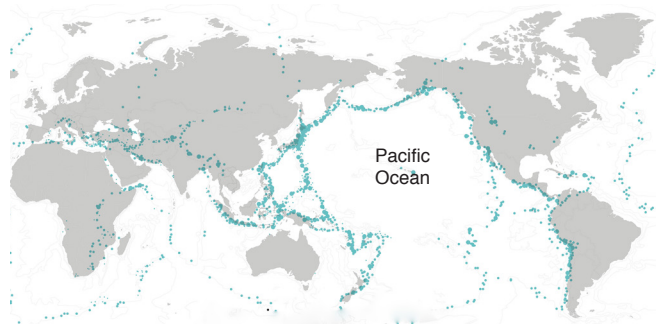
“If I could slice the world in half like this partially-cooked chicken’s egg . . . oh no, now that made a mess! Well, if I could, you would see that we live on a slender crust of rock that is about 50 miles (80 km) thick. The diameter of Earth is almost 8,000 miles (12,800 km), so this crust is relatively thin. And it lies on top of a layer of hot material called the *mantle*. The mantle is a dense region inside Earth that contains pockets of molten (liquid) rock known as magma. Think of Earth’s crust like the shell of our egg here . . . uh, one that hasn’t been smashed . . . and magma like the runny egg white inside. Deeper still is the core or ‘yolk’ of the Earth, composed of solid and liquid iron/nickel.



¹ Professor Seismo (SIZE - moe) is a fictitious character.

² Somehow, Professor Seismo figured out how to shrink volcanoes down to the size of his thumb. But we have no idea how he did it.

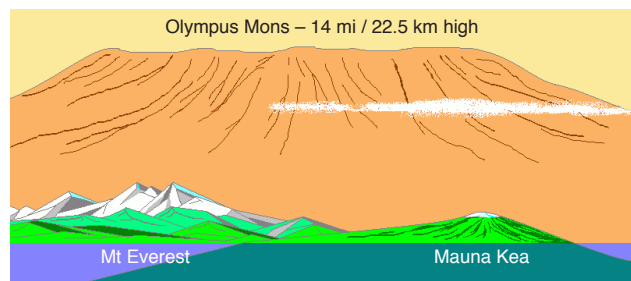
“Our Lord Jesus forges volcanoes by pushing extremely hot, liquid rock up through the ‘shell’ or crust of the earth and out onto the surface. Molten rock found above ground is called *lava*; below ground it’s *magma*. Volcanoes often form where God has carved deep crevices in the Earth’s surface. Now that I think of it, it would be more accurate if we said that Earth is similar to an egg that is *slightly cracked* on all sides. These cracks or faults run all across the planet.”³



The blue dots represent cracks / faults in Earth’s crust —the locations where volcanoes frequently appear.

“Several faults surround the Pacific Ocean. As a result, active and inactive volcanoes are common along the western coast of the Americas and the eastern coast of Asia, including Japan and Indonesia, as well as several South Pacific islands. Volcanoes are so common here that geologists refer to this entire region of the world as *the Ring of Fire*.

“Did you know that volcanic activity is not limited to Earth? Our amazing Creator Christ Jesus placed volcanoes on the planets Venus, Mars, and Pluto as well as Jupiter’s moons Io (EYE - oh) and Europa, and Neptune’s moon



³ Read about Earth’s faults and plate tectonics in the **CREATOR Journal** Volume 22 Number 3.

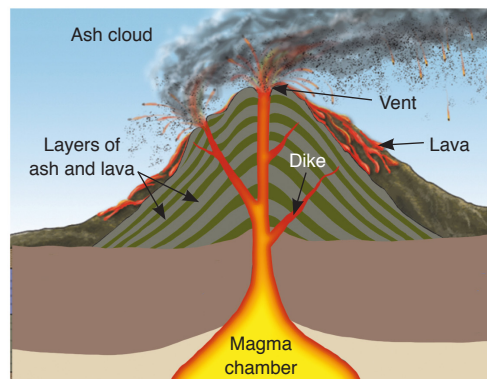
Triton (TRY - ton). And Olympus Mons on Mars is the tallest and most massive volcano in the Solar System, though inactive.

“God has been especially creative with Triton. Because of its great distance from the Sun and its frigid temperatures, volcanoes on Triton spew out liquid nitrogen instead of molten lava. Neat, huh?

“Let me carefully dissect a volcano I’ve collected from our planet and show you how it’s been fashioned by God. Now, where did I put it? . . . OH NO, MY LAB COAT IS ON FIRE!”

Professor Seismo quickly slips on asbestos gloves, reaches into the pocket of his white lab coat, and pulls out a steaming volcano.

“Owww . . . there it is! You know, you’ve got to be careful where you put these quick-tempered brutes. If we cut this volcano in two we will be able to observe its inner anatomy.



“I’m holding a composite or *stratovolcano*—one of three types of volcanoes Christ makes. Do you see the column of magma running up through it like a soda straw? This vertical tube allows molten rock to ascend from the magma chamber located beneath the earth to the top of the volcano. The *vent* is where the rising magma meets the air and becomes lava. Magma can also travel diagonally through branching tubes called *dikes*, occasionally reaching the surface on the sides of the volcano. Molten rock then cools and turns solid within the volcano. Our Lord Jesus uses these hardened dikes to support



the internal structure of the mountain much the way He uses bones to support vertebrates.”
The professor’s lab coat is still smoldering.

“As I said, there are three types of volcanoes: cinder cone, composite, and shield. *Cinder cones* represent the smallest of volcanoes and arise when Earth violently spews out partially solidified lava that breaks into small pieces called *cinders*. These cinders fall back to earth and create a cone-shaped mountain as they pile up. Cinder cone volcanoes rarely grow more than 1,500 to 2,000 feet (460 to 610 meters) in height.

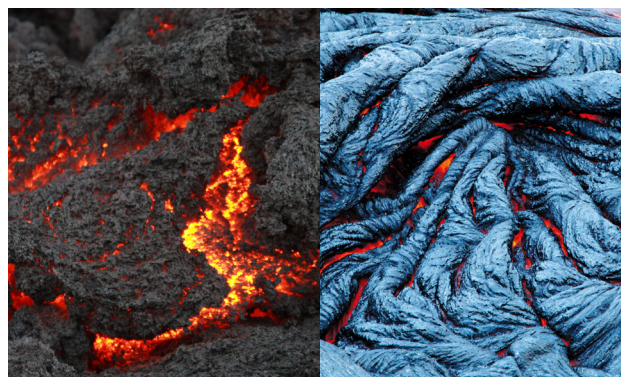
“The Lord Jesus releases lava, ash, and hot gases from beneath the ground to create *composite volcanoes*. He applies alternating sheets (strata) of lava and ash to the sides of the volcano much the way cake and icing form a multilayer dessert. Over time, composite volcanoes become stunningly majestic, often reaching two miles (three km) in height.⁴

“The third type—a *shield volcano*—is fashioned almost entirely of rather runny lava that flows out of cracks in the ground (like warm honey) and then hardens. Year after year, lava is added to the gently sloping sides of the mountain. Kilauea and Mauna Loa on the island of Hawaii are both shield volcanoes. This kind can also reach two to three miles (3 to 5 km) tall. Because the lava flows out gently, shield volcanoes don’t normally experience the violent eruptions seen with composite and cinder cone volcanoes.

⁴ Krakatoa, Vesuvius, Kazzbek, Kilimanjaro, Pelée, Rainier, St Helens, and Pinatubo are examples. Stratovolcanoes make up 60% of all volcanoes.

“There are two basic kinds of lava produced by volcanoes: *pahoehoe* (pah - HOY - hoy) lava and *aa* (ah - ah) lava. Lava is rock turned to liquid when heated to about 2,000° F (1,100° C). Pahoehoe lava is hotter, thinner, and faster moving than aa. It develops a smooth ropy surface when it cools.⁵ Aa lava is thicker and creates a very rough crust. People who try to walk on cooled aa with their bare feet usually say, ‘Ahh! Ahh!’”

A huge smile appears on Professor Seismo’s face. He’s tickled that he just made a (not-so-original) joke.



Aa lava

Pahoehoe lava

“Solid rocks blown out of an erupting volcano also come in several varieties. *Ash* is composed of very small fragments of fine sand. Pea-sized to egg-sized volcanic cinders are known as *lapilli* (lah - PILL - lee). And larger chunks of rock, some as big as houses, are called *blocks*. Blocks can weigh several

⁵ Pahoehoe can also form *pillow lava* when suddenly cooled by seawater.

Tephra or Pyroclastic Rocks

Ash



Less than 2 mm

Lapilli



Up to 2.5 inches / 64 mm across

Bombs and Blocks



Larger than 2.5 inches / 64 mm

tons. Hot, molten rock that cools in mid-air after being shot out of a vent, forms huge ‘drops’ of solidified lava referred to as *bombs*. All of these several types of rock—ash, lapilli, blocks, bombs—thrown into the air by an exploding volcano are collectively termed *tephra* (TEF - ruh) or *pyroclastics* (pi - row - KLAS - tiks) by volcanologists.”⁶

There are several holes in the top of Professor Seismo’s lab table where volcanoes once sat. Whistling “How Great Thou Art,” and seemingly unconcerned, the professor again uses thick asbestos gloves to pick up one of the volcanoes just as it starts burning its way through the floor. He sticks a long probe into its vent.

“I’ve discovered that magma moving inside a volcano can produce tremors at the Earth’s surface. And sometimes violent earthquakes occur with active volcanoes.”

Sunshine floods the lab through large, side windows. Blue-eyed and light-sensitive, the professor slips on his favorite pair of sunglasses as he walks across the well-lit room. Professor Seismo is now staring through the porthole of a special pressure chamber he designed to test the explosive power of volcanoes. He’s still wearing his sunglasses.

“Boy, it’s dark in there! I’ve got to get a new light bulb for the chamber.

“One of the most obvious ways an erupting volcano reflects the fear of our Lord is by the sheer power it produces. It has been

estimated that the famous 1883 eruption of the Krakatoa (crak - ah - TOW - ah) volcano in Indonesia produced an explosion equivalent to *five billion tons* of dynamite. The detonation was so loud that it woke up people living in Australia 2,000 miles (3,200 km) away! It also created huge waves, known as tsunamis (sue - NAH - mees), which killed 36,000 people.”⁷

The professor moves over to his desk and examines a volcano under the microscope. The heat from the mountain is intense and he wipes sweat from his forehead several times as he peers through the instrument.

“If I could just get a little clearer focus . . . there, now I can see well. WOW, those must be veins of silver and gold. Did you know that the Holy Spirit revealed to Job how God uses magma to create precious metals and gems deep within the ground? The Lord recorded this in His Word three thousand years before geology became a science:

“The earth, from it comes food, and underneath it is turned up as fire. Its rocks are the source of sapphires, and its dust contains gold.” Job 28:5-6

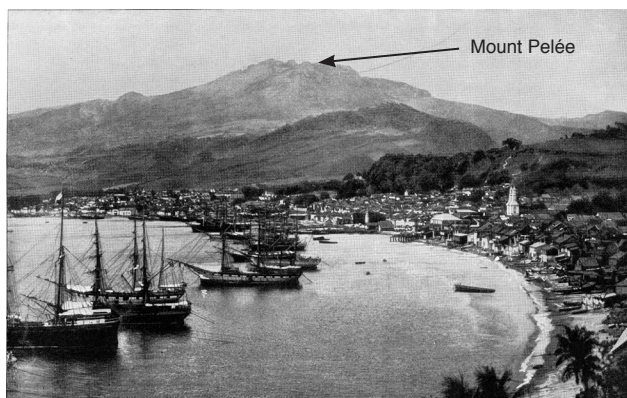
“Uh oh! I’d better figure out how to insulate my equipment from the incredible heat of these miniature infernos.”

Under the intense flames of the fiery mountain, Professor Seismo’s microscope begins to soften. Within minutes, his prized instrument is reduced to a twisted pile of glass and metal.

⁶ A volcanologist is a geologist who studies volcanoes.

⁷ Read about tsunamis in **CREATOR Journal** Volume 18 Number 3.

Saint Pierre was founded by French settlers in the summer of 1635, just five miles (seven km) directly south of Mount Pelée. At the time, no evidence of recent volcanic activity existed and there was, therefore, no reason to locate the colony anywhere else. From humble beginnings, the town grew in population and prosperity. Eventually, Saint Pierre came to be known as “The Pearl of the Caribbean” due to its climate, culture, and commerce. Martinique was a tropical paradise bathed in warm weather year-round. The island enjoyed beautiful flora and fauna, and was nourished by close-knit communities. God had been very kind to the inhabitants there, yet by the turn of the twentieth century something had gone horribly wrong in the northern port city.



The port city of Saint Pierre not long before the 1902 eruption

By the year 1902, Saint Pierre had grown in worldliness and immorality. Although they knew it was wrong, many citizens chose to habitually disobey God’s Word. Men and women were not always faithful to their families and Saint Pierre had become proud of its wealth. They apparently did not find joy in their Creator or His Creation but rather in the things they owned, the clothes they wore, and the money they earned. Their affection for these things replaced any love they may have had for Christ. And sadly, people found more security in praying to saints or attending formal church services than they did in humbly

depending upon the Lord for their daily needs. By 1902, many of the townsfolk had become agnostic;⁹ even so, they clung to various forms of idolatry. A stately statue of the Virgin Mary, placed on a nearby hillside, loomed large over the city’s central cathedral, along with a number of statues depicting popular saints.

Despite their rebellion, our kind and compassionate Maker graciously provided them abundant warnings of His growing displeasure. In 1792 and 1851, Mount Pelée revealed some of its potential fury through minor eruptions, which fortunately did little damage. Historians have since discovered a prediction made by geologists in 1851 that the volcano would likely blow its top within the next 50 years. Tragically, this prediction was soon forgotten.

In the early months of 1902, visible fumes started to rise from the top of Mount Pelée, some 4,500 feet (1,370 meters) above the sea. By late February, those living on the western coast of the island were being inundated with the overwhelming smell of rotten eggs caused by hydrogen sulfide emissions released from the volcano. This became one of the first *not-so-subtle warnings* from our Lord Jesus Christ, Creator of the mountain and Sovereign over its activity. Some locals described the intermittent growling noises Pelée produced as “an old man snoring.” (We might wonder how many today remain totally unconcerned about the coming divine wrath because they either convince themselves that there is no God or, if there is one, he must be asleep.) All during March, the stench of sulfur increased to nauseating levels. Yet few left Saint Pierre.

Behold, He who keeps Israel

Will neither slumber nor sleep. Psalm 121:4

This grand theatre of God’s anger continued into April with volcanic clouds often hiding the summit from public view. By mid-April, the ground around the mountain

⁹ An agnostic person is someone who believes that God’s existence cannot be known (neither confirmed nor denied).

began to rumble, frightening the local citizenry. On April 22 and 23, three separate earthquakes caused terrifying rockslides on the southwest side of the mountain. And throughout the evening of April 23, great billows of gloomy ash, caustic gas, and scalding steam belched upwards from the volcano's throat. Hidden from view, magma underground was creeping its way to the surface. Yet very few evacuated the area.

Mount Pelée mysteriously fell silent during the final five days of April, giving the 30,000 residents of Saint Pierre a false sense of security. This became "the calm before the storm!"

The city was jolted from its slumber in the early morning hours of May 1 by the deafening sound of explosions, the odor of pungent black smoke pouring from the summit, and blinding flashes of lightning traversing the fumes. A local resident starkly described his city as, "Standing on the brink of Hell!"

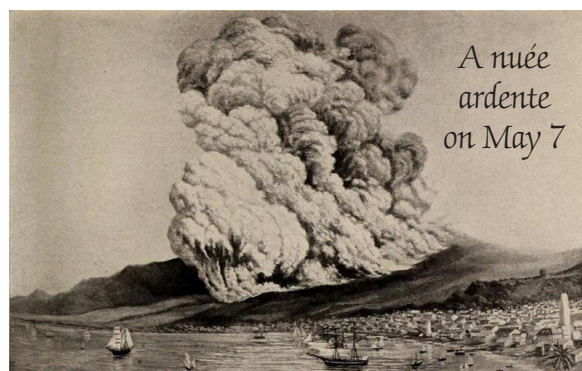
Eruptions were now becoming more frequent. Falling ash blanketed the city and countryside creating a gray landscape devoid of color¹⁰ and an eerie, otherworldly quiet when eruptions occasionally ceased. By mid-afternoon on May 2, the sky became so choked with dark ash that it appeared as black as a moonless night. "We could hear people weeping and moaning,"¹¹ reported Emilie Dujon, the wife of a young planter who was relatively safe from the mountain's hand of wrath (see map on page 5). Mount Pelée again became silent on May 4 mercifully providing residents time to escape. Very few chose that option.

The violence of the following day—the 5th of May—proved biblical in character. Huge flows of hot mud and debris (known as a *lahar*) raced down the mountainside, destroying a sugar mill in the process and killing its 30 employees. Venomous ants and giant centipedes, driven from the surrounding

tropical forests by the volcano's heat and smoke, invaded local cane fields and inflicted horribly painful bites on both animals and workers. Agitated vipers and other poisonous snakes seemed to appear out of nowhere, invading the streets of Saint Pierre—biting untold numbers of citizens—killing at least 50 people and 200 animals.

May 6 proved to be another warning of the worst to come, ushering in great columns of black ash laced with brilliant volcanic lightning. A terrifying red glow now appeared at the summit, and for the first time, rocks blasted out of Mount Pelée's vent. Despite all this, most folks in Saint Pierre stayed put, being reassured by civil authorities and the local newspaper that the city was "the safest place to be!"

Applying a type of "extreme kindness," our Sovereign Creator published the most severe warning yet on May 7 at 10:30 a.m. With less than 24 hours to go, our Lord brought forth from the mountain something scientists call a *nuée ardente* (French for "glowing cloud")—a



volcanic event completely new to the geology of the time. A *nuée ardente* (noo-ay ar-dant) is an 1,800° F (1,000° C) cloud of searingly hot and dense ash, rock fragments, and glowing gas that typically sweeps down the slope of a volcano, like an avalanche, at speeds up to 480 mph (700 km/h). The English-speaking world knows it as a *pyroclastic flow* (*pyro* is Greek for "fire," *clastic* is Greek for "broken"),

¹⁰ Everything in this beautiful tropical paradise became colorless—another warning of our Creator's displeasure.

¹¹ Alwyn Scarth, *La Catastrophe*, (Oxford University Press, 2002), p. 49.

There may be no more deadly natural force on Earth capable of instantly snuffing out life! Several such pyroclastic flows, or nuées ardentes, emerged from Mount Pelée on May 7, but mercifully stopped their horrifying onslaught part way down the mountain. God was giving the people of Saint Pierre one final opportunity to leave the city before it was too late. Sadly, few did.

*It is a terrifying thing to fall into the hands
of the living God. Hebrews 10:31*

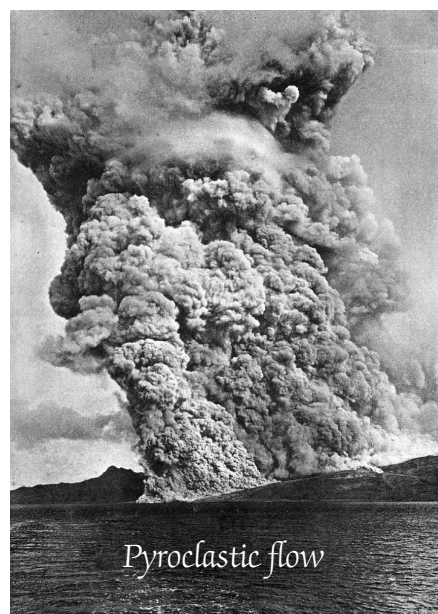
The much-anticipated Ascension Day Celebration¹² arrived on Thursday, May 8, greeted by a cloudless, blue sky. Many of Saint Pierre's citizens attended early morning communion services in the city's cathedral.



Saint Pierre Cathedral

Prior to services, the volcano rang forth one last warning bell as “hundreds of small earthquakes resonated through the mountain.”¹³ Then came the end. Just before 8:00 a.m., a super-eruption tore apart the summit. And another far more powerful and deadly nuée ardente exploded forth with a detonation that was heard in Venezuela.

The catastrophic pyroclastic flow roiled down the mountain at breakneck speed, reaching Saint Pierre and its 30,000 citizens in



less than two minutes. And in less than three minutes (8:02 – 8:05 a.m.), all living creatures in Saint Pierre perished, save two men.

The blast “ripped off the dome of the packed cathedral and flung it into the sea.”¹⁴ “The impartial nuée ardente showed no prejudice”¹⁵ killing black and white, men and women, the elderly and children. It is reported that 20,000 people simply disappeared and were never found again. The commander of the French ship *Suchet* arrived in the Bay of Saint Pierre around 1:30 p.m., shocked and terrified to see an immense



Saint Pierre totally destroyed

¹² Ascension Day is the celebration of Christ's ascension into Heaven, 40 days after Easter.

¹³ Alwyn Scarth, *La Catastrophe*, (Oxford University Press, 2002), p. 114.

¹⁴ Alwyn Scarth, *La Catastrophe*, (Oxford University Press, 2002), p. 117.

¹⁵ Alwyn Scarth, *La Catastrophe*, (Oxford University Press, 2002), p. 120.



inferno where the city once thrived. Fifteen of the sixteen ships moored in the bay were also capsized.

It is not for us to judge, but we can recognize with meekness that the twentieth-century residents of Saint Pierre had become cavalier toward Christ their Creator—forgetting the fear of the Lord and going through the motions of religion devoid of His Gospel. Tragically, their town was awash with idolatry. This is a heartbreaking story of God's mercy and man's stubborn rebellion. And it is a warning to us all that *we should not ignore our Creator!*

Why was Saint Pierre destroyed and not some equally sinful volcanic village? Given God's unsearchable wisdom and mysterious providence (Romans 11:33-36), we cannot know the answer to this question. But as with the Tower of Siloam (Luke 13:4), we need, with childlike humility, to learn from *the message of Mount Pelée*. A divine "nuée ardente" with everlasting consequences is soon coming upon the heads of all who reject God's Messiah and His one true Gospel. Most will not heed the warnings our Lord gives in His Word and sadly *few will be saved*.

*Much less will we escape who turn away from Him
who warns from heaven. Hebrews 12:25*

HIS LOVE FOR HIS GLORY

*In Your presence is fullness of joy; In Your right hand
there are pleasures forever. Psalm 16:11*

The message of Mount Pelée—which Christ preached to the world in 1902—was a three-point sermon of divine love:

- God's love permeates His warnings,
- God shows love in His destruction of idolatry,
- God has a jealous love for His own glory and desires His children to rightly enjoy Him.

1) Our Lord does not delight in the death of the wicked (Ezekiel 33:11), so in love, *He warns the disobedient*. The Old Testament is replete with accounts of God patiently confronting rebellious people with how they had turned from Him to idols.

2) Throughout history, our Creator has repeatedly called His own to forsake idolatry because it dishonors God and cripples their faith. Idols draw people away from seeing His glory and experiencing His ineffable joy. In this way, Saint Pierre is a warning to us all. If we treasure anything more than Christ, we will suffer God's displeasure (Revelation 2:4-5).

3) God loves His own glory and it is what brings Him the most delight. And He delights to share this glory with His children for their joy (Psalm 16:11). If we diminish God's majesty in our own minds or worse, in the minds of His little ones,¹⁶ we put ourselves in grave danger (Matthew 18:6). Even the smallest distraction from a pure devotion to Christ (2 Corinthians 11:3) amounts to idolatry. He will not allow anything or anyone to come between Him and His children's enjoyment in His glory. If necessary, He will use violence to prevent this!

Martinique was a "Garden of Eden" prior to 1902. The easy-going townspeople frequently picnicked around the lake at the volcano's summit and enjoyed the numerous other tropical pleasures this island afforded.

¹⁶ The "little ones" Jesus speaks of in Matthew 18:1-6 are His disciples—everyone who has put their trust in Him.



They knew God's benefits, but it appears that they did not know Him (Galatians 4:8). This is the essence of their idolatry.

*"They have made Me jealous with what is not God;
They have provoked Me to anger with their idols."
Deuteronomy 32:21*

When people turn their hearts from their Creator they will inevitably embrace idols. So we can humbly conclude that Saint Pierre's rebellion greatly angered our Lord.

In the aftermath of the 1902 eruption, geologists found a three-ton statue of the Virgin Mary hurled 40 feet from its pedestal and onto the Rue du Morne d'Orange, a major street in Saint Pierre. This divinely providential dethroning brings into focus



The shattered remains of the cathedral

God's first and most important command for all people everywhere: *"You shall have no other gods before Me"* (Exodus 20:3). And it points to another vital truth: a pure worship of the Living God is safe; false worship is exceedingly dangerous.

How can we then know our Creator in true love and steal ourselves from idolatry? By knowing God's Son, Jesus Christ, and being purified from all our idols through His blood. Jesus willingly died on a cross for those of us who believe in Him, obey His Gospel, and want victory over idolatry. None of us can enter Heaven and approach the Living God unless we are purified from our sins and made holy. And no one can be holy unless he or she has true faith in Christ Jesus and is clothed in His righteousness (Isaiah 61:10).

If you long to know your Creator, then *ask Him to increase this desire!* Plead with Him to reveal your sins to you—the ways you have rebelled against Him and clung to idols in your life. Request His grace of repentance and forgiveness for your sins. Jesus died for the sins of all who would love Him and He rose up from the grave to justify them. Not only that, He ascended from Earth and into Heaven, paving the way for us to come back into Paradise. Christ has sent His Spirit to those who inherit eternal life (John 16:7), that they would grow in personal holiness and the sweet knowledge of His glory. Jesus is now seated at the right hand of the throne of His Father interceding for all true saints.

"Therefore, we are ambassadors for Christ, as though God were making an appeal through us; we beg you on behalf of Christ, be reconciled to God." 2 Corinthians 5:20

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