

Recent Technical Knowledge Discovered in Ancient Literature

by
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Note: The writings of An Old Scientist, though technical in content are written without stilted language typical of scientific writings. This is done for the express purpose of being readable by the general public.

Abstract:

Nearly fifty years ago, November 14, 1969, at 11:22 A.M. Eastern Standard Time, thirty-six and a half seconds after lift off, lightning struck and followed the conductive vapor plume of the Apollo 12 rocket trail directly to the launchpad on the ground.

In 1969, it was a complete surprise that the Apollo 12’s rising vapor plume caused lightning to be directed to the ground; to its own launchpad. NASA had not anticipated it.

Some thirty years after Apollo 12, in 2003, humans had gained sufficient knowledge to invent a lightning rocket that applied the same scientific principles for the specific purpose of directing lightning to its own launchpad by means of a rising vapor plume.

Meanwhile, modern science has learned many technical details about the physics of air and water and how to direct its strike utilizing those unique properties.

Those newly discovered technical details are reviewed in this paper and compared to the technical details recorded in an ancient account from some three thousand years ago. Those recorded technical details indicate ancient knowledge of the science behind directed lightning; ancient knowledge of technical information only recently discovered by modern science.

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Lightning: Recent Technical Knowledge from Science:

Technical Knowledge about Lightning is relatively new:

Lightning has always been mysterious and uncontrollable. Just fifty years ago we did not know the answers to mysteries like these:

Why does lightning preferentially strike a green tree when there is a steel tower nearby?

Why do so many wild horses die of lightning preferentially targeting them?

Why did lightning follow the vapor trail of the Apollo 12 mission rocket to the launchpad?

Could it have anything to do with the plume of moist vapor rising from the tree, the horse, and following the rising Apollo 12 rocket?

In 1969, For Lightning to be directed by a Vapor Plume was totally unexpected.

On the morning of November 14, 1969, thirty-six and a half seconds after lift off, lightning struck the Apollo 12 space vehicle rocket and followed the rocket's vapor trail directly to the launchpad on the ground.¹ This was the first recorded incident of human controlled lightning via a vapor plume; of humans directing lightning to a specific ground target by use of a plume of vapor. But it was not intentional. Nor was it understood.

That guidance was accidental, unexpected, and unrecognized. It took years of research to make the connection that a rising plume of moist vapor was electrically conductive enough to guide a lightning strike to a target.

In 1969, NASA did not expect this nor was it anticipated². It was a complete surprise. Modern Science had not predicted it. It had not even been previously considered. At the time it happened science did not have an explanation for it. At that point in time, science did not know how or why.

But before long, modern science figured it out.

Nine years earlier, in August of 1960, a rocket from a ship at sea off the Florida coast near St. Petersburg had intentionally guided the first artificially triggered lightning. But it was done with an electrically conductive thin wire trailing behind the rocket.³

But it had never been done with a vapor plume.

For thousands of years, even as recent as through the middle ages, lightning was considered to be a frightening phenomenon and in the realm of magic of the gods.

Less than three hundred years ago, before the days of Benjamin Franklin and his lightning rod, we did not even recognize lightning to be electricity.

Once we learned that, the dream of controlling it was born.

A Few Technical Details from the Science of Lightning:

Three hundred years ago the science of lightning was unknown, let alone the dream of controlling it. But now we know how it can be done.

To get lightning to strike an intentional and predicted target does not require magic or supernatural powers.

It requires a vast knowledge of the science of directed lightning.

Lightning is Electricity

The science of lightning began with the discovery that lightning is electricity.

Less than three hundred years ago we did not know that lightning was electricity. Tradition has it that in the 1750's, Benjamin Franklin flew a kite in a thunderstorm and drew electricity from it. Since that time a lot has been learned about lightning beyond that it is electricity. Learning that lightning is electricity led to experiments in the protection of buildings from lightning damage by such things as electrically conductive lightning rods. Since then the science of lightning has become much more sophisticated.

Electricity (Lightning) follows a path of least resistance:

Since lightning is electricity, it follows a path of least electrical resistance.

We now know ground strikes follow an electrically conductive path between an electrical charge in the upper atmosphere and the opposite charge at the ground.

A Few Unique Physical and Electrical Property of Moist Air:

There are many properties that affect the electrical conductivity and resistance of air:

Air that is Moist Conducts Electricity more readily,

Air that is Dry Conducts Electricity less readily,

Air that is less dense as in higher altitude conducts electricity more readily,

Air that is denser as in lower altitude conducts electricity less readily,

High Altitude Air that is both moist and less dense conducts electricity best,

Low Altitude Air that is both dry and denser resists conduction most.

These properties make it hard for lightning to find a conductive path to ground. They cause both the spreading of electrically charged moist air at high altitude far in advance of the storm, and its discharge to ground to be resisted by the dense dry air below.

The Electrical Nature of Water and Air Includes Varying Conductivity:

This unique electrical nature of water is essential for channeling lightning strikes.

Since there are many factors that cause the electrical conductivity of air to vary, it varies within an air mass. It is these variances that allow electric discharge of lightning to be directed along narrow paths of least resistance. Without that nature of variability, the electrical discharge would be widely distributed, not confined to a lightning bolt.

“When moist air is exposed to higher electrical potential, as in proximity to potential lightning strikes, its conductivity tends to increase, becoming more conductive, suggesting molecular fragmentation is producing additional ions, but only at higher relative humidity, i.e. when the air is moister. As electrical potential increases, increased molecular fragmentation produces additional ions, increasing the conductivity; lightning is directed along the plume of air containing the moisture.”⁴

A Molecular Level Explanation of the Varying Conductivity:

The water molecule is a dipole; that is, it is more negatively charged at one end and positively charged at the other. This causes unique electrical characteristics such as are essential to life⁵, and even conduction of electricity as in lightning strikes.

This dipole nature of the molecules allows them to become aligned rather than randomly scattered when water vapor is near a static electric charge. This alignment⁶ modifies the electrical characteristics making the nearby water vapor even more conductive.

Thus, the electrical charge near air containing a significant quantity of invisible water vapor first opens a conductive channel then that charge is more readily conducted to ground through that open channel.

Once the conductance is sufficient, the heat of the passing electric charge ionizes the air and water in the channel resulting in another increase in local conductance, narrowing of the channel, and rapid expansion of the air in that channel resulting in the sound of thunder.

Lightning from a Clear Blue Sky: A “Bolt from the Blue.”

A “Bolt from the Blue” is lightning that appears to be coming from a clear sky on a sunny⁷ day. It is now recognized to be a natural phenomenon where a lightning bolt travels many miles in clear sky away from a storm cloud before it strikes the ground. It has been reported to strike up to 30 miles⁸ from its cloud of origin. Such lightning has been documented to strike more than 25 miles⁹ from a thunderstorm and is considered to be one of the most dangerous types of cloud to ground lightning.

A “Bolt from the Blue” can occur when a plume of moist air rises through the layer of dry air and penetrates to the electrical charge above. Once the electrical charge finds its path through a plume of moist air many miles from the storm, it can penetrate through the surrounding dry and lesser conductive air, appearing as lightning from a clear blue sky.

The Effects of Lightning Striking Water, Rocks, and Wood

When lightning strikes water the water is instantly vaporized.

It causes water soaked wood to instantly explode.

When lightning strikes water soaked rocks, they also explode.

That is a simplified summary of the science of lightning, but illustrates the point. There is a lot more to be understood before one can even think about directing lightning to a specific target at a specific time.

The Science of Directed Lightning:

We now know how to direct lightning to strike a specific target at the appropriate time. The technology works only in a short window of time when the weather conditions are right. We still cannot set up that short window of time. But we can direct the lightning to a specific target when the time is right by providing a path that is more electrically conductive than the surrounding air.

Lightning Rockets:

We now have what is called a “lightning rocket”¹⁰ that when fired into the charged cloud above, causes the lightning to follow an artificially produced conductive path to the ground.

Historically, lightning rods have been used for lightning protection. More recently the philosophy of protection from lightning has been to fire a lightning rocket directly into the charged air and induce lightning to strike away from the area to be protected. This method has the disadvantage that the timing of the firing of the rocket must coincide with just before the lightning would naturally strike the target to be protected. Timing is of the essence.

Two things are required for a lightning rocket to induce a lightning strike. They are the exact timing to coincide with the build up of electric charge overhead and a conductive path of least resistance to direct the course of the electrical discharge.

The rocket must be fired when the electric field in the target area reaches a critical point. Electronically sensing when the electric field is right satisfies the timing requirement. Elaborate sensing systems and ways to immediately fire the rocket have been devised.

The second requirement is typically met by trailing a metal wire behind the rocket. Typically a lightning rocket may have copper wire trailing behind it to provide the conductive path to the ground where the lightning is desired to strike.

More recently a lightning rocket was invented¹¹ with the conductive path not being a metal wire, but a plume of vapor that is more conductive than the surrounding air. This recognizes the technology of the rising plume of vapor following the Apollo 12 rocket providing the path of least resistance which the lightning followed to ground.

Lightning can be directed by A Plume of Water Vapor rising in dry air:

Trees, wild horses, the target in the 3000 year old ancient literature account, even the Apollo 12 launchpad all have a common thread. All have been struck by lightning when there was a plume of water vapor rising to meet a build up of static electricity in the air above them.

For the rising plume of moist air to reliably direct lightning, there is another requirement. To insure the vapor plume method is effective the surrounding air must be drier than the rising plume. Otherwise, it will not rise and it will not be a path of least resistance.

Therefore, not all wild horses nor all trees are struck by lightning. To insure the rising vapor plume would be the one path of least resistance the surrounding air must be very dry.

Natural and Humanly Provided Vapor Plumes:

Transpiration is the processes by which plants draw water from the soil and evaporate it into the air. It is essentially an invisible process, but can be photographed using modern cell phone cameras sensitive to infra-red light in the evening when sunlight is fading. It appears as wavy plumes rising over trees. A great amount of water vapor enters the atmosphere through this process. A large Oak tree, for example, can transpire 40,000 gallons¹² of water per year. Thus, there is a rising plume of moist air above a tall tree.

The nearby tree is struck by lightning instead of the steel tower even though the steel tower is more electrically conductive and reaches higher toward the electric charge in the clouds. This is because the steel tower has no rising plume of water vapor to extend its height.

Perspiration from large animals, especially after exercising, produces a plume of rising moist air above the animal. The wild horse is struck by lightning because when a lightning storm is approaching, horses get frightened and run around working up a sweat. They then stand in an open area and a plume of moist air rises above them.

In that ancient literature account, the dry surrounding air is provided by a preceding three year draught.

Lightning followed the Apollo 12 rocket vapor trail to the launchpad because the conductive vapor trail that came in contact with the electric charge in the stormy sky above was more electrically conductive than the surrounding air.

An Ancient Literature Account of Directed Lightning:

An Ancient Literature Account¹³ is preserved in the Judeo/Christian Bible. It is about a rising vapor plume directing lightning to a specific target at a time when there was a crowd of witness gathered. It is about Elijah and what is popularly referred to as “*Fire from Heaven.*”

In any research on science and the technical information recorded in ancient literature, it is well worth examining the technical details in that Ancient Hebrew account. Even though the account was recorded close to three thousand years ago, the actual technical details, when examined carefully, appear to be consistent with what we now know about the physics of lightning and the current technology of directing its strike.

The Account has traditionally been erroneously assigned a date of writing of sometime as recent as 550 BC having been religiously handed down via oral tradition for about three-hundred fifty years.¹⁴ However, the preciseness of the technical details preserved in that religious writing dictates it was preserved in writing closer to the ca. 900 BC time of the event.

Enough technical details are preserved in that account to recognize the veracity of the account. In fact, the included technical details appear to be so specific as to indicate they were in anticipation of later discovery by modern science.

Considering the technical details that are actually recorded, in the light of modern science it would be amazing if lightning had not struck the intended target.

In this paper we will explore some of the relevant technical details that were apparently known some three-thousand years ago, but not known by modern science some fifty years ago. We now know enough about the scientific principles involved to test the credibility of the ancient account.

The Ancient Account as Preserved in Modern Literature:

It had been three years since Elijah had warned King Ahab. The following was recorded in the biblical account as happening three years prior.

“And Elijah the Tishbite, who was of the inhabitants of Gilead, said unto Ahab, As the LORD God of Israel liveth, before whom I stand, there shall not be dew nor rain these years, but according to my word.” 1 kings 17:1 (KJV)

For three years there had been no rain, not even any dew. The creeks went dry. The grass dried up. The cattle were dying. The air was very dry.

And it came to pass after a while, that the brook dried up, because there had been no rain in the land. 1 kings 17:7 (KJV)

And Ahab said unto Obadiah, Go into the land, unto all fountains of water, and unto all brooks: peradventure we may find grass to save the horses and mules alive, that we lose not all the beasts. 1 Kings 18:5 (KJV)

Let’s pick up the story at verse seventeen of First Kings chapter 18. Unknown to the crowd, the time was approaching for the rain to come. There was sufficient time to gather a crowd of witnesses before the actual event.

And it came to pass, when Ahab saw Elijah, that Ahab said unto him, Art thou he that troubleth Israel? And he answered, I have not troubled Israel; but thou, and thy father's house, in that ye have forsaken the commandments of the LORD, and thou hast followed Baalim.

Now therefore send, and gather to me all Israel unto Mount Carmel, and the prophets of Baal four hundred and fifty, and the prophets of the groves four hundred, which eat at Jezebel's table. So Ahab sent unto all the children of Israel, and gathered the prophets together unto Mount Carmel. And Elijah came unto all the people, and said, How long halt ye between two opinions? If the LORD be God, follow him: but if Baal, then follow him.

And the people answered him not a word.

Then said Elijah unto the people, I, even I only, remain a prophet of the LORD; but Baal's prophets are four hundred and fifty men. Let them therefore give us two bullocks; and let them choose one bullock for themselves, and cut it in pieces, and lay it on wood, and put no fire under: and I will dress the other bullock, and lay it on wood, and put no fire under: And call ye on the name of your gods, and I will call on the name of the LORD: and the God that answereth by fire, let him be God.

And all the people answered and said, It is well spoken.

And Elijah said unto the prophets of Baal, Choose you one bullock for yourselves, and dress it first; for ye are many; and call on the name of your gods, but put no fire under. And they took the bullock which was given them, and they dressed it, and called on the name of Baal from morning even until noon, saying, O Baal, hear us. But there was no voice, nor any that answered. And they leaped upon the altar which was made. And it came to pass at noon, that Elijah mocked them, and said, Cry aloud: for he is a god; either he is talking, or he is pursuing, or he is in a journey, or peradventure he sleepeth, and must be awaked. And they cried aloud, and cut themselves after their manner with knives and lancets, till the blood gushed out upon them. And it came to pass, when midday was past, and they prophesied until the time of the offering of the evening sacrifice, that there was neither voice, nor any to answer, nor any that regarded.

*And Elijah said unto all the people, Come near unto me. And all the people came near unto him. And he repaired the altar of the LORD that was broken down. And Elijah took twelve stones, according to the number of the tribes of the sons of Jacob, unto whom the word of the LORD came, saying, Israel shall be thy name: And with the stones he built an altar in the name of the LORD: and he made a trench about the altar, as great as would contain two measures of seed. And he put the wood in order, and cut the bullock in pieces, and laid him on the wood, and said, Fill four barrels with water, and pour it on the burnt sacrifice, and on the wood. And he said, Do it the second time. And they did it the second time. And he said, Do it the third time. And they did it the third time. And the water ran round about the altar; and he filled the trench also with water. And it came to pass at the time of the offering of the evening sacrifice, that **Elijah the prophet came near, and said, LORD God of Abraham, Isaac, and of Israel, let it be known this day that thou art God in Israel, and that I am thy servant, and that I have done all these things at thy word. Hear me, O***

LORD, hear me, that this people may know that thou art the LORD God, and that thou hast turned their heart back again.

Then the fire of the LORD fell, and consumed the burnt sacrifice, and the wood, and the stones, and the dust, and licked up the water that was in the trench.

And when all the people saw it, they fell on their faces: and they said, The LORD, he is the God; the LORD, he is the God. 1Ki 18:17-39 (KJV)

So, the point of the story was to demonstrate there is an intelligent God and that God is the “LORD God of Abraham, Isaac, and of Israel.”

But there is more; there are more technical details recorded in the account that makes it consistent with reality as discovered by modern science.

The story goes on to tell about the thunderstorm that was approaching from the Mediterranean that was not observed by the people until after the lightning strike.

“...And Elijah went up to the top of Carmel; and he cast himself down upon the earth, and put his face between his knees, And said to his servant, Go up now, look toward the sea. And he went up, and looked, and said, There is nothing. And he said, Go again seven times. And it came to pass at the seventh time, that he said, Behold, there ariseth a little cloud out of the sea, like a man's hand. And he said, Go up, say unto Ahab, Prepare thy chariot, and get thee down, that the rain stop thee not. And it came to pass in the mean while, that the heaven was black with clouds and wind, and there was a great rain.” 1Ki 18:42-45 (KJV)

Technical Details from the Ancient Literature Account:

Let's look at a few of the technical details as recognized by a modern scientist.

The account is about a lightning strike in advance of a coming storm. The ancient account says there were no clouds to be seen, but after this show, a tremendous lightning storm came in from the Mediterranean Sea. That means there was a lightning storm within striking range of a “Bolt from the Blue.”

A few days before a coming thunderstorm, the first one in three years, Elijah was instructed to have the head of state gather the religious leaders, and Elijah was to gather the common people to a highpoint, Mt. Carmel, to witness a demonstration.

There had been a three year extreme drought and everything was dried up. That would include the air. Three years prior to the demonstration it quit raining. Neither was there any dew for three years. It was an extreme draught. The cattle were dying for lack of green grass.

A tremendous thunderstorm was approaching, but was not yet close enough to be seen.

At that time no one was aware there was a coming thunderstorm.

Thus they were all gathered up on Mt Carmel to witness a contest between Elijah and the Prophets of Baal.

According to the account, back in the time of Elijah, in the world of religion, there seemed to be some question as to the existence of an intelligent God, and if so, does more than one exist, if only one, whom? Similar to the situation today where it is politically correct to assume all religions are equal, that there is no such thing as one true “God,” at that time

there seemed to be more people who did not believe even the existence of “*the LORD God of Israel*” than those who did.

“Then said Elijah unto the people, I, even I only, remain a prophet of the LORD; but Baal’s prophets are four hundred and fifty men.” 1Ki 18:22 (KJV)

The Prophets of Baal and Elijah, the lone prophet of God were to each prepare altars to their god, to put wood under the offering, but put no fire under the wood. Each was to call upon the name of their god and the god that answered by fire for their respective altar would be declared the true God.

Technical Details Specifically Stated in the Ancient Account

There was an extreme drought—there had been no rain or even dew for three years.

Streams were dried up, no grass, cattle dying, no vegetation to feed cattle.

There was time to prepare before the critical timing of the coming event.

Rain had been anticipated ahead of visibility of storm, but not associated with event.

Crowd of people were gathered in anticipation of a test.

The location was somewhere up on Mt. Carmel.

The critical event occurred late in the day, in the evening after build up of unseen storm.

An altar was built up with wood and sacrifice piled up on top of it.

A trench was dug around the Altar.

Water was poured on Altar.

Twelve barrels of water were poured over the wood and sacrifice meat.

That was enough water to run off into the trench around the altar.

A moment of hesitation:

There was time between the preparation and the lightning strike;

enough time for Elijah to offer up a simple prayer,

But it was not a long religious prayer.

Then the fire of the LORD fell, and consumed the burnt sacrifice, and the wood, and the stones, and the dust, and licked up the water that was in the trench.

Meanwhile, there was a major lightning storm approaching,

from the direction of the Mediterranean Sea

But not visible yet.

Technical Details Understood from the Context but Not Stated Explicitly

The chosen site was a high point¹⁵ where lightning is more inclined to strike.

The chosen site was near¹⁶ a large body of water.

The setting was in an environment¹⁷ that was extremely dry.

A plume¹⁸ of moist air was rising from the altar.

The plume of moist air was the only¹⁹ moist air in the vicinity

The “Fire from Heaven” was lightning.²⁰

The lightning was a “Bolt from the Blue.” It came from a clear sky; there were no clouds in sight.

There was an approaching lightning storm²¹ nearby, but not yet visible.

The Event was timed²² to be consistent with the Critical timing required.

Technical Details Known before Modern Science Discovery

Let's review some of the technical details that had to have been known to set up this directed lightning demonstration; that had to have been known to record them for future recognition.

The "fire from heaven," was lightning

Actually the King James Version of the bible calls it "*the fire of the LORD.*" But the description of what it did when it struck the altar tells us it was a bolt of lightning.

Lightning is Electricity.

That is what we have known since the time of Benjamin Franklin.

Moist air is lighter, less dense than Dry Air:

Moist air is less dense than dry air due to the lesser molecular weight of Hydrogen in water vapor compared to the other molecules in air.

Moist air rises in an invisible plume through dry air:

This is because moist air is lighter than dry air. This rise is similar to smoke rising due to its lighter, lesser density due to temperature differences.

The Mysterious Electrical Nature of Water and Air:

The electrical nature of water has something to do with the process of rain falling from air that is not yet fully understood by modern science.

The water molecule, H₂O is dipolar.

That is one end of the molecule has the opposite electrical charge than the other. Being dipolar gives water great abilities we are only beginning to understand.

The Conductivity of moist air increases in proximity to higher electrical potential

When moist air is exposed to higher electrical potential, as in proximity to potential lightning strikes, its conductivity tends to increase.

With increased conductivity in moist air, lightning finds a path of least resistance

With Moist air having increased ionization, increasing the conductivity; lightning is directed along the plume of air containing the moisture.

A "Bolt from the Blue" is a cloud to ground lightning flash

A "Bolt from the Blue" typically travels a relatively large distance in clear air away from the storm cloud, and then angles down and strikes the ground.

The rising plume of moist air had to be timed precisely

It had to coincide with the build up of electric charge in the air above due to the approaching lightning storm.

To rising plume of moist air had to be surrounded by dry

This would insure it was the most conductive path to ground.

To insure the surrounding air was very dry required advance planning

A three year draught prior to the event indicates this advance planning.

Thus, vast amount of knowledge had to have been known in that ancient time; not only to set it up, but also to know what to record so the account could be reconciled with modern science once the modern discoveries had been made. The technical details recorded in this account could not have been recorded without such knowledge.

Extraneous Details Not in the Account but Religiously Assumed:

To explore the technical information in any Ancient Account it is important to recognize and sort out irrelevant extraneous technical information assumed to be in the account, but which is not really there. In the actual account from the ancient literature there are many technical details. Many times technical details are obscured by religious translation²³. In addition, many technical details have traditionally been assumed to be a part of the story, but are not really there. These must be sorted out to make a true comparison to the technical details now known to modern science.

Nowhere in the account does it say it was a miracle. The account is about Elijah simply following instructions. It demonstrates the ancient existence of actual knowledge of how to direct lightning to a specific target. It simply says the preparation was done according to instructions, describes the preparation, and reports the result of that preparation. The account is about reality, not hyper-reality.

Some assume the “commanding of lightning” or the “calling down of fire”. Nothing was Commanded²⁴ or “Called Down²⁵.” Elijah simply introduced the director of the demonstration and that he was following directions: “...*let it be known this day that thou art God in Israel, and that I am thy servant, and that I have done all these things at thy word. Hear me, O LORD, hear me, that this people may know that thou art the LORD God.*” The detail that the fire came from above may or may not have been a surprise to Elijah. It is not clear that Elijah even knew how the fire was going to be ignited. He simply followed the instructions that he said came from God. His only recorded expectation was that God would “answer by fire.”

Some say it demonstrates the power of prayer. That assumption is not one of the details in the account. The power of prayer is not mentioned or even implied. Nothing in this account has anything to do with the “Power of Prayer.” The account does not even imply that God was persuaded by some powerful or magic words.

Some say the purpose²⁶ for the water was to make it appear to be impossible to ignite. Nowhere in the account does it state the purpose for the water.

Some say the ignition source was like a blowtorch²⁷ because that is what it would take to get the wet wood to burn. The actual account does not describe it to be like a blowtorch. The account does not give descriptive details of what the fire was, only of its effects (which coincidentally are consistent of the effects of a lightning strike providing heat from internal, not a blowtorch applying heat externally) and that it came from above.

Others, who would like to believe both the bible and science, simply rationalize to harmonize the perceived inconsistency. They say it was a hyper-natural miracle²⁸. Modern science has documented that sometimes lightning naturally strikes at unexpected places out of a clear blue sky, far from a nearby storm.

Others say that since Elijah’s fire from heaven was what science calls a “Bolt from the Blue,” that it was a natural phenomenon miraculously caused to happen at the correct time and place.

Let’s pay close attention to what the account really says minus the assumed embellishments.

Then we can pay close attention to what we now know about the science of lightning, and realize the actual details are relevant.

In doing so, we find that the lightning striking the altar was not a miracle at all. It was scientifically directed lightning.

If anything was a miracle, it was that Elijah's mysterious source of directions some three thousand years ago knew technical information in the realm of the science of directed lightning that was not discovered by modern science until just a few years ago.

In Review:

On that fateful day a crowd had gathered up on a high point to witness some spectacle. It was less than ten miles from the Mediterranean Sea up on Mt. Carmel which rises 1724 ft. above sea level. There had been a draught in the land and everything was dried up. All day the prophets of Baal had been trying to coax their god to start a fire under their offering on their altar. But, no fire came. Toward evening, Elijah made some elaborate preparations of an altar. He piled up large stones, prepared wood for fire on top of the stones, and placed a meat offering of a whole animal above the wood. He even dug a ditch around the altar. But he did not light a fire. Instead he had twelve large containers of water poured over the offering, the wood and the stones until it ran off into the ditch surrounding the altar. It was a tense moment. Elijah offered a prayer, or maybe it was more of a speech to the crowd. In the prayer he explained for the crowd that everything he had done in preparation had been at the direction of his higher power who, he implied, could actually communicate with a human and what was done had been to demonstrate the reality of the intelligent higher power which had been worshiped by the ancestors of Israel. There was no request for fire, only to let it be known his higher power was real.

Unknown to the crowd and to Elijah, while all these preparations were being made a thunderstorm was brewing out to sea. The storm was still out to sea and there were no clouds in sight. The crowd was surrounded by extremely dry air. Meanwhile, electrical charge from the thunderstorm was building up in the upper atmosphere and spread out above the crowd. This is because of two factors, upper air is less resistive to electricity and moist air is also less resistive. The upper moist charged air was from the storm still out to sea. The dry air surrounding the crowd was resisting the passage of the electric charge between the upper air and the ground. The electric charge was seeking a path of least resistance to ground through the dry air.

All this was happening in the background while Elijah was making his preparations. Unnoticed by the crowd and even by readers of this account for nearly three thousand years, the preparations were such that an electrically conductive plume of moist air, a water vapor plume was rising above the altar. The stones, the wood, the offering, all acted as a wick and exposed water to the otherwise dry air and the plume rose. Now we realize such a plume of water vapor surrounded by dry air provides a conductive path for lightning to ground. As the plume rose it came near the charged air above where the electrical nature of moist air allowed it to suddenly increase the electrical conductance of the vapor plume. Lightning discharged following the plume directly to the altar. It was what modern science calls a "Bolt from the Blue." It is now also known as directed lightning. When the lightning struck, it completely destroyed not only the offering, but also the wood, the stones, even vaporized the water in the ditch.

It was not until later that the clouds of the thunderstorm appeared from over the sea and the rain came.

Where did Elijah really get the instructions on how to direct lightning? That science was not discovered until nearly three thousand years later. But, the technical details required for directed lightning are undeniably recorded in ancient Hebrew Account and they are consistent with modern science and they have been preserved there for thousands of years.

Author Biography:

The author, Max B. Frederick is an old scientist beyond his expiration date. He exceeded his expiration date a month after his eightieth birthday by way of an extension in the form of quadruple by-pass heart surgery four months in advance of that expiration date.

During his life time he has seen many scientific discoveries and has recognized many more such discoveries in the short few years of modern science before his time.

During his career as a scientist in the military-industrial complex his skills in the field of information recognition were honed. In the nearly twenty-five years since, during his retirement that honed skill has recognized many technical details of those discoveries that had been pre-recorded in the ancient literature.

Ten years ago Frederick published a book containing an appendix listing many of those technical details along with their ancient pre-recorded dates and the dates of their recent discovery by modern science. This article is just one example of many such correlations.

P. S.: Repeatable Scientific Experiment:

Ironically, Monday, May 27, 2019, at 9:23 a.m. Moscow time (0623 GMT), just a few days prior to publication of this article a repeat performance of lightning following a vapor trail from a rocket launch to its launch pad occurred. The references²⁹ are many. Most of them put the emphasis not on the directed lightning aspect, but on the superiority of man over nature. However, if you look at the photos for yourself you will see the lightning being directed along the vapor plume to the launch pad on the ground. One of those references sums up what modern science has discovered that is the point of the knowledge this report is talking about: “Interestingly the lightning wasn’t from unexpected weather conditions but caused by the rocket launch itself. According to NASA, ‘lightning can be triggered by the presence of the long electrical length created by the space vehicle and its exhaust plume in an electric field which would not otherwise have produced natural lightning.’”

References and Notes:

- ¹ Skocik, Collin, *Our Spaceflight Heritage: The shocking launch of Apollo 12*, Spaceflight Insider, November 14th, 2015, online at <https://www.spaceflightinsider.com/space-flight-history/our-spaceflight-heritage-the-shocking-launch-of-apollo-12/>
- ² Godfrey, R. et al, *Analysis of Apollo 12 Lightning Incident*, NASA: Marshall Space Flight Center, Kennedy Space Center, Manned Spacecraft Center, January, 1970 online at <https://spaceflight.nasa.gov/outreach/SignificantIncidents/assets/analysis-of-apollo-12-lightning-incident.pdf>
- ³ Newman M. M. et al., 1967, *Triggered lightning strokes at very close range* – Journal of Geophysical Research: Letters, September 15, 1967, online at: <https://doi.org/10.1029/JZ072i018p04761>
- ⁴ Carlon, Hugh R., *Electrical Properties of Atmospheric Moist Air: A Systematic, Experimental Study*, Chemical Research Development & Engineering Center (CRDEC-TR-88059), U.S. Army Armament Munitions Chemical Command, Aberdeen Proving Ground, Maryland 21010-5423, September, 1988, online at: <https://www.nonstopsystems.com/radio/pdf-ant/antenna-article-magloop-capacitor-88059.pdf>
- ⁵ Pollack, Gerald H. *The Fourth Phase of Water, Beyond Solid, Liquid, and Vapor*, Ebner and Sons Publishers, 2013, EbnerAndSons.com, Seattle, Washington, USA
- ⁶ Frederick, Max B., *Substantially environmental-pollution-free cleaning method and device employing electric energy and surface physical properties*, U.S. Patent 6,308,356, Oct 30, 2001 online at: <https://www.google.com/patents/US6308356>
- ⁷ Wehrle, Lisa, quoted in: *Girl, 11, Struck by Lightning on Sunny Day*, Associated Press July 27, 2011 Updated January 13, 2015, online at: <https://www.foxnews.com/us/girl-11-struck-by-lightning-on-sunny-day>
- ⁸ Kershner, Kate, *Are you safe from lightning if the storm hasn't hit yet?* HowStuffWorks/Science/Forces of Nature/Climate & Weather/Storms, accessed online May 15, 2019, at: <https://science.howstuffworks.com/nature/climate-weather/storms/are-you-safe-from-lightning-if-storm-hasnt-hit-yet.htm>
- ⁹ _____, *Bolts from the blue*, NWS Pueblo Lightning Page - Bolts from the blue, Weather Forecast Office, Pueblo, CO, accessed online February 22, 2019, <http://www.weather.gov/pub/lightningBoltBlue>
- ¹⁰ Lippert, Jack R., *Evaluation of Rocket Triggered Lightning for Research and Development..*Airforce Institute of Technology Air University, Wright-Patterson Air Force Base, Dayton, Ohio, Master's Thesis, May, 1981, online at: <https://apps.dtic.mil/dtic/tr/fulltext/u2/a100548.pdf>
- ¹¹ Betts, Robert E, *Lightning Rocket*, U.S. Patent 6,597,559, July 22, 2003 online at: <https://patentimages.storage.googleapis.com/af/69/e2/0303f8671ead7/US6597559.pdf>
- ¹² _____, *Transpiration - The Water Cycle*, USGS: Science for a Changing World, Water Science School, retrieved from the internet March 17, 2019 from <https://water.usgs.gov/edu/watercycletranspiration.html>
- ¹³ _____, *The Ancient Account of Elijah and Fire from Heaven is found in the Judeo/Christian bible, I Kings chapters 17 and 18.*
- ¹⁴ _____, *According to Bible scholars in general, Elijah lived sometime circa 900-850 BC. There are many web sites stating the dates, but I cannot find any consistency or who published it first so "bible scholars in general" is as close as I can come. Jewish Tradition says the book of I Kings was not written until 550 BC. But, the technical information in the account dictates that 300 year gap wherein it is assumed to have been passed down by oral tradition is impossible. Neither Elijah nor the assumed writers were scientists and could not have inserted the technical information that is actually there that gives credibility to the accuracy of the record of the account. The included technical information dictates the account was recorded by a first hand observer.*
- ¹⁵ It was on Mt. Carmel. "...and gather to me all Israel unto mount Carmel..." 1Ki 18:19 (KJV)

- ¹⁶ The Mediterranean Sea is only about ten miles from Mt. Carmel.
- ¹⁷ The account records that it had not rained for a long time, there was a famine, the creeks went dry, the grass was dried up and the cattle were dying.
And it came to pass after a while, that the brook dried up, because there had been no rain in the land. 1 Kings 17:7 (KJV)
And Ahab said unto Obadiah, Go into the land, unto all fountains of water, and unto all brooks: peradventure we may find grass to save the horses and mules alive, that we lose not all the beasts. 1 Kings 18:5 (KJV)
- ¹⁸ Elijah had commanded barrels of water to be poured over it. Moist air is less dense than dry air and therefore produces a rising plume.
“ Fill four barrels with water, and pour it on the burnt sacrifice, and on the wood. And he said, Do it the second time. And they did it the second time. And he said, Do it the third time. And they did it the third time. And the water ran round about the altar; and he filled the trench also with water.” 1 Kings 18: 33-35 (KJV)
- ¹⁹ We know this from the detail that there had been a three year draught and it had not rained yet.
- ²⁰ We know this from the description of what happened to the altar is what modern science recognizes to be what happens to a target struck by lightning. *Then the fire of the LORD fell, and consumed the burnt sacrifice, and the wood, and the stones, and the dust, and licked up the water that was in the trench.* 1Ki 18:17 (KJV)
- ²¹ “...And Elijah went up to the top of Carmel; and he cast himself down upon the earth, and put his face between his knees, And said to his servant, Go up now, look toward the sea. And he went up, and looked, and said, There is nothing. And he said, Go again seven times. And it came to pass at the seventh time, that he said, Behold, there ariseth a little cloud out of the sea, like a man's hand. And he said, Go up, say unto Ahab, Prepare thy chariot, and get thee down, that the rain stop thee not. And it came to pass in the mean while, that the heaven was black with clouds and wind, and there was a great rain.” 1Ki 18:42-45 (KJV)
- ²² Obviously the time and place of the coming event was anticipated by the mysterious source of information that was directing Elijah, the source of the instructions that Elijah claimed to be following; the source that Elijah called “the LORD God of Israel.”
- ²³ Frederick, Max B., *Glossary—The Technical Meanings of Religious Words*, ScienceAndTheBible.net, October 2018, online at <http://www.scienceandthebible.net/glossary>
- ²⁴ The technical detail that Elijah “called down” the fire from heaven is not found in the ancient account. However, even in the time of Jesus this assumption was a common traditional addition to scripture. Even James and John made this assumption. When they referred to it, Jesus did not interrupt his message to explain it. He simply rebuked them for not knowing. “*And when his disciples James and John saw this, they said, Lord, wilt thou that we command fire to come down from heaven, and consume them, even as Elias did? But he turned, and rebuked them, and said, Ye know not...*” Luke 9:54,55 (KJV)
- ²⁵ Przybylski, Debbie, *Calling Down Fire from Heaven*, Crosswalk.com, January 19, 2008, online at <http://www.crosswalk.com/church/worship/calling-down-fire-from-heaven-11565110.html>
- ²⁶ O'Neal, Michael D., *God Can Build A Fire With Wet Wood*, notes to a sermon preached Sunday morning and evening, July 28, 2002, at Gospel Light Baptist Church, Albany, Georgia, online at <http://www.brothermike.com/Outlines/2002/s072802.htm>
- ²⁷ Olthoff, Bianca Juárez, *Elijah and the Miracle of Fire from Heaven*, Crosswalk.com, Aug 22, 2016, online at <https://www.crosswalk.com/faith/bible-study/elijah-and-the-miracle-of-fire-from-heaven.html>, “Undeterred, Elijah trusted God, and when it was his turn to call for fire, he upped the ante. Elijah rebuilt God’s altar, dug a trench around it, and prepared a bull to lay across the altar. Then, he drenched everything in water four times over. Why the water? Simple. If the sacrifice lit, no one could claim happenstance or coincidence. It would show that an all-powerful God had done what no other god could do.”

²⁸ Dyke, Daniel J., MDiv, MTh, *A Supernatural Miracle: Elijah and the Fire from Heaven*, Reasons to Believe: Where Science and Faith Converge, June 26, 2014, online at <http://www.reasons.org/articles/a-supernatural-miracle-elijah-and-the-fire-from-heaven>

²⁹ The internet references are many:

<https://www.space.com/russian-rocket-launch-lightning-strike.html>

<https://www.youtube.com/watch?v=BaYpwIgcYzw>

<https://www.youtube.com/watch?v=IDSK8iVYuD4>

<https://www.youtube.com/watch?v=IB7-2oHFBnA>

<https://www.express.co.uk/news/science/1133326/russian-soyuz-rocket-lightning-strike-launch-video-space-news>

<https://www.sciencealert.com/watch-russia-s-soyuz-rocket-get-hit-by-lightning-mid-launch>

<https://futurism.com/the-byte/see-lightning-struck-rocket>

https://www.theepochtimes.com/shocking-video-shows-lightning-bolt-hit-rocket-right-after-launch_2944510.html

<https://nypost.com/2019/05/28/russian-spacecraft-struck-by-lightning-moments-after-takeoff/>

<https://www.zerohedge.com/news/2019-05-28/watch-russian-rocket-struck-lightning-during-launch>

<https://www.foxnews.com/science/lightning-bolt-hitting-russian-rocket-launch>

<https://spaceflightnow.com/2019/05/28/soyuz-perseveres-through-lightning-strike-with-glonass-satellite/>

<https://www.dailymail.co.uk/sciencetech/article-7077269/Electrifying-footage-shows-moment-lightning-strikes-Russian-Soyuz-rocket-launch.html>

<http://www.parabolicarc.com/2019/05/27/soyuz-rocket-hit-lightning-launch-soyuzing/>

<http://tass.com/science/1060233>

<https://www.rt.com/russia/460367-soyuz-launch-hit-lightning/>

https://au.news.yahoo.com/russian-space-rocket-hit-lightning-launch-081450837.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAEQG_a5NNXBvcscBIKYLflpuM8CcfKTFwZ4mOv0B15ow-KUPBgZQJtvUrybzLAsWrWEQa0XtEP8_PK6sidjl-nLn-7AEcOCCPdVYpaJWwi-m3z7LQ49q-u3bnL1wUqZXspbi7cLmK1LueIVYIjVvIsKzwEjxg99EIX-mN1C0wYh

<https://news.yahoo.com/russia-soyuz-rocket-got-nailed-020522679.html>

<https://www.nasaspacespaceflight.com/2019/05/soyuz-2-1b-glonass-m-satellite-758/>

<https://interestingengineering.com/lightning-is-no-match-for-the-russian-soyuz-rocket>, “Interestingly the lightning wasn’t from unexpected weather conditions but caused by the rocket launch itself.

According to NASA, ‘lightning can be triggered by the presence of the long electrical length created by the space vehicle and its exhaust plume in an electric field which would not otherwise have produced natural lightning.’”

<https://www.unexplained-mysteries.com/news/328100/soyuz-rocket-struck-by-lightning-during-launch>

this last reference contains reference to a 1987 incident where lightning destroyed a launch and struck near the launch pad.