

## CHAPTER THREE

### CATASTROPHE AND DIVINE FIRES

If the Israelites did not know that a great comet was visiting disaster upon the Earth, they would be the only people in the world from whom the knowledge was withheld. In fact, they did know. And they called it by god-names just as everybody else did in those days. But it is also true that a peculiar kind of suppression of cometary evidence is present in the Israelite record, for which there is an explanation.

In Chapter 1, I offered several pieces of evidence that the Israelites knew a comet was in the sky, and that the disasters on Earth were from heaven, and, furthermore, that the Lord bore them "on Eagle's wings" from Egypt. (See Figure 6) More evidence is due here. I must reason out the position as well. Was the whole world electrified beyond any later historical awareness? Is there an alternative to the comet: could there be another cause of all the disturbances? What was the fate of the comet?

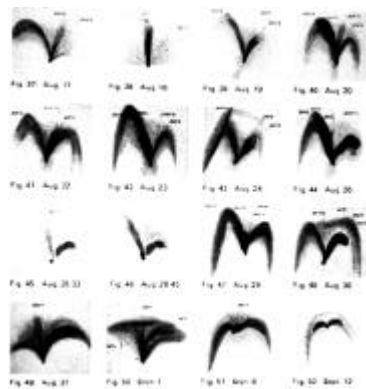


Figure 6. On Eagle's Wings (Click on the picture to get an enlarged view. *Caution: Image files are large.*)

"You have seen what I did to the Egyptians, how I bore you on eagle's wings and brought you to me." *Ex. 19-4* (The *Torah*: The Five Books of Moses, trans from the Masoretic text. Philadelphia: Jewish Publications Society, 1962) *Cf. Deut. 32: 10-3*. The cometary images are of Comet Swift-Tuttle (1962) III, NASA, *op cit.*, 29.

### WHOSE ANGEL?

It is said that the Israelites were frightened in their Exodus by the sight of the Angel of Egypt darting through the air, "as he flew to the assistance of the people under his tutelage." [1] This tutelary angel was also called Uzza by the Jews [2], strangely, because the name is found among the ancient Arabian people in reference to the planet Venus [3]. It is to be identified with Seth, god of the Hyksos and the anti-god of the Egyptians, with Lucifer, and Phaeton-Typhon. Hence the "Egypt" referred to is already the conquered Egypt. Uzza is also Azazel, the devil to whom the Jews dispatched the scape-goat carrying their sins on the annual Day of Atonement. A very large body it would be.

Uzza, goes the legend, accosted the Lord, with a plea to return the Israelites to Egypt. A debate ensued between Uzza and the champion of the Jews, the Angel Michael. Archangel Michael is identified by Velikovsky as a Hebrew equivalent of the planet Venus. So that we had here the same figure debating itself, that is reasonable, for a myth as for a dream.

Uzza claimed that the bondage of the Hebrews had not been completed; only 86 years, not 400 had passed. No explanation is given of the 86 years; Auerbach and others believe that the Jews had been in Egypt for that time or less; perhaps only 60 years had passed since Joseph's death, since the pharaoh who "did not know Joseph, succeeding to one who did, laid heavy hands upon the Jews." The point may not be important [4]; the characters to the debate are. Uzza, of course, loses the debate. The Jews owned the comet, not the Egyptians (or the Hyksos).

Another of the explicit references to the comet is contained in a legendary speech of Moses to Yahweh, following upon the adoration by so many Jews of the Golden Calf. Imploring the angry Yahweh not to annihilate the chosen people, Moses says: "Fulfil not, I implore Thee, the prophecies of the Egyptian magicians, who predicted to their king that the star "Ra'ah" would move as a harbinger of blood and death before the

Israelites." [5] "Ra'ah" in Egyptian must mean "the Great Sun," the comet luminous and larger than the sun.

The night before departure from Goshen, the terrible night of the killing of the first-born, was said by one legend to be a bright night, as bright as the brightest day of the year [6]. This legend contrasts with another, that the darkness persisted in the Egyptian capital. Might the comet tail be falling so densely in some places as to block the light, while the comet appeared larger than the sun in others, at least to accommodate these particular differences? Perhaps. The prophet Isaiah, recalling the Exodus long afterwards, preached: "The People that walked in darkness have seen a great light; they that dwell in the land of the shadow of death (which must mean Egypt), the light of Noga was upon them." Noga, insists Velikovsky, means planet Venus in Hebrew [7].

In the year 1666, a young man called Moses Suriel from Brussa, Turkey, claimed to be a prophet and supported Shabatai Zevi as savior of the Jews. He pointed to a comet that had appeared and explained that this, too, had appeared in the sky during the Exodus. (In 1665, G.A. Borelli probably used the same comet in calculating the parabolic forms of cometary paths.) [8] We infer that an insistent Jewish tradition tied the cometary form to Exodus.

Velikovsky claims that the adventuring Israelites saw this and more. That they saw the full comet in the apparition of a serpent. When Moses, later on, made a serpent of brass and put it upon a pole, [9] he was in fact modelling the image of the great comet as it snaked through the sky [10]. The same sculpture had, as we shall see, electrical utility, and could well have been a symbol that united the electrical events of heaven with those of the ground.

Legend has Yahweh at the Burning Bush foretelling to Moses: "I behold what cometh after, how the people will worship the steer, the figure of which they see upon My chariot..." [11] This has a four-fold significance: it conforms to cometary images in general; it connects the comet with the "golden calf to come;" it

puts Yahweh into the driver's seat of the cometary chariot, and it parallels the Greek myth of Phaeton, searing the world from his solar chariot.

But the most powerful and exercised of cometary references is the towering column of smoke and fire that was first before and then behind the Israelites as they crossed into the desert. In ancient history and in folklore comets are often "hairy" and "smoking" stars. I have already quoted this apparition of the lord that had led them from the beginning; it "did not depart from before the people." [12] The Lord here must be the comet. Ilse Fuhr, writing of comets in 1967, says [13]:

"A comet which approached the Earth moving for a time - for the sake of argument - in synchronous orbit with the Earth between latitudes 33° north and south, would move back and forth in a flat figure eight with the two halves meeting at zero (this was demonstrated by the orbit of the synchronous satellite Syncom II), in other words, during a period of 24 hours it would seem by an Earth-based observer as appearing once behind him and once in front of him in the sky (*cf.* Exodus 13:21)."

It is not announced when this apparition ceased, but it was the veritable incarnation of their god in their eyes. It was a monstrous verification that they were being watched over by the god whose protection and leadership Moses had prophesied.

We never escape this deity during Moses' life, for it assumed terrestrial form. It was Yahweh who led them on their wanderings, in a column of smoke by day and a pillar of fire by night, he who encamped with them and whose very same manifestations emerged from the sacred enclosure that Moses had built for him.

There is a naive myth, founded indeed upon the very words and acts of Moses, that the Israelites shunned the gods of the sky - the sun and moon, planets, and stars and would not fashion religious images. Although Yahweh is reconciled to the existence of other gods, he is zealous to be first and exclusive with his chosen people, on pain of their destruction. Yet the people knew there was more to the sky-scene than Yahweh.

Heaven to the people of Israel was a thickly populated region. Besides the gods of their enemies, there were hosts of angels, animals and ancestors, not represented alone in the stars but by all the meteorites that flew in the disturbed skies. The heavenly host rained down fiery darts, lightning balls and wheels of light, stones, and coals of fire. The Bible is purged of most of these visions, but the legends carried forward the visions of the people[14]. They are admitted to the Scriptures on occasion, as in the Revelation of John of the Apocalypse in the New Testament.

"In a somewhat indefinite way some Biblical scholars have recognized that Jacob's Bethel might have been a meteorite." [15] The Greek word for Bethel was Baetyli, meaning a Jovian thunderbolt. Baetyls are sacred thunderstones or meteorites carried by the holy litters or arks of various Bedouin tribes. Originally, directly or indirectly, the Ark of Moses carried the Ten Commandments on such tablets, as we shall understand later on. Very material things from the sky, then, were connected with Yahwism.

### *THE CENSORED DESIGNS OF HEAVEN*

The Israelites were therefore eager to construct their habitat on earth in the image which they transported of heaven, and felt constrained to carry out as closely as possible the instructions that Moses received from Yahweh in this regard. These were numerous and the designs that he carried down from his first forty days and nights of isolation atop the sacred mountain of Sinai were particularly impressive. "And see that you make them after the pattern for them, which is being shown to you on the mountain." [16]

Yahweh's 'commands were not so easy to execute: "Upon the occasion of the erection of the Tabernacle, God gave red, blue, black and white fire to see and imitate. To the question of how this might be possible, God answered: "I fabricate my glory; you make your own colors..." [17]

A legend conveys what must have been the feeling of the people, that the existence of the world depended upon the construction of the Tabernacle, sanctuary of Yahweh, "for when the sanctuary had been erected, the world stood firmly founded, whereas until then it had always been swaying hither and thither." [18]

If, as now seems probable, the Earth suffered a moderate tilt at the climax of the Exodus, a celestial unsteadiness would be perceived, both in the general turbulence and in the erratic movements of the stars and heavenly bodies. And one can be sure that in the retelling, if not in actuality, the earthly and heavenly climaxes would be brought together for maximum effect and symbolism. Perhaps the new awareness came in intervals of light in darkness or from reports received from the larger world. Nor can one be positive that the reference is not to continuous earthquakes. Then, too, "The land (world) turns round as does a potter's wheel," in Ipuwer's metaphor [19]. And the Psalm sings out: "God, when you set out at the head of your people, and marched across the desert, the earth rocked... The heavens deluged at God's coming..." [20]

It may be premature to claim definitive proof, but we can make the following statements with some confidence; no settlement anywhere in the world escaped heavy destruction in the finale of the Middle Bronze Age, at the time of the Exodus, that is, about 1450 B.C.; further, no temple that existed before 1450, and that was reconstructed or added to afterwards, was given the same astronomical orientation that it possessed before.

The implication of these statements will not escape the reader. With the accumulating evidence of worldwide destruction, it will no longer be permitted scholars to cast the Exodus in whatever form they please - as a stroll in the desert, the flight of some slaves, a Jewish fairy tale. The Exodus occurred in a catastrophic setting.

Secondly, shifts in temple orientation form the strongest possible proof of an historical shift in the angle of the axis of the globe with respect to the ecliptical plane. And when an axial tilt occurs, great destruction is visited upon the Earth: tidal waves,

adjustment of the equatorial (rotational) bulge by rising and sinking land, earthquakes and volcanism, vast and violent storms, and electrical discharges of all kinds. Further, the almost certain cause of an axial tilt is the near encounter of Earth with a great passing body.

Some of the objects of the Tabernacle stood for celestial bodies - stars, cherubim, the curtain of the sky [21]. "The separate parts of the Tabernacle had each a symbolical significance, for to all that is above there is something corresponding below." [22] The great encampment of the Israelites follows a celestial plan.

The division of the tribes of Israel according to four standards, as well as their subdivision at each standard, is not arbitrary and accidental; it corresponds to the same plan and directions as that of which God made use in heaven. The celestial throne is surrounded by four angels: to the right Michael, in front Gabriel, to the left Uriel, and to the rear Raphael. To these four angels corresponded the four tribes of Reuben, Judah, Dan, and Ephraim, the standard bearers [23].

The sacred ball-courts of the Olmecs of the same age and of other Meso-Americans are authoritatively acknowledged to be tied to the cardinal points of the sky. The planet Venus is prominently represented in the games [24]. The players fought to the death. The Roman circus had on its axis altars of the planets [25]. There, too, blood flowed freely. "Ninevah proclaimed itself the seat of stable order and power by its seven-times crenellated circle of walls, colored by the seven planetary colors." [26] Chariots would run along the top of the walls.

"Thy will be done on Earth as it is in Heaven..." So goes the Lord's Prayer. The idea is worldwide. "Ancients believed that earthly temples and their cultic equipment were made according to the *pattern* or prototype of heavenly models." [27] The comment is too mild; it was *imperative* to imitate heaven, to placate, identify with, and control heaven. In most of this construction is to be seen a cultural heritage going back long before Moses and deriving from many gentile nations. Yahweh, himself an old god in many ways, puts old things together to make new ones.

But when it comes to mirroring himself, Yahweh is avant-garde. There is no throne in the Tabernacle. He is not carried about as a beautifully enthroned image, as Arabs carried their palladium and Europeans carry their saints and the Son of God. He has a "Mercy Seat" - strange contradictory words of the King James translation - the lid of the Ark-box a "vehicle" is the more literal translation - where he makes himself visible from time to time.

That invisibility had drawbacks is indicated by the Revolt of the Golden Calf when, before Moses' designs can be implemented, a great many Israelites melt their gold and fashion an animal form whom they immediately term their god. (See figure 7.) This is usually regarded as Baal, but "what Baal?" is the question, for Baal means "god" unless a special context or appellation is provided to further distinguish the Baal.

Here, say some scholars, it is Baal the Cow, or Baal the Bull, which could mean Baal Venus, inasmuch as the great comet, so often identified with the planet Venus, took on the appearance of a cow, its head elongated, its coma looking like horns and its tail pulling itself into the perspective of a great thick body dropping ambrosia or manna like milk, and like excrement, too.

The legend has it that the Golden Calf heresy "is in part explained by the circumstance that, while passing through the Red Sea, they beheld the Celestial Throne, and most distinctly of the four creatures about the Throne, they saw the ox. "[28]

On Earth, in those days of high electrical effects, the homology is proven by the discharge of fire between the horns of the animal. (A sculpture in the Athens Museum from Mycenaean times, perhaps paralleling the Exodus period, carries a bull's head with a double-edged ax between the horns; the ax, as well as the ox horns, conveys electricity - mountain climbers write about the lights streaming from their axes.) The altar of the Tabernacle carried four gilded horns at its corners.

But why is this Baal of the Israelites a calf and not an adult animal [29]? It is called a "bull" on occasion in Jewish legend, however. "The word (translated 'calf' from Hebrew) is not a



pejorative term for an ox, as many surmised. It denotes a young ox, an ox in the full vigour of its youth." [30] The only reason I can offer for this modification of the universal cow-bull theme is that the Israelites knew that the comet was a young body in the sky. It had not been known to them for long. The bison and bull, always with a divine celestial connection, had been worshipped and were sacred since time immemorial [31]. Zeus, the thunderbolter, assumed the image of the bull. Thoth (or Hermes or Mercury) took the image of a ram, afterwards.



Figure 7. Moses' Tablets and Golden Calf Heretics. (Click on the picture to get an enlarged view. *Caution: Image files are large.*) ( *La Somme le Roy*, ca. A.D. 1295 British museum Add. MS 54180, folio 5v)

Zeus, it will be recalled, had fathered and mothered Athene who was the Greek planet Venus. The new heavenly body, the Messiah, would take the form of a calf. The Venus connection is obvious, with Baal, then, being Venus. And for some hundreds of years the Baal Venus cult occupied a great many Jews. It was not generally admitted, but usually the god who competed with Yahweh and aroused the indignation of the Yahwists was the cometary Baal.

That the rebels of the Sinai incident had deep roots in the community was evidenced much later on, when the writers of Judah had to mention them again in order to demonstrate the terrible end that awaited their likes: when the Northern Kingdom

of Israel, hundreds of years later, under Jeroboam, built two golden calves, one for each of its principal sanctuaries, in competition with and defiance of the Kingdom of Judah that possessed the Ark of the Covenant and the Temple at Jerusalem. But even before Moses' death, the Hyksos in Egypt had elevated the new young bull to divine status as Apis [32].

Enough sights, apparitions, effects, events, and experiences come with a large-body near-collision to supply readily all the personnel and myths of a full-fledged religion. Yet Moses was not alone in rejecting the absolute identification of a comet as a mainstay of his god. Generally so-called planetary, solar, or lunar religions are not exclusively such: there is a marked body giving substance to their god, and its behavior is carefully observed for indications of how to conduct themselves. In addition, there occur innumerable god-named manifestations and designations in the sky, the biosphere, the air, and the falling stones. When the profound prejudices in favor of the Hebraic religions are waived, their resemblances to other religions, even to planetary religions, are great.

But Moses probably had something special in mind, and the subsequent Judaic priesthood in *their* mind, in laboring against cometary (or planetary) worship. Moses wanted to root his religion in earthly phenomena to the maximum extent possible so that *he* could control it. And the priesthood, too, had the same motive, plus a strong desire to make ritual all-important, so that they might control the worshippers as well as the god. The transition from the charismatic religion of Moses to the ritualistic anti-charismatic religion of the body of priests can be so understood.

Another reason occurs for banishing sky-body worship, and suppressing reference to any distinguishable body as being part of Exodus. If a named natural object were worshipped, even only as a manifestation or presence of the god, then all other peoples who saw the same body could pretend to the same god. They could match their experience, and counter their claims against those of the Jews. This would not do for Moses' exclusive people, exclusive god, exclusive religion.

Furthermore, the comet was terrible and damaging to the Jews. Undoubtedly the behavior of the god immanent in it was a large factor in permitting the extremely harsh rule that Moses imposed upon them. But the relation to Yahweh could be controlled; deep down there was an ambivalence, a hatred that could hardly be governed, working against a gratitude for an escape from "slavery," together with all that was provided for survival - water, manna and the poor subsistence coming from hard labor.

Moses himself could not help but feel this intense ambivalence, for of all people he could understand how the comet was wrecking the Earth. So he would not wish to make the phenomena of the skies of Exodus any conscious part, much less any identifiable part of the new religion and new god that he was building. Other religions with multiple gods, or gods and devils - and we should note that Moses would deny the existence of a devil - could handle ambivalence toward divinities much more easily than Yahwism could.

Now we are face-to-face with the phenomena of psychic repression. Yahwism sees no comet; it sees as little of the sky as possible; it allows only the fire of Yahweh to be seen. Z. Rix is "convinced that the prohibition to show an image of Yahweh is a repression, very injurious to the human mind." [33] What begins as traumatic terror is suppressed in memory; then, rather than gradually becoming adjusted to the memory, the mind is committed to the suppression by priests and ritual. And it never can adjust to the reality of recollection, and hence never can accommodate to the reality of the present. This mental condition is bound up with the invisible god and is a large factor in the psychological operations of mosaism and Yahwism.

If the mental process were to be divided into phases, in the first phase a perception occurred: the sight and force is then accorded life, that is, anthropomorphization. The reality of the comet passes and the memory remains, but not a memory of a comet as such; rather the memory of a divine intervention, of a god who can be controlled by sacrifices and subservience.

Memory always has a function and, to have this function, especially in terrible instances, must be distorted. The trauma of anthropomorphic natural force can be managed; a great natural force cannot, and hence must be denied. Thus, the Romans had gods with human qualities and permitted themselves psychologically to associate these gods with planets - as in the case of Mars - but in only one case, cited by Pliny, was an actual comet consciously named and admitted to the pantheon as a god, that of Augustus Caesar.

### *THE GENTILE EXODUS*

The experience of Exodus was critical in the history of the Jews; further, a long chain of history has bound up over a billion people, indirectly the whole human race, in its consequences. Yet, at the time, the Israelite experience was special, affecting only a small fraction of the world's people. I say this not only to extend history but to contract it, and then I contract it in order to extend it differently. It has been a source both of pride and sorrow to the Jews in that they have unwittingly made the whole world suffer *their* Exodus. But every people of the world suffered *its* exodus at the same time. By taking on the record of the Hebrew Exodus it has been substituting the Jewish Exodus for one of its own, or blending them, or reviving its own. Whether this is for better or worse depends upon how each of hundreds of surviving cultures and many more dead cultures incorporated their own catastrophe.

In this age of one humanity and a sense of the good of all, I cannot but feel sympathy for the hapless nations and tribes that succumbed or survived in wretchedness. If only all had written books and these had been preserved, what a sense of common destiny, amounting practically to a common humanistic religion, we might share. Nevertheless, we have this one, with its terror, strife, and striving. And, here and there within it, we glimpse the distraught other peoples, the Egyptians of Ipuwer and El Arish accounts, but also especially of the Bible, written by their presumed enemies, the Israelites.

In the chant of Moses, already quoted, we hear of the people by their great highway into the Near East, the Philistines, Edomites, Moabites - all prostrated by disaster [34]. Velikovsky is like many people when he forgives the desperate Jews their transgressions upon others, while denouncing their equally desperate enemies such as the Hyksos-Amalekites for their transgressions. This is not only unfair; it obscures also the motives of peoples, their common fates, and the origins of their gods. It continues the destructive notion of the chosen people whether it be Israel or the mosaic-inspired Kaiserdom of "Deutschland Über Alles."

From the scene of the Exodus we can fan out in all directions, finding everywhere in the records and ruins of the time the same elemental fury. We look of course for the same things that we have found in the Biblical setting: the plagues, the years of darkness, floods, earthquakes, wanderings of people, continuous heavenly fire, electrical effects, new frenzied and obsessive forms of worship and gods on the ruins of shattered cities and among groups of survivors.

"Plagues of insects, drought, earthquake in the night, the most terrible devastation, clouds sweeping the ground, a tidal flood carrying away entire tribes - these disturbances and upheavals were experienced in Arabia and Egypt alike." [35] Amidst tumult and disorder, the Amalekites-Hyksos managed to reach and conquer Egypt.

During the Late Holocene period, which may actually have included the time of Exodus and later catastrophic episodes as well, the Sinai subplate was subjected to heavy uplifting, folding and submerging at its East and West margins. This is the scene of the Exodus drama; however, archaeological evidence is not yet available to tie a phase of this turbulence to the end of the Middle Bronze Age. (As matters stand, a connection can be made with an uplifting event and the disturbed astronomical years 776 to 687 B.C. that I refer to and describe in *Chaos and Creation, in The Disastrous Love Affair of Moon and Mars*, and, with Earl R. Milton, in *Solaria Binaria*.) [36]

In a paper published elsewhere[37], I surveyed the evidence for the catastrophes of the Near and Middle East, which I can summarize here. Claude Schaeffer, whose archaeological work in Syria brought him many honors, published as early as 1948 a great compendium of the destruction of settlements in the second millennium before Christ. The end of the Middle Bronze Age, corresponding to the end of the Egyptian Middle Kingdom that we have been studying, seems to have witnessed the complete destruction of every city that had been excavated. The effects of earthquakes were most common.

Since it is believed sometimes that the pyramids and other strong stone structures have escaped damage through the ages, it is worthwhile mentioning that even the Great Pyramid exhibits severe damage by earthquake[38]. I do not make more of this case and others because there is presently no way of judging whether the damage was caused in the earthquakes of the Exodus.

The destruction of Minoan Crete around the same time was exposed by Evans. Evidence of a Chinese catastrophe with a hiatus between the Hsia and the Chang dynasties was adduced by Schaeffer and Velikovsky. Previously, the Indus River civilization was shown to have collapsed in ruins then, too, and the extent of the fall has been steadily expanded north, east and south on the Indian subcontinent in the past half century of excavation[39]. The Euphrates River systems of channels moved west at this time and hundreds of settlements were abandoned in a long dark age[40]. It was then, too, that "the ancient cities of Southern Turkmenian civilization perished at about the same time as the proto-indian, and the reasons are still unknown." [41] The antiquity of Meso-American civilization is only now being discovered. The Olmec civilization, which had the lodestone compass before the Chinese, suffered devastation by fire and flood at this time [42].

To the evidence of the spade may be added the evidence of legend from around the world. Greco-Roman civilization knew of the Exodus catastrophe, which Pliny gives passing mention to, in part by way of the stories of Typhon and Phaeton. Phaeton

loses control of the chariot of the sun and sets fire to the world; Zeus has to strike him down with a cosmic thunderbolt to save the world from destruction. (See figure 8.)

Stecchini has recently publicized the work of the Babylonian astronomical scholar, F.X. Kugler, that assigns to about 1550 B.C. the adventure of Phaeton. By Kugler's reconstruction, "a sunlike meteorite" passed by Earth from South to North creating various disasters until it, or some portion of it, fell in the Thracian region. This would be the region of the Celts, whose representatives, when asked one time by Alexander the Great what it was that they feared most, replied "that the sky might fall."

Typhon, too, was part or all of a monstrous sky body, which Zeus was supposed to have felled with his thunderbolts. Bimson shows that Typhon has another identity, that of the first Hyksos king of Egypt following the Exodus. Either the comet or the king was named for the other. The typhoons of the South Seas carry the name, too, and resemble, as do the American tornados, the pillar of smoke, water and fire.

The legends of the world are rich in material probably of this period. From Egypt we have a depiction of the "red (angry) eye of Horus in the mouth of Seth," who is the Typhonic monster. Sutherland has given us an account of how the unlucky dragon of China originated at this time and developed into the "lucky dragon" of later times, honored by being woven into the Emperors gown, even as magnificent as the ephod, robe and breastplate of Aaron. He depicts a large serpent-like creature with stubby feet and jets of flame flashing the length of its body as it pursues with jaws agape a round globe that may be taken to be the head of a comet [43]. Obviously the Jews were not alone in converting the harbinger of disaster into a benevolent and beneficent being.



Figure 8. Zeus Strikes Down Phaeton. (Click on the picture to get an enlarged view. *Caution: Image files are large.*)

(Source: Sixteenth century embroidery of scenes from Ovid's *Metamorphoses*)

On what must be the last day of Passover week, but in every month, the Babylonians celebrated a 'Day of Wrath' of the goddess Ishtar with the stoppage of work and lamentations; Ishtar was Athene, Minerva, Venus, and Baalzevuv. Baal Zevuv or "god of the flies," whom Americans know by the popular devil's name of Beelzebub, was also Baal of the Ten Tribes of the Northern Kingdom of Israel and of the Canaanites; god Ares in the Iliad calls Athene: "dog-fly;" a reading of the voluminous cross-cultural evidence brought forward in Velikovsky's books should provide assurance that the four plagues of diverse insects or vermin before Exodus were inextricable from a celestial, catastrophic event.

### *THE HORROR OF RED*

The horror of the color red in Egypt after 1450 B. C. is an understandable result of the Exodus catastrophe and most precisely the red plague. "Red is regarded as a purely calamitous color." [44] Yet the heavenly gods of Edfu (third dynasty of the Old Kingdom) were clad in festive red. The tracing of just this detail of a culture, the color red, illuminates how the cometary disaster produced long-lasting psychological and material changes,

The Egyptians could not even enjoy a red sunset or sunrise for a long time thereafter, deeming the sun to be ominous of danger



and anger. It was "Horus raging with red eyes." The Red Sea was probably named for those days of the red plague. "It is remarkable that the designation of 'Red Sea' has no precedent in Old Egyptian; to the contrary, expressions regularly contained no mention of color." [45] The seas all around were feared and the Egyptians did not go to sea but left the waters to other peoples. The whole foreign world was called "the red " with the same loathing that a modern capitalist might talk of the "reds" of communism.

While the murex, the shell that makes a beautiful red dye, was the object of brisk trade elsewhere, the Egyptians would never deal in it. In the sarcophagi, a bull at one end of the tomb was painted red. The dead who were buried with broken red pots were said thus to ward off Seth and recognize Osiris.

The Egyptians were probably the source of imagining the devil to be red. Seth - god of the conquering Hyksos, but eternal foe of Horus - was sent into the underground after the expulsion of the Hyksos. The color of Seth was red. So was the color of Typhon, who came to be a monstrous identity of Seth. Human sacrifices - the highest compliment that humans can make to a deity - were offered to repeat and thus reassure the destruction of Typhon. According to Rix, Jews were often chosen for Typhonic sacrifices, especially red-headed Jews. Possibly thus the historical connection of the Jews with the red plague could be more sharply symbolized. "Therefore the *nuggoi* (red) people were persecuted, therefore only *nuggoi* animals were chosen for sacrifice, therefore also fiery colored people (Typhonians) according to Diodorus in ancient times were offered at the tomb of Osiris, and according to Plutarch, later, were burnt in Eileithyia and their ashes winnowed to the winds." [46] Yet, "the name (or nickname) 'the red one,' referring to skin color or hair color had at first no negative value," [47] When animals were substituted for humans, "the sacrifice of a red bull is represented at Denderah with the formal statement that the animal was Typhon." [48] Cows, bulls and asses were portrayed as red on ceremonial occasions. Seth was also the red ass and hippopotamus. However, the bull-god Apis, object of the Hyksos cult, is colored black [49].

The Pharaoh of Egypt wore a double crown to represent both Upper Egypt and Lower Egypt, which includes Memphis and the Nile River Delta whence occurred the Exodus: the crown of Upper Egypt was white, the crown of Lower Egypt red. This was to show the domination of Lower Egypt by Upper Egypt. But this domination meant probably the disaster, suppression, and finally liberation of Lower Egypt from the Hyksos, the people of Typhon. "Because red had an evil meaning, the red crown was referred to euphemistically as 'the green.'" A district governor from Siut declares his resolve "to bring order to the red." [50]

The god, Horus, was connected with the color white but when angry, his eyes became red. Isis, when siding with her brother Osiris, is black; when shown as the sister of Seth, she is red. Although red originally was used on a papyrus as "the color of high rank" it "becomes later the symbol of the unfavorable and dangerous." The Pharaoh's name is in red in the Book of the Dead. Calendars marked their unlucky and evil days in red ink [51]. The pervasiveness of the attitude toward red as evil is a measure of the trauma of cosmic catastrophe, followed by foreign oppression, that befell Egypt as the Israelites under Moses departed.

### *THE ELECTROSTATIC AGE*

*His lightnings lighten the world;  
the Earth sees and trembles.  
The mountains melt like wax before the Lord,  
before the Lord of all the earth.*

This Psalm 97 of the Bible seems to have been composed by a devout but advanced electrician. So also seems Deborah: "The mountains melted... even that Sinai." (Judges 5:4-5). Only lately, and by means of satellites, have scientists known of mega-lightning, 100 times more intense than the typical thunderstorms discharges, which shoots bolts of  $10^{13}$  watts and  $10^9$  joules between the highest atmosphere and low clouds or earth [52]. Such discharges, of which there are many and which

were probably once more common, can transmute heavy elements and create radioactivity in abundance.

Since we have had no recent experience of lightning-like electrical discharges between a large body and Earth, we need to draw analogies from extra-terrestrial astronomy to imagine what can have happened during Exodus times. The closest analogy may be what is happening between planet Jupiter and its moon-sized satellite Io.

"Probably the most spectacular discovery of the Voyager mission has been the existence of active volcanoes on Io, erupting material to heights of several hundred kilometers above the surface." [53] According to T. Gold, these "volcanoes" are probably of electrical origin. Seeking out points of high potential and conductivity on Io, lightning from Jupiter shoots ten trillion watts of power repeatedly across the space gap between the two bodies. It digs volcano-like craters with high heat and explosive force, raising pillars of material to heights of up to 270 kilometers, whereupon most of it falls back around its caldera. The electric current or arc "can be expected to be an accurately repeating process." [54]

I would add here, and discuss later, the comment that the Earth-to-comet discharges would range from such enormous discharges (which would however be not so repetitive) to much less powerful, non-explosive electrical melts of mountain-tops. The tie-in of electrostatic discharges with a thermal flow through mountaintops is still a problem for a future science. Meteorologists and geologists have no sense of its history, possibility, and effects. Hence for thousands of years Psalmist 97 has been regarded merely as an exuberant poet.

The Age of Exodus was perforce electrical, judging by the traits and behavior of the greatest gods of the age, such as Zeus, Jupiter, Thor, Marduk, Thoth, Amon and Yahweh, electric phenomena were pervasive and intense, and took many forms. As G.B. Vico wrote, every gentile nation had its Zeus. Every mountain had its fire sanctuary. The Etruscans, probably in the Near East in Moses' time and, later on, a powerful and advanced

Italian nation, are a case in point. They exhibited the most frenetic obsession with lightning; every stroke made its target sacred and approachable only by one of the powerful priesthood; today every eminence in Tuscany seems to reveal to the aerial infra-red camera a ruined development beneath its soil. The Etruscans gave the Romans Jupiter, who was Jove or Ioweh or, who knows, Yahweh; they originated in the Near East and some of their linguistic roots are in Sumer, their blood types resemble an Anatolian group, and they possessed creation and flood legends strikingly like those of *Genesis*.

Throughout the world, altars were placed on eminences, where a "priesthood of the mountain" would collect and administer static electricity in the course of its rituals, orgies, and oracles. These would not necessarily be the highest peaks. Very tall mountains discharge readily and invisibly into the vapor clouds that hover over them and frequently envelop them. For electrical purposes, lesser eminences, with the proper types of conductive rock, the proper network of fractures, and the presence of groundwater steeply descending would facilitate the religious function. Everywhere priesthood developed an expertness in selecting and shaping sites for the exploitation of divine fire. The Druids of Britain distinguished between the lightning of priesthood (*druil-lanack*) and the lightning of god (*dis-lanack*). In Egypt, the age of pyramids preceding Exodus brought the mountain priesthoods to the flat Nile Valley.

Everything that was luminescent, that emitted a high density of photons, was termed "fire." Left with this general word, we of this age, when much less of fire is left in nature, are likely to regard all ancient references as combustion or lightning. The term may mean these two forms; or it may be a metaphor; but very often it refers to strikingly different manifestations.

The incessant attention given to many forms of fire is one reason why I believe that certain ancient periods were undergoing a universal change in electrical conditions. Already highly electrical before Exodus, the world was impelled by the comet of those years into a yet more widespread and intense electrical condition.

There is every reason to believe that "present conditions" - meaning by this the past 2500 years - have experienced in no way the conditions of the Jovean age which we are discussing, and the Bible misleads or is read wrongly when Moses is pictured as a traveling magician with a tent full of trinkets. Seneca, the great Roman stoic, recalls in a tragedy a Jupiter whose bolts would level mountains; this is the kind of god with whom we are dealing. Experts on lightning who have looked into paleontological lightning evidences - such as E. V. Komarek [55] - draw pictures of heavy past electrical activities; immense fields of lightning-caused fulgerites are to be found embedded around the world. No such processes have been reported in historical times.

Electrical fires may have been responsible for scorching of some sealed tombs of the period [56]. The pyramids of Egypt may seem to have evaded divine melting, but calcination is manifested in certain places, and the plated stone that covered the pyramids is missing. We do have a provocative instance of burning in Babylon, such that it has been considered by some as the original Tower of Babel, whose brick and bitumen construction was struck by divine fire [57]. It was of the stepped, ziggurat type.

It appeared that the fire had struck the tower and split it down to the very foundation. In different parts of the ruins immense brown and black masses of brickwork had changed into a vitrified state. At a distance the ruins looked like edifices torn apart at their foundations. Evidently the fiercest kind of fire created the havoc. The most curious of the fragments found were several misshapen masses of brickwork, black, subjected to some kind of heat, and completely molten.

The whole ruin has the appearance of a burnt mountain. On one side of it, beneath the crowning masonry, lay huge fragments torn from the pile itself. The calcinated and vitreous surface of the brick had fused into rock-like masses. It is difficult to explain the cause of the vitrification of the upper building. Great boulders were vitrified, and brickwork had been fused by fire [58].

It is probable that thousands of burnt eminences exist around the world whose tops have seen the electrical fusion of rocks, perhaps even Troy IIg, the "Burnt City" so-called [59]. The famous site, whether or not it was the real Troy, is on an eminence. While not high, the city would have had many small reservoirs of water, whereas the ground outside might already have been dried out. In Troy IIg a sulphurous color suffuses all outdoor spaces and passageways of the town. A deposit of lead and copper melted and flowed around the town. (It is possible that this melt had been scavenged after Schliemann reported it in the 1880s and the discoloration was all that was discoverable when the Blegen expedition re-excavated the site in the 1930's.) No human hand could have or would have set such a fire. The heat was fierce. The ash was far too abundant for a deliberate fire from local materials, and carried a red color. No one would have wanted to destroy precious metals (not to mention even more precious metal left in abundance in the scorched houses and the "treasure of Priam," found on a wall.) Noteworthy is the almost complete absence of human and animal skeletal material in the ruins. Either they turned to dust from the heat, or the electrical buildup was sensed, as it is by animals before earthquakes for example, and they fled from the hill onto the plain where the sensations were absent. Troy IIg, however, should be dated around the time of the Tower of Babel, and exemplifies the unusual play of electrical forces in pre-Exodus times, rather than during the Exodus itself.

In this connection, it is suggested that a great many eminences without settlements or special conditions may, in the process of conducting a charge to or from deep below the surface, have liquified silicates and ferruginous substances together as a conductor, or fused them from the ancient rocks and from by-products, and brought these materials up to the top of the eminence where they are today found, resting on loose, hardly consolidated rocks, as a hard dense cap. This phenomenon is usually explained as a metamorphosis, of very old age, that somehow raised the temperature of water-laden deep limestones and granites and caused them to nearly melt and to rise.

Silification is abundant around igneous metamorphism. In a hot and fast reaction, siliceous fluid is introduced hydrothermally and replaces the host rock, such as limestone, into which it intrudes. It is possible, with or without water, for an electric discharge to assemble and flow quickly as a current up the core of a hill, heating as it moves. Resistant rock heats up like the resistant coils of an ordinary electric room-heater. The taller the mountain, the less time and chance for the siliceous fluid to reach and cap its peak before the current is dissipated in heat or finds enough discontinuities of strata and faults to disperse in different directions.

### *YAHWEH'S ELECTRICAL FIRE CONGLOMERATE*

Yahweh is present in smoke and fire both in the Tabernacle and elsewhere, giving rise to the naive view that he was simply a typical volcano god, of which, presumably, there are as many as there are volcanoes [60]. Freud adopted this view as part of accepting the primitivist bedouin theory of much of Exodus. The volcano gods that inspire this belief are the small "retail" gods of today, not the wholesale volcano and fire gods of old - like Hephaistos. And Yahweh was more than a wholesale volcano god; he was a giant fire conglomerate god.

When Moses invited the elders to visit Yahweh with him, they came upon his presence on a vitrified surface, sapphire as of heaven. This was the Sinai that "burned like wax." On the occasion when Moses had spent days and nights on the Holy Mountain, the electrical currents were so heavy that he had crouched in a cleft for fear of electrocution as Yahweh passed by. The Israelites had their own electrical mountain:

There were thunders and lightnings, and a thick cloud upon the mountain, and a very loud trumpet blast... And Mount Sinai was wrapped in smoke, because the Lord descended it in fire [61].

The fire came *down* to the mountain. Only Moses could approach its heights safely. The people had to stand below, which is something nevertheless that they might not do if it were a violently erupting volcano. A column of smoke went up. The

horns sounded ever louder. Fiery darts dropped everywhere. There were frightening electrical storms and earth movements. Stones were cast down from the sky. The people scarcely dared approach the foot of the mountain for fear that they would be destroyed by fire. They did finally run away.

Since Mount Sinai does not behave like a volcano, one is not surprised to learn that explorers have not found a volcano, whether extinct or alive, at any of the sites proposed for the location of Moses' Holy Mountain. The two major contenders for the position are Jebel Músa in the South Central Sinai Peninsula and a mountainous location at the northeastern head of the Gulf of Aquaba (see map of Figure 5) referred to as Mount Horeb. Following Winnett's tracing of the Wilderness itinerary, I am adopting the latter in my considerations, partly because this is in Midian and Horeb is placed in Midian by Ex. 3:1 and Moses has had so much to do with Midian otherwise [62]. Geological investigations are required before Mount Sinai-Jebel Musa is definitely pronounced a possibility for "electrico-vulcanism," and even less is known of the geology of the several locations heretofore proposed near modern Eilath, in ancient Midian or modern North Hêgaz.

On various occasions Yahweh sent consuming fires upon the Israelites, once even at a place renamed Teberah, "the Burning Place." [63] The fire: "wrought havoc among...the murmuring and complaining multitude that had joined the Israelites upon their Exodus from Egypt." [64] It was a fire that destroyed fire. It spread on all sides. It was the same fire that "found its place on the altar of the Tabernacle," and that destroyed Aaron's sons and Korah's company. "Moses took bundles of wool and laid them upon the divine fire, which thereupon went out." [65] Wool is of course more effective than water in extinguishing electrical fires.

One cannot be sure what kind of fire it is that runs along the ground. It is not ordinary combustion; it may be fleets of ball-lightning such as have rarely been observed in recent times [66]. "Fire has mounted up on high" (Ipuwer) is significant. This is not lightning: the combination indicates a type of St. Elmo's conflagration - there are cases reported even recently like this



with a climbing of whatever eminences are accessible. Pyramids, obelisks, buildings, perhaps even balls and jets of fire leaving the ground and moving through the dense atmosphere upwards, like a clutch of balloons, are probable.

The repeated Biblical references to Yahweh's sending darts of fire, jets of fire upon the enemies of Israel and even upon the Israelites when they displease him inspires one to seek the corresponding natural phenomenon, even though it would be enormously amplified in a general catastrophic encounter. Juergens has suggested plasmoids, pieces of plasma, as being formed and bombarding earth on some ancient occasions. These electrical footballs are formed of a balance of positive ions and electrons. They retain their identity and appear as luminous objects of the size of missiles. They would cause explosions near the ground and/or dig craters [67].

It is the voltage difference that promotes electrical activity; opposite charges that attract are not necessary for a discharge. A high negative charge will discharge to a low negative charge; the electrons explode or spark to the less dense negative region, or follow a highly conductive medium. The difference in potential is the setting for an activity.

The Earth as a sphere carries an overall charge but no one knows what it is [68]. The concept of "charge" is effectively meaningless except in relation to other aggregates that carry an electric charge. The charge of the Earth as a whole then is significant when any part of the whole - its rocks, its waters, its atmosphere, its depths and heights - becomes electrically differentiated, which means that these are electrically potentiated for activity when their charges or distances or media of conduction change in relation to one another. Also the Globe is charged in relation to other aggregates of the solar system environment, be they plasma, gases, meteoroids, planet or sun, just as it may have a gravitational relationship to them. And just as that gravitational relationship varies exponentially with the distance of the aggregates, so does the electrical relationship vary.

The solar system as a whole, moving as it does in relation to millions of bodies of the Milky Way Galaxy, operates in a changing electrical environment. This is constant so long as the solar system as a point in the Galaxy retains a stable position, though moving, in relation to all other significant charged points. And it does so too, so long as such body-points are not rapidly changing their electrical condition, as for example happens when a star explodes as a nova or supernova.

In good weather a point on the Earth's surface carries in the meter of atmosphere above it a negative charge of about 100 volts. (Ground zero is a relative concept; an immense voltage might conceivably be in the Earth.) The luminous halo-discharges from points, known as St. Elmo's fire, "are caused by a sharp increase in the voltage field to a value a thousand times greater than the average 120- 150V/m." [69] At a height of 50 kilometers, the ionosphere carries a positive charge of about 400,000 volts, which would indicate an average vertical voltage gradient of about 8 volts per meter. This difference produces no visible or felt effects ordinarily. A sudden change, such as occurs just before an earthquake, will excite greatly the biosphere and produce weakness, giddiness, and tense feelings among people [70]. Eric Crew points out that there is a normal leakage in the atmospheric column; this current is tiny and totals 1800 amperes, which is balanced by the charging effect of lightning carrying negative charge to the ground [71]. Changing atmospheric conditions also play upon this voltage gradient causing electrical effects.

Any changed deployment of external aggregates also plays upon this voltage gradient and often it is by no means child's play. A volcanic eruption or a meteorite fall plays havoc with its ambiance, electrically as well as otherwise. Sun spots, which are electrified explosive events, have meteorological and climatic effects on the Earth and may even disturb the Earth's motion.

If two large bodies - such as the earth and a great comet - approach each other, they will invariably be carrying unequal charges at various lines of potential contact. They will exchange charges between their plasma sheaths (magnetospheres),

between their atmospheres, between their surface prominences, and between their surfaces, which are graded according to conductivity and resistances. Even if all of these changed states and all bodily motions were known and this data were fed into a computer, and even if all the laws of electricity now known were programmed to manipulate the data, the pattern of exchanges would be exceedingly complicated, fast, often violent, and in any event impossible to plot given the present state of knowledge and the many behaviors that are beyond history.

A long-term charge exchange of Earth with its atmosphere and interplanetary space is postulated, together with a large-body encounter, to explain the apparently heavy electrical effects of the mid-second millennium B.C. A third major producer of electricity would be the crustal stresses of the Earth in the aftermath of a large-body encounter, whether involving a slight or major deceleration or axial re-orientation of part or all of the Earth's crust, mantle and core. These would bring about a long period of earthquakes and piezo-electric effects.

The relation between earthquakes and lightning has been foolishly neglected for two centuries until now. The Chinese earthquake of July 28, 1976 lit up the sky in red and white colors for 200 miles around its epicenters for hours [72]. Observers, from antiquity to the present day, have spoken of the flames emerging from earthquake fissures; one student counted ten such reports in a survey of several hundred earthquakes.[73]

Piezoelectricity comes from stresses of pressure and heat upon quartz rock, which is widely dispersed over the Earth's crust, particularly in lavas. "The North Idu peninsula earthquake on November 26, 1930, the best documented instance of seismoelectricity (over fifteen hundred sightings), occurred in a region with widespread quartz rich lava flows." [74] In quartz whose axis has been lined up by tectonic strains, an earthquake can create "an average electric field of 500-5000 volts/cm. For distances in the order of half the seismic wavelength, the general voltage is  $5 \times 10^7$  to  $5 \times 10^8$  V, which is comparable with the voltage responsible for lightning in storms. The discharge will seek outlets through tooth-like (Sinai=Sinn=Tooth?), sword-like

(Horeb=sword), and especially quartz-loaded eminences, or in fissures, or, if needs be, in fires "running along the ground" (plagues of Egypt). The piezoelectric effects, occurring from earth strains, would long outlast the cometary encounter, and provide continuous high voltage above ground.

E. A. Von Fange quotes 37 passages from the Old Testament referring to great destruction by fire, only one of them from Exodus, which we find has numerous references to fire. He also mentions "a total of 28 fields of burned and broken stones called *harras*, has been found in Western Arabia, covering up to 7000 square miles each. "[75]

A comprehensive list of all electrical phenomena that are mentioned or hinted at in the Bible and Jewish legends would include: celestial eyes; angels and other apparitions on prominences; St. Elmo's fire; blasts; jagged lightning; jets or darts of fire; exploded gas pockets or petroleum fires; electrically induced or electrically accompanied dust and water typhoons and tornados; ionized winds; charged and ionized dust-falls; illuminated skies, including earthquake lights; the electrical flashes from volcanoes; point discharges on controlled machines or near to such apparatus; smoke clouds of luminous quality; night lights; phosphorescence; thunder, trumpets and singing; piezoelectric effects; and natural electrochemical compositions of manna and other substances. To these should be added the fall-outs of electro-jet transported stones and dust, and electrically accompanied radioactive fall-out or explosion. Nor should one neglect the many electrical changes overcoming the great comet in its movements through space, that gave it so many different identities - animal, human and divine.

We can be sure that a full range of electrical effects - visual, auditory and physiological - would be experienced by the whole population and that many changes would occur in the atmosphere, lithosphere, hydrosphere and biosphere. Furthermore, the effects would be enduring. Centuries would pass before the numerous causal chains would emerge into an apparent equilibrium. Then all spheres of nature would gradually have been adjusted to all others. Earth rock strata,

discontinuities, faults, and contours would carry differing currents, generate piezoelectricity, and so-on, but at a level finally recognizable as of the present day. Like water seeks its own level, electricity gropes for a balance of charges.

### *THE CELESTIAL FIRST CAUSE*

Given the Exodus symptoms which were exhibited in the Near East and elsewhere, which were not all confined to Lower Egypt, we can surmise that physical convulsions overcame the Earth. These were provoked either by internal causes or external ones. But what would provoke a quiescent Earth, as we know it today, to such energetic reactions as we observe during the Exodus? If the Earth's interior were as it is now, and as many believe it to have been for a billion years or more, and if its motions were then as they are now, as they are believed to have been for a billion years or more, neither Exodus nor any other such general catastrophe would have been experienced in history and prehistory.

We have a convenient test of this statement. The island of Thera-Santorini, north of Crete, and only some hundreds miles from the scene of the Exodus plagues and tides, has recently been accredited with that disaster [76]. Thera, an ancient center of Minoan civilization, suffered more than one explosion in the second half of the second millennium. The date of its climactic destruction may be about 1000 B.C. based on Isaacson's matching of cultural remains with Bronze Age remains of Egyptian origin also found there [77]. The incredible blast, 50 times that of Krakatoa offshore Java in 1883, is known to have filled the sky with a fall of ashes and excited great tidal waves.

I eliminate Thera as the source of the Exodus catastrophe, not only because of the late date of the most destructive outburst, but also because it alone could not have brought about the long period of ground and air turbulence of Exodus, the biosphere behavior, the sky scenes of moving bodies, or the years of dust, chemicals, and dark clouds. Further, it is more likely that a general thermo-electric effect of the Earth's crustal torsion brought on the explosive series of Thera than the reverse. Mount

Vesuvius exploded with a force equal to the climactic Thera explosion about 3500 years ago [78]. Many other eruptions would have occurred, both conical and fissure in type. The great explosion of Thera, when it did happen hundreds of years later, may have contributed to the rapid decline and fall of the Hyksos empire of Syria and Lower Egypt, a fall made final by an alliance of King Saul of Israel and Pharaoh Ahmose of Egypt [79].

Therefore, there must have been some extra-terrestrial cause of the Exodus catastrophe. There might have been a change in the sun, which we consider because of its great size to represent also any considerable change in the galactic environment. Or there might have been a wandering cloud of gases or meteoroids that invaded the Earth's "air-space." Or there might have been some large-body intrusion, coming close enough to the Earth to provoke the destructive effects experienced on Earth.

This large body would be by definition a comet, because any body on an irregular orbit or path near us cannot be called a planet, and further, there is no fundamental difference between a meteoroid and a comet (although it used to be thought that meteoroids were short-distance travelers in the solar system and comets long-distance travelers [80]. As for the coma, or "hair" (Latin) that characterizes the comet, any body moving through different types of space will react gaseously and electrically to the differences, and grow or lose its "hair" or "tail."

Since large meteoroids behave like comets, we may turn to smaller meteoroids. A meteoroid of, say, the diameter that caused the Berringer Crater of Arizona, or the Tunguska blast in Siberia, which exploded aboveground, falls on rare occasion. Today Earth experiences incursions by swarms of meteorites from time to time. A regular swarm hits the atmosphere and is to be seen on or about August 10 of each year. Their effects go generally unnoticed. Several reliable accounts of meteorite swarms of greater moment are available: the widespread terror is noticeable; the incitement of earth's tremors has been attributed to some meteors. Strange effects such as gas clouds, ball-lightning, and small gelatinous masses have been partially

verified. No effects comparable to those of Exodus are demonstrated.

Especially in view of the astonishing irregularities that have been ascribed to the sun in the past several years [81], one might think of blaming the sun for the Exodus catastrophe. But here the problem is that those who experienced Exodus did not blame the sun. The Phaeton legend is practically alone in asserting that the son of Helios stole his chariot and lost control of it, careening about the sky to the great distress of the Earth and its inhabitants. I have already referred to the study of Kugler who severed any relationship between Phaeton and the sun, giving an independent existence, path and destruction to this large sun-like body. The Greek legend of Zeus striking down Typhon, and the Egyptian legend of Horus defeating Seth and sending him to hell represent much better the celestial events surrounding Exodus. It is probable, however, as I explain in another work (*Chaos and Creation*), that changes in the sun and solar system precipitated the great body upon its errant course.

Nevertheless, the body is independent, very large, and distinct in the eyes of the beholders. Velikovsky says it was the planet Venus; I term it elsewhere the protoplanet Venus or Cometary Venus. This is because of the abundant connections made in antiquity that associate the great body of the Exodus skies with the planet Venus. But this point has been heavily discussed in many places and we can be satisfied, for the purposes of this book, with the realization that an enormous body passed near the Earth and that only such a body could have produced the Exodus effects.

**Notes (Chapter 3: Catastrophe and Divine Fires)**

1. III G 13-4.
2. III G 17.
3. Velikovsky, *W. in C.*, 156.
4. If 430 years (not 400) are divided by 86, and the dividend is 5; then Uzza could have been calculating in some cycles of 86 years, but the legend is mute about the further meaning and I know of no such cycle. I mention later that the years of Moses, some patriarch, and other events before 1440 B. C. may have been calculated on a sacred year of 260 days, perhaps the work of Amon-Jupiter or Thoth-Hermes.
5. III G 126. For other references to the great celestial light over Exodus, *cf.* II G 37, III G 133.
6. II G 373. Earlier, in contradiction thereof, we spoke of Moses' last meeting with the Pharaoh being in heavy darkness.
7. *Is.* 9:2; *W. in C.*, 175.
8. B. Feldman, in a letter to *VI Kronos*, 2(1981) 92, reporting from G. Scholem's *Sabbatai Sevi: The Mystical Messiah* (trans. Werblowsky), Princeton U. Press, 1973.
9. *Num.* 21:9.
10. Velikovsky, *W. in C.*, 176.
11. II G 316-7.
12. *Ex.* 13:21-2. *Cf.* 14:19-20.
13. Translated as, "On comets, comet-like Luminous Apparitions and Meteors," *VII Kronos* 4(1982).



14. III G 26.
15. G.A. Wainright, "Jacob's Bethel." *Report. Pales. Explor. Fund*, 1934, 32.
16. *Ex.* 26:49.
17. VII *Reallexikon fur Antike and Christentum*, p. 376, citing a Midrash.
18. III G 150-1.
19. Velikovsky, *W. in C.*, 107.
20. *Ps.* 68:7-8.
21. III G 151.
22. *Ibid.*, 165.
23. *Ibid.*, 231-8, with each of these four were grouped two others, making four groups of three. The Levites, not a tribe, were centered around the sacred area in the middle of the roughly nine square miles of residential area.
24. E.C. Baity, "Archaeoastronomy and Ethnoastronomy Thus Far," *14 Current Anthropology* 4(Oct. 1973), 389.
25. Giorgio de Santillana and Hertha von Dechand, *Hamlet's Mill*, Boston : Gambit, 1969, 239.
26. *Ibid.*, 239-40.
27. *Oxford Annotated Bible*, fn. *Ex.* 25:40, citing also *Ex.* 25:9; 26:30; 27:8.
28. III G 123.
29. It is called a "bull" on occasion in Jewish legend.

30. Umberto Cassuto, *A Commentary on the book of Exodus* (tr. I. Abrahams) Jerusalem: Magnes Press, Hebrew U., 1967, 412.
31. Cœ. Henri Breuil, "Le bison et le taureau céleste chaldéen," *XIII Revue Archeologique*, series IV, Mar-Apr 1909, 250-4.
32. Velikovsky, W. *in C.* 181, quoting Nechre-Wahibre.
33. Unpubl. letter to author.
34. *Ex.* 15:14-16.
35. Velikovsky, A. *in C.*, 62, quoting Arab sources.
36. David Neev and G. M. Friedman, "Late Holocene Tectonic Activity Along the Margins of the Sinai Subplate," *202 Science* (27 Oct. 1978) 427-9.
37. "The catastrophe Finale of the middle Age," *Proceeding, IX Int'l, Congress Prehist and Protohist*, Nice, France, 1976.
38. W.F. Petrie, *Egyptian Archaeology*, p. 67.
39. G.L. Possehl, "The Mohenjo-daro Floods..." 69 *Amer. Anthro.*, n°1, 1967, 32-40.
40. R.M. Adams, "From sites of patterns," 68 *U. of Chicago Mag.*, winter, 1975, 19-20.
41. Alex. Kondratov, *The Riddles of Three Oceans*, Moscow, U.S.S.R, 1974, 164:
42. William Mullen, "The Mesoamerican Record," 4 *Pensée*, 4 Fall 1974, 34-44.
43. "China's Dragon," 4 *Pensée*, 1 (1973-4), 47-50.
44. *Reallexikon für Antike and Christentum* (Anton Hiersemann, Stuttgart, 1969) 366.

45. *Ibid.*, 362-6.
46. Zvi Rix, unpubl. mss., quoting K.B. Stark, *Gaza and die Philistaische Küste* (1852), s. 268.
47. *Reallexikon for Antike and Christentum*.
48. Rix, quoting E. Lefebure, "Le Sacrifice Humain d'après les rites de Busiris et d'Abydos," III *Sphinx* (Upsala), 1900, 143.
49. *Reallexikon*, 368.
50. *Ibid.*, 372.
51. *Ibid.*, 374.
52. *New Scientist* (20 Oct. 1977), 150.
53. B.A. Smith *et. al.*, 204 *Science* (1979), 961.
54. Thomas Gold, "Electrical Origin of the Outburst on Io," 206 *Science* (1979), 1072.
55. "The Natural History of Lightning," *Proceedings*, III Tall Timbers Fire Ecology Conference, Tallahassee, Fla., 1964, 150.
56. Velikovsky, *W. in C.*, 56-57.
57. *Gen.* 11:1-9.
58. E.A. Von Fange, "Strange Fires on Earth," 12 *Creation R.Q.* (Dec. 1975), 132.
59. A. de Grazia, "Paleo-Calcinology: Destruction by fire in Pre-history and Ancient Times," I *Kronos* 4 (1976) 25-36; II *Kronos* (1976), 63-71.
60. Cf. *Oxford Annot. Bible*, Ex. 3:2 fn; 19:9; 33:9; 40:34-8; 1 *Kings* 8:10-11.

61. *Ex.* 19:16-19.

62. *The Mosaic Tradition*, 74 and 71ff. Pythian-Adams is cited as first to suggest, in his *Call of Israel*, that all Sinai reference were Post-Exilic while the reference to Horeb are older and original.

63. *Num.* 11:1-3.

64. III G 244.

65. III G 245.

66. *Cf.* W. Corliss, comp., *Strange Phenomena*, 2 v. (1974) GLB series for recent cases.

67. The plasmoid may be distinguished from ball lightning by its more volatile and heavy explosive quality. *Cf.* R. Juergens, "Of the Moon and Mars," IV *Pensée* 4 (1974), 21.

68. Contradicting this, V. Manoilov, *Electricity and Man*, Moscow: Mir, 1978, 54, sets the Earth's charge at 50 million coulombs, granting that the charge is continually changing globally and locally.

69. *Ibid.*, 55.

70. *Cf.* W. Corliss, comp., *Strange Phenomena*, 2 v. 1974, GE-GQE-029, 030, *et passim*.

71. Eric Crew, "Electricity in Astronomy," II *SISR* 4(1977), 24.

72. *U.S. Geological Survey*, "Earthquake Lights," (July 3, 1977, Wash. D.C.)

73. The space available here does not permit citation of the numerous scientific articles on electrical effects of earthquakes such as would have been experienced during the Exodus and in the wilderness. A number of useful reports are cited and partially

reprinted in Corliss, compiler, *op. cit.* (GQE series, Sourcebooks, 1974f).

74. David Finkelstein and James Powell, 228 *Nature* (Nov. 21,1970) 759-760.

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