

## CHAPTER 2

### Fifty-two Years Earlier

THE PRE-COLUMBIAN written traditions of Central America tell us that fifty-two years before the catastrophe that closely resembles that of the time of Joshua, another catastrophe of world dimensions had occurred.<sup>1</sup> It is therefore only natural to go back to the old Israelite traditions, as narrated in the Scriptures, to determine whether they contain evidence of a corresponding catastrophe.

The time of the Wandering in the Desert is given by the Scriptures as forty years. Then, for a number of years before the day of the disturbed movement of the earth, the protracted conquest of Palestine went on.<sup>2</sup> It seems reasonable, therefore, to ask whether a date fifty-two years before this event would coincide with the time of the Exodus.

In the work *Ages in Chaos*, I describe at some length the catastrophe that visited Egypt and Arabia. In that work it is explained that the Exodus took place amid a great natural upheaval that terminated the period of Egyptian history known as the Middle Kingdom. There I endeavor to show that contemporary Egyptian documents describe the same disaster accompanied by "the plagues of Egypt," and that the traditions of the Arabian Peninsula relate similar occurrences in this land and on the shores of the Red Sea. In that work I refer also to Beke's idea that Mt. Sinai was a smoking volcano. However, I reveal that "the scope of the catastrophe must

<sup>1</sup> These sources will be cited on subsequent pages.

<sup>2</sup> According to rabbinical sources, the war of conquest in Palestine lasted fourteen years.



have exceeded by far the measure of the disturbance which could be caused by one active volcano," and I promise to answer the question: "Of what nature and dimension was this catastrophe, or this series of catastrophes, accompanied by plagues?" and to publish an investigation into the nature of great catastrophes of the past. Both works—the reconstruction of history and the reconstruction of natural history—were conceived within the short interval of half a year; the desire to establish a correct historical chronology before fitting the acts of nature into the periods of human history impelled me to complete *Ages in Chaos* first.<sup>3</sup>

I shall employ some of the historical material from the first chapters of *Ages in Chaos*. There I use it for the purpose of synchronizing events in the histories of the countries around the eastern Mediterranean; here I shall use it to show that the same events took place all around the world, and to explain the nature of these events.

### The Red World

In the middle of the second millennium before the present era, as I intend to show, the earth underwent one of the greatest catastrophes in its history. A celestial body that only shortly before had become a member of the solar system—a new comet—came very close to the earth. The account of this catastrophe can be reconstructed from evidence supplied by a large number of documents.

The comet was on its way from its perihelion and touched the earth first with its gaseous tail. Later in this book I shall show that it was about this comet that Servius wrote: "Non igneo sed sanguineo rubore fuisse" (It was not of a flaming but of a bloody redness).

One of the first visible signs of this encounter was the reddening of the earth's surface by a fine dust of rusty pigment. In sea, lake, and river this pigment gave a bloody coloring to the water. Because of these particles of ferruginous or other soluble pigment, the world turned red.

The *Manuscript Quiché* of the Mayas tells that in the Western Hemisphere, in the days of a great cataclysm, when the earth quaked

<sup>3</sup> In order of publication it will follow the present volume.



and the sun's motion was interrupted, the water in the rivers turned to blood.<sup>1</sup>

Ipuwer, the Egyptian eyewitness of the catastrophe, wrote his lament on papyrus: <sup>2</sup> "The river is blood," and this corresponds with the Book of Exodus (7 : 20): "All the waters that were in the river were turned to blood." The author of the papyrus also wrote: "Plague is throughout the land. Blood is everywhere," and this, too, corresponds with the Book of Exodus (7 : 21): "There was blood throughout all the land of Egypt."

The presence of the hematoid pigment in the rivers caused the death of fish followed by decomposition and smell. "And the river stank" (Exodus 7 : 21). "And all the Egyptians digged round about the river for water to drink; for they could not drink of the water of the river" (Exodus 7 : 24). The papyrus relates: "Men shrink from tasting; human beings thirst after water," and "That is our water! That is our happiness! What shall we do in respect thereof? All is ruin."

The skin of men and of animals was irritated by the dust, which caused boils, sickness, and the death of cattle— "a very grievous murrain."<sup>3</sup> Wild animals, frightened by the portents in the sky, came close to the villages and cities.<sup>4</sup>

The summit of mountainous Thrace received the name "Haemus," and Apollodorus related the tradition of the Thracians that the summit was so named because of the "stream of blood which gushed out on the mountain" when the heavenly battle was fought between Zeus and Typhon, and Typhon was struck by a thunderbolt.<sup>5</sup> It is said that a city in Egypt received the same name for the same reason.<sup>6</sup>

<sup>1</sup> Brasseur, *Histoire des nations civilisées du Mexique*, I, 130.

<sup>2</sup> A. H. Gardiner, *Admonitions of an Egyptian Sage from a hieratic papyrus in Leiden* (1909). Its author was an Egyptian named Ipuwer. Hereafter the text will be cited as "Papyrus Ipuwer."

In *Ages in Chaos* I shall develop evidence to show that this papyrus describes events contemporaneous with the end of the Middle Kingdom in Egypt and the Exodus. It must have been composed shortly following the catastrophe.

<sup>3</sup> Exodus 9 : 3; cf. Papyrus Ipuwer 5 : 5.      <sup>4</sup> Ginzberg, *Legends*, V, 430.

<sup>5</sup> Apollodorus, *The Library* (transl. J. G. Frazer, 1921), VI.

<sup>6</sup> Frazer's comment to Apollodorus' *Library*, I, 50.



The mythology which personified the forces of the cosmic drama described the world as colored red. In one Egyptian myth the bloody hue of the world is ascribed to the blood of Osiris, the mortally wounded planet god; in another myth it is the blood of Seth or Apopi; in the Babylonian myth the world was colored red by the blood of the slain Tiamat, the heavenly monster.<sup>7</sup>

The Finnish epos of *Kalevala* describes how, in the days of the cosmic upheaval, the world was sprinkled with red milk.<sup>8</sup> The Altai Tatars tell of a catastrophe when "blood turns the whole world red," and a world conflagration follows.<sup>9</sup> The Orphic hymns refer to the time when the heavenly vault, "mighty Olympus, trembled fearfully . . . and the earth around shrieked fearfully, and the sea was stirred [heaped], troubled with its purple waves."<sup>10</sup>

An old subject for debate is: Why is the Red Sea so named? If a sea is called Black or White, that may be due to the dark coloring of the water or to the brightness of the ice and snow. The Red Sea has a deep blue color. As no better reason was found, a few coral formations or some red birds on its shores were proposed as explanations of its name.<sup>11</sup>

Like all the water in Egypt, the water on the surface of the Sea of the Passage was of a red tint. It appears that Raphael was not mistaken when, in painting the scene of the passage, he colored the water red.

It was, of course, not this mountain or that river or that sea exclusively that was reddened, thus earning the name Red or Bloody, as distinguished from other mountains and seas. But crowds of men, wherever they were, who witnessed the cosmic upheaval and escaped with their lives, ascribed the name Haemus or Red to particular places.

<sup>7</sup> *The Seven Tablets of Creation*, ed. L. W. King (1902). <sup>8</sup> *Kalevala*, Rune 9.

<sup>9</sup> U. Holmberg, *Finno-Ugric, Siberian Mythology* (1927), p. 370.

<sup>10</sup> "To Minerva" in *Orphic Hymns* (transl. A. Buckley), ed. with the *Odyssey* of Homer (1861).

<sup>11</sup> H. S. Palmer, *Sinai* (1892). Probably at that time the mountainous land of Seir, upon which the Israelites wandered, received the name Edom (Red), and Erythrea (erythraios—red in Greek) its name; Erythrean Sea was in antiquity the name of the Arabian Gulf of the Indian Ocean, applied also to the Red Sea.



The phenomenon of "blood" raining from the sky has also been observed in limited areas and on a small scale in more recent times. One of these occasions, according to Pliny, was during the consulship of Manius Acilius and Gaius Porcius.<sup>12</sup> Babylonians, too, recorded red dust and rain falling from the sky;<sup>13</sup> instances of "bloody rain" have been recorded in divers countries.<sup>14</sup> The red dust, soluble in water, falling from the sky in water drops, does not originate in clouds, but must come from volcanic eruptions or from cosmic spaces. The fall of meteorite dust is a phenomenon generally known to take place mainly after the passage of meteorites; this dust is found on the snow of mountains and in polar regions.<sup>15</sup>

### The Hail of Stones

Following the red dust, a "small dust," like "ashes of the furnace," fell "in all the land of Egypt" (Exodus 9 : 8), and then a shower of meteorites flew toward the earth. Our planet entered deeper into the tail of the comet. The dust was a forerunner of the gravel. There fell "a very grievous hail, such as has not been in Egypt since its foundations" (Exodus 9 : 18). Stones of "barad," here translated "hail," is, as in most places where mentioned in the Scriptures, the term for meteorites. We are also informed by Midrashic and Talmudic sources that the stones which fell on Egypt were hot;<sup>1</sup> this fits only meteorites, not a hail of ice.<sup>2</sup> In the Scriptures it is said that

<sup>12</sup> Pliny, *Natural History*, ii, 57. Another instance, according to Plutarch, occurred in the reign of Romulus.

<sup>13</sup> F. X. Kugler, "Babylonische Zeitordnung" (Vol. II of his *Sternkunde und Sternendienst in Babel*) (1909-1910), p. 114.

<sup>14</sup> D. F. Arago, *Astronomie populaire* (1854-1857), IV, 209 f.; Abel-Rémusat, *Catalogue des bolides et des aérolithes observés à la Chine et dans les pays voisins* (1819), p. 6.

<sup>15</sup> It is estimated that approximately one ton of meteorite dust falls daily on the globe.

<sup>1</sup> The Babylonian Talmud, Tractate Berakhot 54b; other sources in Ginzberg, *Legends*, VI, 178.

<sup>2</sup> In the Book of Joshua it is said that "great stones" fell from the sky, and then they are referred to as "stones of barad."

"The ancient Egyptian word for 'hail,' *ar*, is also applied to a driving shower of sand and stones; in the contest between Horus and Set, Isis is described as



these stones fell "mingled with fire" (Exodus 9:24), the meaning of which I shall discuss in the following section, and that their fall was accompanied by "loud noises" (*kolot*), rendered as "thunderings," a translation which is only figurative, and not literally correct, because the word for "thunder" is *raam*, which is not used here. The fall of meteorites is accompanied by crashes or explosion-like noises, and in this case they were so "mighty," that, according to the Scriptural narrative, the people in the palace were terrified as much by the din of the falling stones as by the destruction they caused (Exodus 9:28).

The red dust had frightened the people, and a warning to keep men and cattle under shelter had been issued: "Gather thy cattle and all that thou hast in the field; for upon every man and beast which shall be found in the field, and shall not be brought home, the hailstones shall come down upon them, and they shall die" (Exodus 9:19). "And he that regarded not the word of the Lord left his servants and his cattle in the field" (Exodus 9:21).

Similarly, the Egyptian eyewitness: "Cattle are left to stray, and there is none to gather them together. Each man fetches for himself those that are branded with his name."<sup>3</sup> Falling stones and fire made the frightened cattle flee.

Ipuwer also wrote: "Trees are destroyed," "No fruits, no herbs are found," "Grain has perished on every side," "That has perished which yesterday was seen. The land is left to its weariness like the cutting of flax."<sup>4</sup> In one day fields were turned to wasteland. In the Book of Exodus (9:25) it is written: "And the hail [stones of barad] smote every herb of the field, and brake every tree of the field."

The description of such a catastrophe is found in the *Visuddhi-Magga*, a Buddhist text on the world cycles. "When a world cycle is destroyed by wind . . . there arises in the beginning a cycle-destroying great cloud. . . . There arises a wind to destroy the world cycle, and first it raises a fine dust, and then coarse dust, and then fine sand, and then coarse sand, and then grit, stones, up to boulders as large

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sending upon the latter *ar n sa*, 'a hail of sand.'" A. Macalister, "Hail," in Hastings, *Dictionary of the Bible* (1901-1904).

<sup>3</sup> Papyrus Ipuwer 9:2-3.    <sup>4</sup> *Ibid.*, 4:14; 6:1; 6:3; 5:12.



. . . as mighty trees on the hill tops." The wind "turns the ground upside down," large areas "crack and are thrown upwards," "all the mansions on earth" are destroyed in a catastrophe when "worlds clash with worlds."<sup>5</sup>

The Mexican *Annals of Cuauhtitlan* describe how a cosmic catastrophe was accompanied by a hail of stones; in the oral tradition of the Indians, too, the motif is repeated time and again: In some ancient epoch the sky "rained, not water, but fire and red-hot stones,"<sup>6</sup> which is not different from the Hebrew tradition.

### Naphtha

Crude petroleum is composed of two elements, carbon and hydrogen. The main theories of the origin of petroleum are:

1. *The inorganic theory:* Hydrogen and carbon were brought together in the rock formations of the earth under great heat and pressure.

2. *The organic theory:* Both the hydrogen and carbon which compose petroleum come from the remains of plant and animal life, in the main from microscopic marine and swamp life.

The organic theory implies that the process started after life was already abundant, at least at the bottom of the ocean.<sup>1</sup>

The tails of comets are composed mainly of carbon and hydrogen gases. Lacking oxygen, they do not burn in flight, but the inflammable gases, passing through an atmosphere containing oxygen, will be set on fire. If carbon and hydrogen gases, or vapor of a composition of these two elements, enter the atmosphere in huge masses, a part of them will burn, binding all the oxygen available at the moment; the

<sup>5</sup> "World Cycles," *Visuddhi-Magga*, in Warren, *Buddhism in Translations*, p. 328.

<sup>6</sup> Alexander, *Latin American Mythology*, p. 72.

<sup>1</sup> Even before Plutarch the problem of the origin of petroleum was much discussed. Speaking of the visit of Alexander to the petroleum sources of Iraq, Plutarch said: "There has been much discussion about the origin of [this naphtha]." But in the extant text of Plutarch a sentence containing one of two rival views is missing. The remaining text reads: ". . . or whether rather the liquid substance that feeds the flame flows out from the soil which is rich and productive of fire." Plutarch, *Lives* (transl. B. Perrin, 1919), "The Life of Alexander," xxv.



rest will escape combustion, but in swift transition will become liquid. Falling on the ground, the substance, if liquid, would sink into the pores of the sand and into clefts between the rocks; falling on water, it would remain floating if the fire in the air is extinguished before new supplies of oxygen arrive from other regions.

The descent of a sticky fluid which came earthward and blazed with heavy smoke is recalled in the oral and written traditions of the inhabitants of both hemispheres.

*Popol-Vuh*, the sacred book of the Mayas, narrates: <sup>2</sup> "It was ruin and destruction . . . the sea was piled up . . . it was a great inundation . . . people were drowned in a sticky substance raining from the sky. . . . The face of the earth grew dark and the gloomy rain endured days and nights. . . . And then there was a great din of fire above their heads." The entire population of the land was annihilated.

The *Manuscript Quiché* perpetuated the picture of the population of Mexico perishing in a downpour of bitumen: <sup>3</sup> "There descended from the sky a rain of bitumen and of a sticky substance. . . . The earth was obscured and it rained day and night. And men ran hither and thither and were as if seized by madness; they tried to climb to the roofs, and the houses crashed down; they tried to climb the trees, and the trees cast them far away; and when they tried to escape in caves and caverns, these were suddenly closed."

A similar account is preserved in the *Annals of Cuauhtitlan*.<sup>4</sup> The age which ended in the rain of fire was called *Quiauh-tonatiuh*, which means "the sun of fire-rain."<sup>5</sup>

And far away, in the other hemisphere, in Siberia, the Voguls carried down through the centuries and millennia this memory: "God sent a sea of fire upon the earth. . . . The cause of the fire they call 'the fire-water.'" <sup>6</sup>

Half a meridian to the south, in the East Indies, the aboriginal

<sup>2</sup> *Popol-Vuh, le livre sacré*, ed. Brasseur (1861), Chap. III, p. 25.

<sup>3</sup> Brasseur, *Histoire des nations civilisées du Mexique*, I, 55.

<sup>4</sup> Brasseur, *Sources de l'histoire primitive du Mexique*, p. 28.

<sup>5</sup> E. Seler, *Gesammelte Abhandlungen zur amerikanischen Sprach- und Altertumsgeschichte* (1902-1923), II, 798.

<sup>6</sup> Holmberg, *Finno-Ugric, Siberian Mythology*, p. 368.



tribes relate that in the remote past *Sengle-Das* or "water of fire" rained from the sky; with very few exceptions, all men died.<sup>7</sup>

The eighth plague as described in the Book of Exodus was "*barad* [meteorites] and fire mingled with the *barad*, very grievous, such as there was none like it in all the land of Egypt since it became a nation" (Exodus 9 : 24). There were "thunder [correct: loud noises] and *barad*, and the fire ran along upon the ground" (Exodus 9 : 23).

The Papyrus Ipuwer describes this consuming fire: "Gates, columns, and walls are consumed by fire. The sky is in confusion."<sup>8</sup> The papyrus says that this fire almost "exterminated mankind."

The Midrashim, in a number of texts, state that naphtha, together with hot stones, poured down upon Egypt. "The Egyptians refused to let the Israelites go, and He poured out naphtha over them, burning blains [blisters]." It was "a stream of hot naphtha."<sup>9</sup> Naphtha is petroleum in Aramaic and Hebrew.

The population of Egypt was "pursued with strange rains and hails and showers inexorable, and utterly consumed with fire: for what was most marvelous of all, in the water which quencheth all things the fire wrought yet more mightily,"<sup>10</sup> which is the nature of burning petroleum; in the register of the plagues in Psalms 105 it is referred to as "flaming fire," and in Daniel (7 : 10) as "river of fire" or "fiery stream."

In the Passover Haggadah it is said that "mighty men of Pul and Lud [Lydia in Asia Minor] were destroyed with consuming conflagration on the Passover."

In the valley of the Euphrates the Babylonians often referred to "the rain of fire," vivid in their memory.<sup>11</sup>

All the countries whose traditions of fire-rain I have cited actually

<sup>7</sup> *Ibid.*, p. 369. Also A. Nottrott, *Die Gosnerische Mission unter den Kohls* (1874), p. 25. See R. Andree, *Die Flutsagen* (1891).

<sup>8</sup> Papyrus Ipuwer 2 : 10; 7 : 1; 11 : 11; 12 : 6.

<sup>9</sup> Midrash Tanhuma, Midrash Psikta Raboti, and Midrash Wa-Yosha. For other sources see Ginzberg, *Legends*, II, 342-343, and V, 426.

<sup>10</sup> *The Wisdom of Solomon* (transl. Holmes, 1913) in *The Apocrypha and Pseudepigrapha of the Old Testament*, ed. R. H. Charles.

<sup>11</sup> See A. Schott, "Die Vergleiche in den Akkadischen Königsinschriften," *Mitt. d. Vorderasiat. Ges.*, XXX (1925), 89, 106.



have deposits of oil: Mexico, the East Indies, Siberia, Iraq, and Egypt.

For a span of time after the combustible fluid poured down, it may well have floated upon the surface of the seas, soaked the surface of the ground, and caught fire again and again. "For seven winters and summers the fire has raged . . . it has burnt up the earth," narrate the Voguls of Siberia.<sup>12</sup>

The story of the wandering in the desert contains a number of references to fire springing out of the earth. The Israelites traveled three days' journey away from the Mountain of the Lawgiving, and it happened that "the fire of the Lord burnt among them, and consumed them that were in the uttermost parts of the camp" (Numbers 11 : 1). The Israelites continued on their way. Then came the revolt of Korah and his confederates. "And the earth opened her mouth, and swallowed them up. . . . And all Israel that were round about them fled at the cry of them. . . . And there came out a fire from the Lord, and consumed the two hundred and fifty men that offered incense."<sup>13</sup> When they kindled the fire of incense, the vapors which rose out of the cleft in the rock caught the flame and exploded.

Unaccustomed to handling this oil, rich in volatile derivatives, the Israelite priests fell victims to the fire. The two elder sons of Aaron, Nadab and Abihu, "died before the Lord, when they offered strange fire before the Lord, in the wilderness of Sinai."<sup>14</sup> The fire was called strange because it had not been known before and because it was of foreign origin.

If oil fell on the desert of Arabia and on the land of Egypt and burned there, vestiges of conflagration must be found in some of the tombs built before the end of the Middle Kingdom, into which the oil or some of its derivatives might have seeped.

We read in the description of the tomb of Antefoker, vizier of Sesostri I, a pharaoh of the Middle Kingdom: "A problem is set us

<sup>12</sup> Holmberg, *Finno-Ugric, Siberian Mythology*, p. 369.

<sup>13</sup> Numbers 16 : 32-35. Cf. Psalms 106 : 17-18.

<sup>14</sup> Numbers 3 : 4; cf. Numbers 26 : 61.



by a conflagration, clearly deliberate, which has raged in the tomb, as in many another. . . . The combustible material must not only have been abundant, but of a light nature; for a fierce fire which speedily spent itself seems alone able to account for the fact that tombs so burnt remain absolutely free from blackening, except in the lowest parts; nor are charred remains found as a rule. The conditions are puzzling.”<sup>15</sup>

“And what does natural history tell us?” asked Philo in his *On the Eternity of the World*,<sup>16</sup> and answered: “Destructions of things on earth, destructions not of all at once but of a very large number, are attributed by it to two principal causes, the tremendous onslaughts of fire and water. These two visitations, we are told, descend in turns after very long cycles of years. When the agent is the conflagration, a stream of heaven-sent fire pours out from above and spreads over many places and overruns great regions of the inhabited earth.”

The rain of fire-water contributed to the earth's supply of petroleum; rock oil in the ground appears to be, partly at least, “star oil” brought down at the close of world ages, notably the age that came to its end in the middle of the second millennium before the present era.

The priests of Iran worshiped the fire that came out of the ground. The followers of Zoroastrianism or Mazdaism are also called fire worshipers. The fire of the Caucasus was held in great esteem by all the inhabitants of the adjacent lands. Connected with the Caucasus and originating there is the legend of Prometheus.<sup>17</sup> He was chained to a rock for bringing fire to man. The allegorical character of this legend gains meaning when we consider Augustine's words that Prometheus was a contemporary of Moses.<sup>18</sup>

Torrents of petroleum poured down upon the Caucasus and were consumed. The smoke of the Caucasus fire was still in the imaginative

<sup>15</sup> N. de Garis Davies, *The Tomb of Antefoker, Vizier of Sesostri I* (1920), p. 5.

<sup>16</sup> *On the Eternity of the World*, Vol. IX of Philo (transl. F. H. Colson, 1941), Sect. 146-147.

<sup>17</sup> See A. Olrik, *Ragnarok* (German ed., 1922).

<sup>18</sup> *The City of God*, Bk. XVIII, Chap. 8. (transl. M. Dods, ed. P. Schaff, 1907).



sight of Ovid, fifteen centuries later, when he described the burning of the world.

The continuing fires in Siberia, the Caucasus, in the Arabian desert, and everywhere else were blazes that followed the great conflagration of the days when the earth was caught in vapors of carbon and hydrogen.

In the centuries that followed, petroleum was worshiped, burned in holy places; it was also used for domestic purposes. Then many ages passed when it was out of use. Only in the middle of the last century did man begin to exploit this oil, partly contributed by the comet of the time of the Exodus. He utilized its gifts, and today his highways are crowded with vehicles propelled by oil. Into the heights rose man, and he accomplished the age-old dream of flying like a bird; for this, too, he uses the remnants of the intruding star that poured fire and sticky vapor upon his ancestors.

### The Darkness

The earth entered deeper into the tail of the onrushing comet and approached its body. This approach, if one is to believe the sources, was followed by a disturbance in the rotation of the earth. Terrific hurricanes swept the earth because of the change or reversal of the angular velocity of rotation and because of the sweeping gases, dust, and cinders of the comet.

Numerous rabbinical sources describe the calamity of darkness; the material is collated as follows: <sup>1</sup>

An exceedingly strong wind endured seven days. All the time the land was shrouded in darkness. "On the fourth, fifth, and sixth days, the darkness was so dense that they [the people of Egypt] could not stir from their place." "The darkness was of such a nature that it could not be dispelled by artificial means. The light of the fire was either extinguished by the violence of storm, or else it was made invisible and swallowed up in the density of the darkness. . . . Nothing could be discerned. . . . None was able to speak or to hear, nor could anyone venture to take food, but they lay themselves down

<sup>1</sup> Ginzberg, *Legends*, II, 360.



. . . their outward senses in a trance. Thus they remained, overwhelmed by the affliction."

The darkness was of such kind that "their eyes were blinded by it and their breath choked";<sup>2</sup> it was "not of ordinary earthy kind."<sup>3</sup> The rabbinical tradition, contradicting the spirit of the Scriptural narrative, states that during the plague of darkness the vast majority of the Israelites perished and that only a small fraction of the original Israelite population of Egypt was spared to leave Egypt. Forty-nine out of every fifty Israelites are said to have perished in this plague.<sup>4</sup>

A shrine of black granite found at el-Arish on the border of Egypt and Palestine bears a long inscription in hieroglyphics. It reads: "The land was in great affliction. Evil fell on this earth. . . . There was a great upheaval in the residence. . . . Nobody could leave the palace [there was no exit from the palace] during nine days, and during these nine days of upheaval there was such a tempest that neither men nor gods [the royal family] could see the faces of those beside them."<sup>5</sup>

This record employs the same description of the darkness as Exodus 10 : 22: "And there was a thick darkness in all the land of Egypt three days. They saw not one another, neither rose any from his place for three days."

The difference in the number of the days (three and nine) of the darkness is reduced in the rabbinical sources, where the time is given as seven days. The difference between seven and nine days is negligible if one considers the subjectivity of the time estimation under such conditions. Appraisal of the darkness with respect to its impenetrability is also subjective; rabbinical sources say that for part of the time there was a very slight visibility, but for the rest (three days) there was no visibility at all.

<sup>2</sup> Josephus, *Jewish Antiquities* (transl. H. St. J. Thackeray, 1930), Bk. II, xiv. 5.

<sup>3</sup> Ginzberg, *Legends*, II, 359.

<sup>4</sup> Targum Yerushalmi, Exodus 10 : 23; *Mekhilta d'rabbi Simon ben Jokhai* (1905), p. 38.

<sup>5</sup> F. L. Griffith, *The Antiquities of Tel-el-Yahudiyeh and Miscellaneous Work in Lower Egypt in 1887-88* (1890); G. Goyon, "Les Travaux de Chou et les tribulations de Geb d'après Le Naos 2248 d'Ismailia," *Kemi, Revue de Philol. et d'arch. égypt.* (1936).



It should be kept in mind that, as in the case I have already discussed, a day and a night of darkness or light can be described as one day or as two days.

That both sources, the Hebrew and the Egyptian, refer to the same event can be established by another means also. Following the prolonged darkness and the hurricane, the pharaoh, according to the hieroglyphic text of the shrine, pursued the "evil-doers" to "the place called Pi-Khirothi." The same place is mentioned in Exodus 14:9: "But the Egyptian pursued after them, all the horses and chariots of Pharaoh . . . and overtook them encamping by the sea, beside Pi-ha-khiroth."<sup>6</sup>

The inscription on the shrine also narrates the death of the pharaoh during this pursuit under exceptional circumstances: "Now when the Majesty fought with the evil-doers in this pool, the place of the whirlpool, the evil-doers prevailed not over his Majesty. His Majesty leapt into the place of the whirlpool." This is the same apotheosis described in Exodus 15:19: "For the horse of Pharaoh went in with his chariots and with his horsemen into the sea, and the Lord brought again the waters of the sea upon them."

If "the Egyptian darkness" was caused by the earth's stasis or tilting of its axis, and was aggravated by a thin cinder dust from the comet, then the entire globe must have suffered from the effect of these two concurring phenomena; in either the eastern or the western parts of the world there must have been a very extended, gloomy day.

Nations and tribes in many places of the globe, to the south, to the north, and to the west of Egypt, have old traditions about a cosmic catastrophe during which the sun did not shine; but in some parts of the world the traditions maintain that the sun did not set for a period of time equal to a few days.

Tribes of the Sudan to the south of Egypt refer in their tales to a time when the night would not come to an end.<sup>7</sup>

*Kalevala*, the epos of the Finns, tells of a time when hailstones of

<sup>6</sup> The syllable *ha* is the definite article in Hebrew and in this case belongs between "Pi" and "Khiroth."

<sup>7</sup> L. Frobenius, *Dichten und Denken im Sudan* (1925), p. 38.



iron fell from the sky, and the sun and the moon disappeared (were stolen from the sky) and did not appear again; in their stead, after a period of darkness, a new sun and a new moon were placed in the sky.<sup>8</sup> Caius Julius Solinus writes that "following the deluge which is reported to have occurred in the days of Ogyges, a heavy night spread over the globe."<sup>9</sup>

In the manuscripts of Avila and Molina, who collected the traditions of the Indians of the New World, it is related that the sun did not appear for five days; a cosmic collision of stars preceded the cataclysm; people and animals tried to escape to mountain caves. "Scarcely had they reached there when the sea, breaking out of bounds following a terrifying shock, began to rise on the Pacific coast. But as the sea rose, filling the valleys and the plains around, the mountain of Ancasmarca rose, too, like a ship on the waves. During the five days that this cataclysm lasted, the sun did not show its face and the earth remained in darkness."<sup>10</sup>

Thus the traditions of the Peruvians describe a time when the sun did not appear for five days. In the upheaval, the earth changed its profile, and the sea fell upon the land.<sup>11</sup>

East of Egypt, in Babylonia, the eleventh tablet of the *Epic of Gilgamesh* [Gilgamish] refers to the same events. From out the horizon rose a dark cloud and it rushed against the earth; the land was shriveled by the heat of the flames. "Desolation . . . stretched to heaven; all that was bright was turned into darkness. . . . Nor could a brother distinguish his brother. . . . Six days . . . the hurricane, deluge, and tempest continued sweeping the land . . . and all human back to its clay was returned."<sup>12</sup>

The Iranian book *Anugita* reveals that a threefold day and three-

<sup>8</sup> *Kalevala* (transl. J. M. Crawford, 1888), p. xiii.

<sup>9</sup> Caius Julius Solinus, *Polyhistor*. French transl. by M. A. Agnant, 1847, Chap. xi, reads: "a heavy night spread over the globe for nine consecutive days." Other translators render: "nine consecutive months."

<sup>10</sup> Brasseur, *Sources de l'histoire primitive du Mexique*, p. 40.

<sup>11</sup> Andree, *Die Flutsagen*, p. 115.

<sup>12</sup> *The Epic of Gilgamish* (transl. R. C. Thompson, 1928).



fold night concluded a world age,<sup>13</sup> and the book *Bundahis*, in a context that I shall quote later and that shows a close relation to the events of the cataclysm I describe here, tells of the world being dark at midday as though it were in deepest night: it was caused, according to the *Bundahis*, by a war between the stars and the planets.<sup>14</sup>

A protracted night, deepened by the onrushing dust sweeping in from interplanetary space, enveloped Europe, Africa, and America, the valleys of the Euphrates and the Indus also. If the earth did not stop rotating but slowed down or was tilted, there must have been a longitude where a prolonged day was followed by a prolonged night. Iran is so situated that, if one is to believe the Iranian tradition, the sun was absent for a threefold day, and then it shone for a threefold day. Farther to the east there must have been a protracted day corresponding to the protracted night in the west.

According to "Bahman Yast," at the end of a world age in eastern Iran or in India the sun remained ten days visible in the sky.

In China, during the reign of the Emperor Yahou, a great catastrophe brought a world age to a close. For ten days the sun did not set.<sup>15</sup> The events of the time of the Emperor Yahou deserve close examination; I shall return to the subject shortly.<sup>16</sup>

## Earthquake

The earth, forced out of its regular motion, reacted to the close approach of the body of the comet: a major shock convulsed the lithosphere, and the area of the earthquake was the entire globe.

Ipuwer witnessed and survived this earthquake. "The towns are destroyed. Upper Egypt has become waste. . . . All is ruin." "The

<sup>13</sup> "The Anugita" (transl. K. T. Telang, 1882) in Vol. VIII of *The Sacred Books of the East*.

<sup>14</sup> "The Bundahis" in *Pahlavi Texts* (transl. E. W. West) (*The Sacred Books of the East*, V [1880]), Pt. I, p. 17.

<sup>15</sup> Cf. "Yao," *Universal Lexicon* (1732-1754), Vol. LX.

<sup>16</sup> The way the Egyptians estimated the time the sun was not in the sky must have been similar to the Chinese method of estimation. It is very probable that these peoples reckoned the disturbance as lasting five days and five nights (because a ninefold or tenfold period elapsed from one sunrise or sunset to the other).



residence is overturned in a minute."<sup>1</sup> Only an earthquake could have overturned the residence in a minute. The Egyptian word for "to overturn" is used in the sense of "to overthrow a wall."<sup>2</sup>

This was the tenth plague. "And Pharaoh rose up in the night, he, and all his servants, and all the Egyptians; and there was a great cry in Egypt; for there was not a house where there was not one dead" (Exodus 12 : 30). Houses fell, smitten by one violent blow. "[The angel of the Lord] passed over the houses of the children of Israel in Egypt, when he smote the Egyptians, and delivered our houses" (Exodus 12 : 27). *Nogaf*, meaning "smote," is the word used for a very violent blow, as, for instance, goring by the horns of an ox. The Passover Haggadah says: "The firstborn of the Egyptians didst Thou crush at midnight."

The reason why the Israelites were more fortunate in this plague than the Egyptians probably lies in the kind of material of which their dwellings were constructed. Occupying a marshy district and working on clay, the captives must have lived in huts made of clay and reeds, which are more resilient than brick or stone. "The Lord will pass over the door, and will not suffer the destroyer to come and smite your houses."<sup>3</sup> An example of the selective action of a natural agent upon various kinds of construction is narrated also in Mexican annals. During a catastrophe accompanied by hurricane and earthquake, only the people who lived in small log cabins remained uninjured; the larger buildings were swept away. "They found that those who lived in small houses had escaped, as well as the newly-married couples, whose custom it was to live for a few years in cabins in front of those of their fathers-in-law."<sup>4</sup>

In *Ages in Chaos* (my reconstruction of ancient history), I shall show that "first-born" (*bkhor*) in the text of the plague is a corruption of "chosen" (*bchor*). All the flower of Egypt succumbed in the catastrophe.

<sup>1</sup> Papyrus Ipuwer 2 : 11; 3 : 13.

<sup>2</sup> Gardiner's commentary to Papyrus Ipuwer.

<sup>3</sup> Exodus 12 : 23. The King James version, "will not suffer the destroyer to come in unto your houses to smite you," is not correct.

<sup>4</sup> Diego de Landa, *Yucatan, before and after the Conquest* (transl. W. Gates, 1937), p. 18.



"Forsooth: The children of princes are dashed against the walls . . . the children of princes are cast out in the streets"; "the prison is ruined," wrote Ipuwer,<sup>5</sup> and this reminds us of princes in palaces and captives in dungeons who were victims in the disaster (Exodus 12 : 29).

To confirm my interpretation of the tenth plague as an earthquake, which should be obvious from the expression, "to smite the houses," I find a corroborating passage of Artapanus in which he describes the last night before the Exodus, and which is quoted by Eusebius: There was "hail and earthquake by night, so that those who fled from the earthquake were killed by the hail, and those who sought shelter from the hail were destroyed by the earthquake. And at that time all the houses fell in, and most of the temples."<sup>6</sup>

Also, Hieronymus (St. Jerome) wrote in an epistle that "in the night in which Exodus took place, all the temples of Egypt were destroyed either by an earthshock or by the thunderbolt."<sup>7</sup> Similarly in the Midrashim: "The seventh plague, the plague of barad [meteorites]: earthquake, fire, meteorites."<sup>8</sup> It is also said that the structures which were erected by the Israelite slaves in Pithom and Ramses collapsed or were swallowed by the earth.<sup>9</sup> An inscription which dates from the beginning of the New Kingdom refers to a temple of the Middle Kingdom that was "swallowed by the ground" at the close of the Middle Kingdom.<sup>10</sup>

The head of the celestial body approached very close, breaking through the darkness of the gaseous envelope, and according to the Midrashim, the last night in Egypt was as bright as the noon on the day of the summer solstice.<sup>11</sup>

<sup>5</sup> Papyrus Ipuwer 5 : 6; 6 : 12.

<sup>6</sup> Eusebius, *Preparation for the Gospel* (transl. E. H. Gifford, 1903), Bk. IX, Chap. xxvii.

<sup>7</sup> Cf. S. Bochart, *Hierozyicon* (1675), I, 344.

<sup>8</sup> The Mishna of Rabbi Eliezer, ed. H. G. Enelow (1933).

<sup>9</sup> Ginzberg, *Legends*, II, 241. Pithom was excavated by E. Naville (*The Store-City of Pithom and the Route of the Exodus* [1885]), but he did not dig beneath the layer of the New Kingdom.

<sup>10</sup> The inscription of Queen Hatshepsut at Speos Artemidos, J. Breasted, *Ancient Records of Egypt*, Vol. II, Sec. 300.

<sup>11</sup> Zohar ii, 38a-38b.



The population fled. "Men flee. . . . Tents are what they make like the dwellers of hills," wrote Ipuwer.<sup>12</sup> The population of a city destroyed by an earthquake usually spends the nights in the fields. The Book of Exodus describes a hurried flight from Egypt on the night of the tenth plague; a "mixed multitude" of non-Israelites left Egypt together with the Israelites, who spent their first night in Sukkoth (huts).<sup>13</sup>

"The lightnings lightened the world: the earth trembled and shook. . . . Thou leddest thy people like a flock by the hand of Moses and Aaron."<sup>14</sup> They were brought out of Egypt by a portent which looked like a stretched arm—"by a stretched out arm and by great terrors," or "with a mighty hand, and with an outstretched arm, and with great terribleness, and with signs, and with wonders."<sup>15</sup>

### "13"

"At midnight" all the houses of Egypt were smitten; "there was not a house where there was not one dead." This happened on the night of the fourteenth of the month Aviv (Exodus 12:6; 13:4). This is the night of Passover. It appears that the Israelites originally celebrated Passover on the eve of the fourteenth of Aviv.

The month Aviv is called "the first month" (Exodus 12:18). Thout was the name of the first month of the Egyptians. What, for the Israelites, became a feast, became a day of sadness and fasting for the Egyptians. "The thirteenth day of the month Thout [is] a very bad day. Thou shalt not do anything on this day. It is the day of the combat which Horus waged with Seth."<sup>1</sup>

The Hebrews counted (and still count) the beginning of the day from sunset;<sup>2</sup> the Egyptians reckoned from sunrise.<sup>3</sup> As the catastrophe took place at midnight, for the Israelites it was the fourteenth day of the (first) month; for the Egyptians it was the thirteenth day.

<sup>12</sup> Papyrus Ipuwer 10 : 2.    <sup>13</sup> Exodus 12 : 37-38.    <sup>14</sup> Psalms 77 : 18, 20.

<sup>15</sup> Deuteronomy 4 : 34; 26 : 8.

<sup>1</sup> W. Max Müller, *Egyptian Mythology* (1918), p. 126.    <sup>2</sup> Leviticus 23 : 32.

<sup>3</sup> K. Sethe, "Die ägyptische Zeitrechnung" (*Göttingen Ges. d. Wiss.*, 1920), pp. 130 ff.



An earthquake caused by contact or collision with a comet must be felt simultaneously all around the world. An earthquake is a phenomenon that occurs from time to time; but an earthquake accompanying an impact in the cosmos would stand out and be recalled as a memorable date by survivors.

In the calendar of the Western Hemisphere, on the thirteenth day of the month, called *olin*, "motion" or "earthquake,"<sup>4</sup> a new sun is said to have initiated another world age.<sup>5</sup> The Aztecs, like the Egyptians, reckoned the day from sunrise.<sup>6</sup>

Here we have, *en passant*, the answer to the open question concerning the origin of the superstition which regards the number 13, and especially the thirteenth day, as unlucky and inauspicious. It is still the belief of many superstitious persons, unchanged through thousands of years and even expressed in the same terms: "The thirteenth day is a very bad day. You shall not do anything on this day."

I do not think that any record of this belief can be found dating from before the time of the Exodus. The Israelites did not share this superstition of the evil-working number thirteen (or fourteen).

<sup>4</sup> See *Codex Vaticanus No. 3773 (B)*, elucidated by E. Seler (1902-1903).

<sup>5</sup> Seler, *Gesammelte Abhandlungen*, II, 798, 800.

<sup>6</sup> L. Ideler, *Historische Untersuchungen über die astronomischen Beobachtungen der Alten* (1806), p. 26.