A GUIDE TO VELIKOVSKY'S SOURCES

by
Bob Forrest

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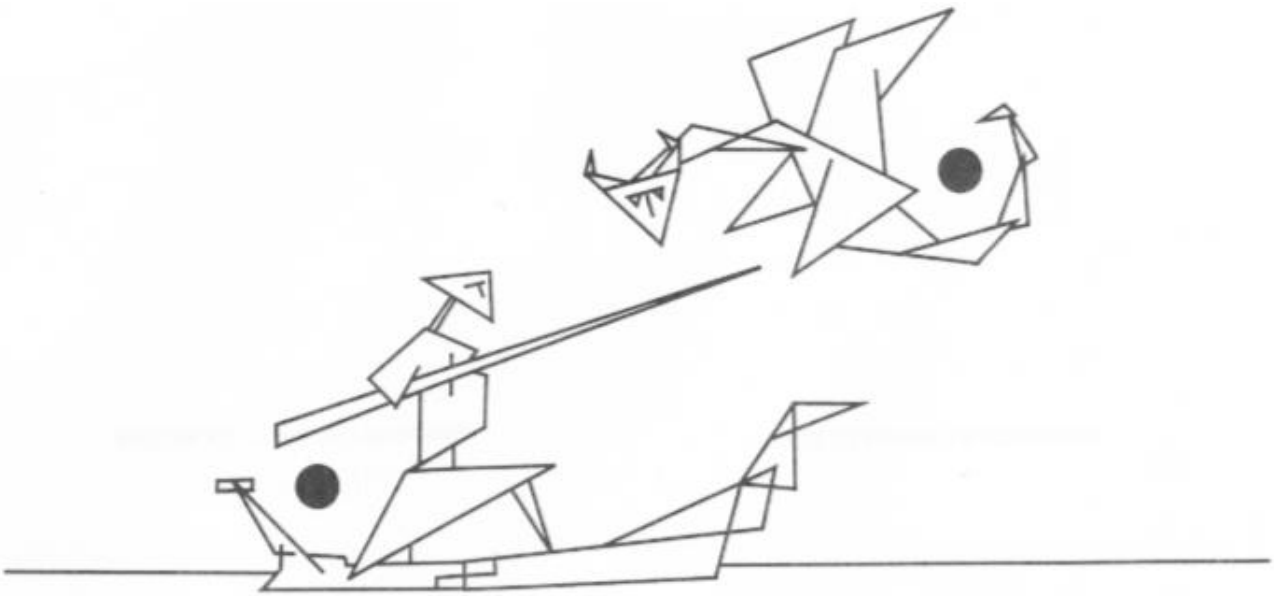

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Panels

Dedication:
For Maria

EDITOR'S PREFACE

The Russian-born psychotherapist Immanuel Velikovsky (1895-1979) published a far-ranging revision of the chronology of ancient history in his *Ages in Chaos* series of books, the first of which was published in 1952. He set his revised chronology in the context of a cycle of catastrophes precipitated on Earth by cosmic events in the Solar System. He postulated that Venus was a recent arrival among the planets, having been ejected from Jupiter during the 16th Century BC. Traversing the orbits of the inner planets as a comet-like object, Venus passed close to the Earth on at least two occasions, disrupting our planet's orbit, axial tilt, and rotation, and altering the lengths of the year and the day. These changes brought about the sequence of catastrophes recorded in the Bible as the Plagues of Egypt, and the subsequent earthquakes and hails of fire attributed to the Biblical periods of the Exodus, the Conquest, and the Judges.

Venus' careering path as it settled towards its current orbit also hurled Mars on a course from orbiting inside Earth's orbit round the Sun, to outside. The close approaches to the Earth that Mars made during its progress caused a further series of disasters in the 8th and 7th Centuries BC.

As well as his accounts of the history of the period from ca. 1500 BC to 330 BC, Velikovsky published a phenomenological account of the cosmic events in his first book, *Worlds in Collision* (Macmillan, 1950). In the opening sentence of his Preface, he described the book as "a book of wars in the celestial sphere that took place in historical times. In these wars the planet earth participated too." He supported this scenario by appeals to ancient history and to comparative mythology. not only from the ancient Near East, but from all around the world. In doing so, he cited many source documents in footnotes.

I have created an Internet site[1] which is particularly concerned with Velikovsky's use of historical source material. In short, his use of his raw materials—sources in English, German, French, and Spanish—fell woefully short of scholarly standards, and might even, in several instances, be considered fraudulent. However, although the web site is primarily devoted to the *Ages in Chaos* series, it should also be of interest to learn how he used his sources in *Worlds in Collision*.

An English mathematician, Bob Forrest, performed extensive research on the matter in the 1970s, self-publishing the results in a six-volume series (with an index in a seventh volume) under the title, *Velikovsky's Sources*. The full work is long out of print; however, Bob also published a one-volume condensation, *A Guide to Velikovsky's Sources* (Stonehenge Viewpoint, 1987; originally published in the *Stonehenge Viewpoint* journal, 1983-1985).

I am pleased to be able to offer the latter at last as a complete pdf e-book, with the kind permission of Forrest himself and his publishers, Joan and Annette Cyr (in proxy for the late Donald Cyr). I considered the quality of the scanned pages to be inadequate, and so, with Bob's permission, undertook to recast the work into a revised format, using Microsoft WORD™. I originally tried to keep the appearance of the new edition as close as possible to the original; but differences in page sizes, margins, and typefaces made this very difficult to sustain.

Accordingly, I sought and obtained Bob's further permission to drop the "accidents" of the publication format (technically out of copyright in any case), while retaining the "substance" of Bob's text. This provided me with the opportunity (again with Bob's permission) to fix a number of formatting inconsistencies that had arisen from the fact that each chapter was originally published as a separate magazine article in a series that stretched over almost three years.

In this new edition, then, Bob's text appears almost exactly as in the Stonehenge Viewpoint edition, the only changes to wording being the correction of a scattering of typographic errors. However, matters such as use or non-use of italics, presentation of extensive quoted passages, and uses of headings have been regularised to my own choices of format. I hope that I have introduced no errors in making those superficial amendments, and apologise to Bob and his readers for any mistakes I *may* have made.

An important point: the pagination of this edition is different from Bob's original. I have identified the start of each new page in the original (starting with Bob's "Introduction") in boldface type within brackets, such as **[Page 23]** .

Donald Keith Mills
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Bedfordshire.

February 2017.

[1] http://donmillion8.wixsite.com/velikovskyssources

INTRODUCTION

[Page 5] Erich von Däniken once "demonstrated" that the vision of Ezekiel described an encounter with an alien spaceship. This he accomplished by the simple device of picking out those details of the vision that supported his spaceship theory and ignoring those that didn't. The fallacy of von Däniken's approach was thus made evident not by what he actually included in *Chariots of the Gods* but by what he didn't include.

One of the aims of the present series of articles is to show that much of the "evidence" for the scenario of *Worlds in Collision* is the product of a similar process of selection and rejection, and to demonstrate that a different picture emerges when Velikovsky's evidence is read not in the forms in which it is presented in *Worlds in Collision*, but in its original contexts.

These articles are an abridgement and rearrangement of some of the chapters in my seven-volume, privately published, *Velikovsky's Sources*, though some new material has been added, and some of the errors of the original deleted. Obviously the present treatment cannot hope to match the breadth and detail of the original — space precludes our quoting extensively from Velikovsky's source-books, for example. Rather, these articles are intended as a guide to Velikovsky's use of sources.

I should stress that here, as in *Velikovsky's Sources*, I write as an amateur commentator. By training I am a mathematician, and my only qualification for writing these articles is that I have taken the trouble to study Velikovsky's particular use of source material over the past four years or so. Velikovsky himself was an amateur in the fields about which he wrote, and for that reason I don't see it as too much of a presumption that I, "a mere mathematician" (as one of Velikovsky's supporters dubbed me!), should take him to task. But more than this, despite the scholarly appearance of Velikovsky's work (and despite the even more scholarly appearance of the work of some of his supporters!) I think that the theories put forward in *Worlds in Collision* are wrong at an elementary and common sense level, and that one doesn't need weighty specialist scholarship to see where and why they are wrong. Consequently, though these articles could be heavily larded with scholarly references, they won't be. The issues are fairly straightforward, so the treatment is straightforward. References are kept to an acceptable minimum, and the reader need have no fear that he will end up wading knee-deep in obscure footnotes.

Before we start, a few general comments are in order. First, it is assumed that the reader is familiar with the general theory of *Worlds in Collision*, but for the benefit of those readers who haven't yet read Velikovsky's book, or who read it some years ago, the gist of the theory is as follows.

Venus was expelled, in the form of a comet, from the bowels of the planet Jupiter some time before 1500 BC. It went into an earth-crossing orbit which brought it into close proximity with the earth on at least two occasions, causing globally-felt catastrophes on each occasion. (The first of these was at the time of the Exodus.) After an involved waltz with the planet Mars between the 9th and 7th centuries BC, during which period Mars itself had disastrous effects on the Earth, Venus finally settled into its present, stable orbit. Mars, too, settled down, and the solar system became as we know it today.

That is the gist of Velikovsky's theory. The gist of the objection to it is that one will nowhere find anything like a direct historical reference to catastrophic bombardments by the planets Venus and Mars. The historian Herodotus, for example, writing only two centuries after the close of Velikovsky's scenario, somehow failed to mention these events entirely! In the place of direct references, Velikovsky adduces numerous indirect and symbolic ones. At least, he says they are references to his scenario, and therein lies the problem, for what Velikovsky sees as one thing could all too easily be quite another. Like von Däniken's spaceships, in fact.

Velikovsky offered one reason for the apparent lack of hard evidence for his scenario: collective amnesia. The experience of the Mars and Venus catastrophes had such a terrible effect on mankind that the memory of those events was effectively erased from our collective memory, to the extent that people like myself completely doubt that they ever happened.

The trouble with collective amnesia is that it puts Velikovsky in a heads-I-win, tails-you-lose situation. If a piece of evidence suits his purpose, it can be claimed as a "hit", but if something comes up that doesn't quite fit, it can be dismissed as a result of the forgetting process, and thus denied the status of a "miss". It wouldn't be so bad if collective amnesia were known to occur in other contexts. But it isn't. Consequently, in *Worlds in Collision* we are faced with two hypotheses — planetary catastrophe and collective amnesia — each of which holds the other up! In polite circles this is called a pyramid of ifs.

But let's get on with the sources, starting with the Book of Exodus. In what follows, *Worlds in Collision* will be denoted by WIC, and Velikovsky by V. Since page numbers vary from edition to edition, we will adopt the following notation: *WiC* P.2.5 will mean Prologue, chapter 2, section 5 ("The World Ages"); *WiC* II.3.5 will mean Part II, chapter 3, section 5 ("Yuddha") etc. This should enable the reader to locate relevant references in WIC.

CHAPTER 1: THE EXODUS

[Page 6] One of the central themes of *WiC* is V's interpretation of the events surrounding the Exodus. In particular, he sees the ten plagues as side effects accompanying the approach of the Venus Comet. To refresh the reader's memory, the ten plagues were as follows:

1. River turned to blood; fish died; rivers stank; water undrinkable: Ex. 7:17-21.
2. Plague of Frogs: Ex. 8:2-6.
3. Plague of Lice: Ex. 8:16-17.
4. Plague of Flies: Ex. 8:21-24.
5. The Murrain of Beasts: Ex. 9:3-6.
6. Plague of Boils & Sores: Ex. 9:8-11.
7. The "very grievous hail", mingled with thunder & fire: Ex. 9:18-28.
8. Plague of Locusts: Ex. 10:13-19,
9. Plague of Darkness: Ex. 10:21-23.
10. Deaths of the Firstborn: Ex. 11:4-7 & Ex. 12:29.

Velikovsky's interpretation runs thus: on its return from perihelion the tail of the Venus Comet brushed the earth and deposited on it a fine red dust which in water gave the impression of blood. Hence plague 1.

This cometary dust was toxic stuff because, according to V, it killed off all the fish and poisoned the water (plague 1), killed off livestock (plague 5) and caused skin sores on man and beast alike (plague 6).

As the Earth plunged deeper into the Venus Comet, dust gave way to gravel (hail) and scorching gases which exploded (thunder & fire) on contact with the oxygen of the Earth's atmosphere. Hence plague 7.

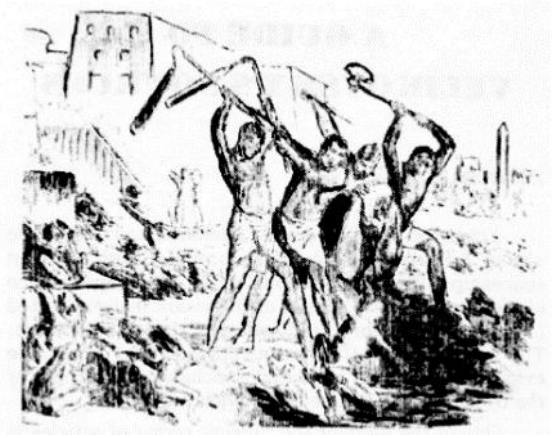
The heat generated from this was "sufficient to make the vermin of the earth propagate at a feverish rate", thus explaining, V claims, the frogs and locusts of plagues 2 and 8. However, V is inclined to the view that the flies of plague 4 were actually dumped on the earth by the Venus Comet, having been "carried in its trailing atmosphere in the form of larvae." They were thus "not merely the earthly brood, swarming in heat like other vermin, but guests from another planet."

Plague 3 might have been of similar origin, but if it was, V doesn't specifically say so.

Next, as the earth plunged even deeper into the tail of the comet, the earth's rotation was disturbed and great hurricanes whipped up clouds of cometary dust and cinders so that the light of day was blotted out. Hence plague 9.

Finally, as the head of the Venus Comet approached the Earth, tidal forces triggered off great earthquakes which "smote" the houses of the Egyptians, and killed off the "firstborn" (plague 10).

As for the Venus Comet itself, V claims that this is none other than the pillar of cloud and fire in Ex. 13:21.



THE PLAGUE OF FROGS

Now superficially this is all quite neat. But let us start by taking a look at that "Venus Comet", the pillar of cloud and fire. There are several points here:

i. Nowhere, either in the Book of Exodus or in any other source describing the events of Exodus (i.e. *outside* the pages of WIC) is the pillar ever associated with the planet Venus.

ii. The pillar only makes its appearance *after* the plagues have finished, and nowhere is it at all causally associated with the plagues.

iii. The pillar persists in behaving suspiciously like a localised object hovering over the Sinai peninsula rather than a cosmic body. Thus it comes down *between* the fleeing Israelites and the pursuing Egyptians (Ex. 14:20), it leads the Israelites in their wanderings (Ex. 13:21-22 & 40:36-8), and it hovers over the door of the tabernacle (Ex. 33:9 & 40:38). This localised nature is repeated in other sources too (Ref. 1).

iv. For a cosmic body which is supposed to have wrecked the world, the pillar of cloud & fire not only gets the wrong *sort* of mention (as per *ii* and *iii*) in the Book of Exodus, it also gets surprisingly *little* mention. The same comment applies to other sources, such as Philo and Pseudo-Philo, and Josephus even seems to have contrived to miss out the "comet" altogether, a feat which is not unlike forgetting to mention Hitler in a history of the Second World War (Ref. 2)!

Personally, I don't think the pillar is a comet, let alone a Venusian super-comet! So what about the plagues? Velikovsky's cometary interpretation is rather ingenious, but I'm sceptical of that too. For a start, the whole tenor of the Book of Exodus is different from the catastrophic scenario proposed in WIC. The Exodus is a series of discrete magical and supernatural "special effects" superimposed on an otherwise normal world. This is quite different from the scenario proposed by V in which the Exodus takes place against a more or less continuous catastrophic backdrop. To feel the full

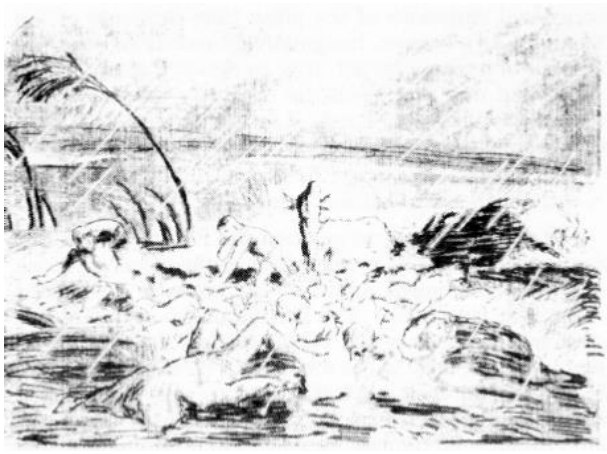
[Page 7] effect of the discrepancy, read the Book of Exodus in full and then compare it with passages like the following from *WiC* p. 104: [I.4.3]

> "The earth groaned: for weeks now all its strata had been disarranged, its orbit distorted, its world quarters displaced, its oceans thrown upon its continents, its seas turned into deserts, its mountains upheaved, its islands submerged, its rivers running upstream — a world flowing with lava, shattered by meteorites, with yawning chasms, burning naphtha, vomiting volcanoes, shaking ground, a world enshrouded in an atmosphere filled with smoke and vapour."

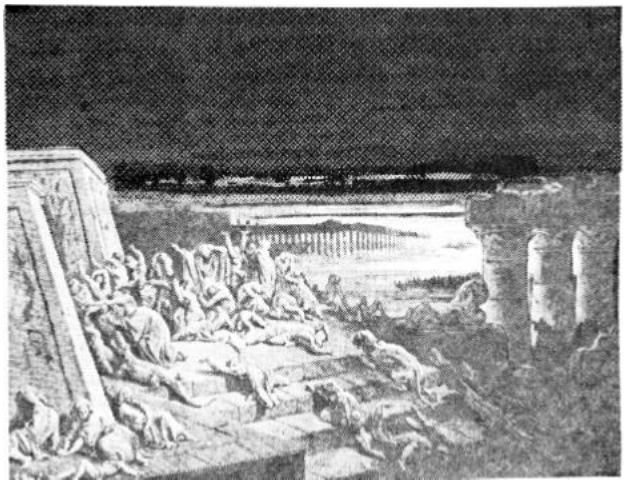
Of course, one can to some extent explain this discrepancy by arguing that the Book of Exodus is a canonical work. But against this one must set the fact that every other account of these events (e.g. of Josephus or Philo) seems to treat them much as the book of Exodus does. Put another way, there doesn't seem to be any account of the Exodus which is more like what it ought to be like if V is correct.

Now, it is quite impossible to take the Book of Exodus literally, and any attempt at literal interpretation must dismiss some details of the text as "fictional embellishment" of any underlying reality. In the case of the plagues, the first hurdle is their one-sided effect. The Bible tells us specifically that plagues 4, 5, 7, 9 & l0 did not affect the Israelites (Ex. 8:22; 9:4, 6, 7; 9:26; 10:23; 12:73), and plagues 1 and 6 are said only to have affected the Egyptians — i.e., the Israelites are not specifically excused affliction, but only the Egyptians are mentioned as being affected (Ex. 7:18, 24; 9:11).

No comet, of course, could possibly produce one-sided effects like these, and though we can to some extent reject such details as "fictional embellishment", we should ignore them with caution, for it was via a procedure of special selection and rejection of textual details that Erich von Däniken was able to turn the vision of Ezekiel into a passable encounter with an ancient astronaut! In interpreting a text, therefore, we should keep one eye on what we are ignoring as "fiction", for it may



THE PLAGUE OF HAIL



THE PLAGUE OF DARKNESS

give the lie to the interpretation itself.

So what details is V ignoring in his interpretation of the Exodus? We've already seen the "localised" comet and the one-sided effect of the plagues. There is also the matter of the magical inception of the plagues — e.g., some are started by Moses waving his rod (Ex. 7:20; 8:5, 17; 9:23; 10:13). On a different level we have the burning bush (Ex. 3:2), the leprous hand (Ex. 4:6), the rod-to-serpent transformation (Ex. 7:10) and the sweetening of the waters of Marah (Ex. 15:23-25). Fictional embellishments, possibly, but do these miracles not deserve an "explanation" just as much as the plagues do? Put another way, if we are to accept the Book of Exodus as riddled with fictions, then how are we to know that the plagues themselves do not come under this heading?

At this point let us digress briefly to discuss two details of the Exodus story which, because we can be reasonably sure of what they are based on, serve as a useful guide to the relationship between fact and fiction in the story as a whole.

The first detail is manna. We know what manna is — it is a "secretion exuded by tamarisk trees and bushes when they are pierced by a certain type of plant-louse which is found in Sinai" (Ref. 3). But look at what it becomes in the story: a rain of "bread from heaven" (Ex. 16:4) which falls on every day but the Sabbath (Ex. 16:27)! (In *WiC* p. 137 [I.6.2] it becomes a carbohydrate deposit of the Venus Comet!)

The second detail is the burning bush (Ex. 3:2). It seems to draw its inspiration from the *Dictamnus fraxinella*, a plant which gives off an inflammable vapour which, when ignited, causes the whole plant to burst into flames (Ref. 3). The curious thing is that the plant itself is virtually undamaged by this display, the duration of which is said to be about two minutes, and **[Page 8]** this would seem to be what is meant by the phrase "and the bush was not consumed" (Ex. 3:2). Clearly, then, a great deal of poetic license has been invoked in the composition of Exodus, Chapter 3!

In view of the foregoing we now ask the question: Is it really necessary to postulate a comet-induced catas-

trophe to explain the Exodus plagues, or might those plagues be fictional productions, like manna-from-heaven or the burning bush, which are based on rather more mundane events?

Plagues 2 to 8 are disasters which still from time to time afflict Egypt, and it is quite sufficient to explain the Biblical account in terms of miraculously intensified accounts of these phenomena. Attempts have been made to explain why a series of such plagues should come one after another like this, but actually the seriality of the plagues may itself be fictional. As regards the other plagues — numbers 1, 9 & 10 — the rather more mysterious ones — the following remarks may serve to defuse them of some of their mystery:

Blood. The first plague seems to be related by most Bible commentators to a reddening of the Nile waters, due to the presence of alluvial deposits or algae, which takes place around the time of the inundation. Thus A.H. Sayce writes that "each year the water of the river becomes like blood at the time of the inundation" and W. Osburn gives a particularly vivid account of this curious phenomenon (Ref. 4). It seems to me that the first plague is more likely to be inspired by this reddening of the river than by cometary deposits. (See Panel 1.)

Darkness. The *khamsin* is the most widely accepted (conventional) explanation of the plague of darkness, and according to the *Interpreter's Bible* this connection has been made since "very early in the study of the text, even when the Greek translation of the Hebrew was made." An ordinary sandstorm, likewise, results in darkness "which may be felt" (Ex. 10:21): "Sandstorms producing darkness as thick as a London fog have often been experienced in Egypt," *Peake's Commentary* notes, "the sand and heat being only too painfully felt." Another possibility, of course, is that the darkness is a purely supernatural one, loosely based on the "unnatural" darkness of a total eclipse of the sun.

Deaths of the Firstborn. Velikovsky's interpretation of this plague as the result of an earthquake is probably the weakest of his plague interpretations. The Book of Exodus nowhere mentions an earthquake in connection with this plague, and V finds it necessary to refer to a secondary source (Artapanus) to justify it. Even then, an earthquake would be most unlikely to selectively kill off the firstborn, let alone only the Egyptian firstborn.

Velikovsky does attempt to come to grips with these problems. He replaces the word "firstborn" (*bkhor*) by the word "chosen" (*bchor*) and thus interprets the plague as the slaying of "the flower of Egypt". The selective killing of Egyptians only, he explains by saying that the Israelites' houses were of a more resilient construction than those of the Egyptians.

This is all very well, but V is making a lot of assumptions. Though Artapanus does mention an earthquake (Ref. 5), his account is sufficiently different from the biblical version to cast doubt on V's identification of the earthquake with the 10th plague. (Artapanus couples the earthquake with the hail of the 7th Biblical plague and omits all mention of the firstborn/chosen ones.) In addition, of course, the sense of firstborn throughout the Book of Exodus is that of Gen. 27:19, where first born means what it says — eldest son and heir. The elaborate ritual procedures of Ex. 12:7-13 and 12:21-23 tend to confirm that we are here dealing with a supernatural and thus purely fictional event, of symbolic rather than literal significance.

The most convincing explanation of this plague that I have seen comes from M. Noth (Ref. 6), who suggests that the Passover sacrifice actually dates from before the time of the Exodus and relates to the primitive cultic ceremonies of nomadic shepherds, performed in the spring, when the flocks were moved from their winter grazing grounds to their summer pasture. The hazards of the journey, especially to the new-born livestock ("of whom the first-born were particularly precious") probably involved some special animal sacrifice at the start of the journey. The parallels with the Exodus are clear: the "flock" being moved is the Israelite population; the winter grazing ground is Egypt, the summer pasture the Promised Land; the Exodus begins in spring (Ex. 12:2), and the sacrifice of the lamb (Ex. 12:6), plus the daubing of the doorposts with blood (Ex. 12:7) guarantees the protection of the Israelite firstborn from the "destroyer" (Ex. 12:23).

If this idea is correct, then we have another indication of how fictionalised and allegorical, and how unliteral, the text of the Book of Exodus really is.

A similarly symbolic and fictional origin seems to be in order for the pillar of cloud and fire, the best explanation being that it is a development of the smoke and flame of the brazier carried at the heads of certain types of ceremonial procession, as well as at the heads of travelling caravans and armies (Ref. 7). Such an origin would explain the fleeting mentions and even occasional omissions of the pillar from accounts of the Exodus. As a brazier, imaginatively mobilized after the manner of a magic carpet, it is an optional extra for the story, and one that might be omitted. As the Venus Comet, on the other hand, it is a central character of the drama, whose omission would be extraordinary indeed. Also, of course, the brazier interpretation fits in with the localized nature of the pillar.

It remains for us to mention the Parting of the Red Sea, which V sees as a side-effect of the close approach of the Venus Comet. Again, we cannot take the Exodus account at face value. The parting of the sea as Moses stretches out his arm (Ex. 14:21), the fact that the waters parted so that they "were a wall unto them on their right hand, and on their left" (Ex. 14:22), and the "coincidence" of the waters crashing down just as the Egyptians are crossing, all indicate fictional embellishment of the underlying events, so that we are left wondering just what the original event was.

[Page 9] Sir James Frazer (Ref. 8) draws some interesting comparisons between the passage of the Israelites through the Red Sea and the passage of Alexander the Great and his army through the Pamphylian Sea (the point being that rumour later elevated Alexander's bold and totally natural tactical use of low tide into a supernatural venture on a par with that of Moses). Perhaps it was rumour, too, which accomplished what V saw as a spectacular side-effect of the close approach of his Venus Comet.

In conclusion, I do not think that V's scenario makes any more sense of the Exodus story than the conventional explanations in terms of literary invention, allegory, and miraculously intensified natural phenomena. Velikovsky simply picks out details which suit his purpose and disregards others which don't. As stated earlier, such selective procedures of interpretation can also be made to detect ancient astronauts in virtually every corner of the Bible.

NOTES & REFERENCES FOR CHAPTER 1.

1. Numbers 9:15-17; 10:12; 10:34; 11:25; 12:5; 16:42; Deut. 31:15; Lev. 16:2. Philo *Moses* l.29:165-166 & 32:178.
2. Philo refs in (1); Pseudo-Philo *Biblical Antiquities* X.7; *Midrash Rabbah Exodus* XX.16 (Soncino Press ed. Vol. 3 p. 256); Josephus *Jewish Antiquities* II.xv-xvi ought to contain the pillar.
3. W. Keller *The Bible as History* (1956); Manna pp. 129-131; Burning bush pp.138-139.
4. A.H. Sayce, *The Early History of the Hebrews* (1897) p. 168. W. Osburn, *The Monumental History of Egypt* (1854) vol. 1 pp.11-12.
5. Artapanus quoted in *Eusebius — Preparation for the Gospel*, translated by E.H. Gifford (1903) vol. 1, p. 466.
6. M. Noth. *Exodus* (1962) pp. 91-92.
7. J. G. Frazer, *The Golden Bough* (3rd ed. 1911) Vo1.2 pp. 263-264; T. Harmer, *Observations on Divers Passages of Scripture* (1776) vol. 1 pp. 472-476.
8. J.G. Frazer, *Folklore in the Old Testament* (1918) vol. 2 pp. 457-459.

PANEL 1 "BLOOD"

Velikovsky gathered a number of textual references to "blood" from around the world and sought to link them, via his comet, to the first biblical plague. The global spread of such references became, for V, evidence for the global deposition of red cometary matter. Unfortunately, there is a flaw in this argument, and it is that waters can turn red and blood-like for a variety of reasons which have nothing to do either with each other or with comets.

As examples of "bloody" waters in historical records, the following may be cited. Firstly, in the Anglo-Saxon Chronicle for the year 685 AD it is stated that "in this year in Britain it rained blood, and milk and butter were turned into blood." Secondly, Robert Ripley noted that in 1823 the bay of Tor, not far from Mount Sinai, turned blood-red three times. And lastly, *Symons's Monthly Meteorological Magazine* for April 1901 records that the water in a large evaporation tank at Camden Square was found to have turned blood red. As examples of mythological references to "blood", the following are cited by V:

On *WiC* p.61 [I.2.2] V writes how "the Altai Tartars tell of a catastrophe when blood turns the whole world red, and a world conflagration follows." He cites U. Holmberg's *Siberian Mythology* (1927), p. 370, as a source. But this is not, as V has it, a record of a past catastrophe. Rather, it is part of an end of the world prophecy, the relevant paragraph of Holmberg reading thus:

> "The Altai Tartars say that when Ulgen sends Maidere (a Buddhist Bodhisattva) from the sky, who will teach people the fear of God and convert the greater part of mankind, the evil Erlik will become angry and say to Maidere: 'I am strong enough to kill thee with my sword.' At the same time the devil will attach Maidere and fulfill his threat. The blood of Maidere, said to turn the whole world red, will take fire, the flames surrounding the earth and rising to the heavens. Then Ulgen will arrive and clapping his hands together shout: 'Ye dead, arise!' And at once these will arise from their hiding places, some out of the earth and some from the sea, others from the fire or the places in which they had hidden when overtaken by death. In the world conflagration Erlik and all wicked people will be destroyed."

On *WiC* p. 6l [I.2.2] V writes that the Finnish *Kalevala* "describes how, in the days of the cosmic upheaval, the world was sprinkled with red milk." V here refers to Rune I of the *Kalevala*. However, the *Kalevala* does not associate this red milk with any cosmic upheaval whatever. On the contrary, the red milk, not to mention black milk and white milk, is sprinkled onto the ground in rather peaceful circumstances. The episode is related in a song on the Creation of Iron (!), thus:

> "Ukko, maker of the heavens, cut apart the air and water, ere was born the metal, iron. Ukko, maker of the heavens, firmly rubbed his hands together, firmly pressed them on his knee-cap. Then arose three lovely maidens, three most beautiful of daughters. These were mothers of the iron, and of steel of bright blue colour. Tremblingly they walked the heavens, walked the clouds with silver linings, with their bosoms overflowing with the milk of future iron, flowing on and flowing ever, from the bright rims of the cloudlets, to the earth, the valleys filling, to the slumber-calling waters. Ukko's eldest daughter sprinkled black milk over river channels; and the second daughter sprinkled white milk over hills and mountains; while the youngest daughter sprinkled red milk over seas and oceans. Where the black milk had been sprinkled, grew the dark and ductile iron; where the white milk

had been sprinkled, grew the iron, lighter-coloured; where the red milk had been sprinkled, grew the red and brittle iron." (Translation J. M. Crawford, 1888.)

As I see it, there is no evidence that either of these references is in any way connected with the first plague of the Exodus.

CHAPTER 2: THE IPUWER PAPYRUS

[Page 10] Several times in *Worlds In Collision (WiC)*, Velikovsky (V) refers to the Ipuwer papyrus which, in his view, represents an Egyptian eyewitness account of the Venusian catastrophes of 1500 BC, and in particular of the same events that we now know as the plagues of the Exodus.

The translation used here is that by R.O. Faulkner in the book *The Literature of Ancient Egypt* (ed. W.K. Simpson, Yale 1972). An abridged translation by J.A. Wilson can also be found in *Ancient Near Eastern Texts Relating to the Old Testament* (ed. J.B. Pritchard, Princeton UP, 1969).

Of the contents of the papyrus Faulkner writes:

> "... a wise man named Ipuwer is addressing an unnamed king whose identity may have been given in the lost beginning of the text. He describes the chaotic state into which the realm has fallen and blames the king for his failure to keep order; the sage urges the king to 'destroy the enemies of the august Residence' and to attend to his religious duties so as to bring the gods to his aid; the attributes of the monarch should be authority, knowledge, and truth, yet the present incumbent has let the land fall into confusion."

Wilson, similarly, says that the papyrus describes the social and economic chaos following a breakdown of central government, adding that these calamities "met with indifference in the palace."

Sir Alan Gardiner, in his *Egypt of the Pharaohs* (1966), says that the papyrus dates from no earlier than the l9th dynasty and that it refers to the events following the collapse of the Old Kingdom. He says that the papyrus portrays the havoc into which Egypt had been thrown "by the machinations of low born adventurers and Asiatics pushing their way into the Delta" (p. 109), and calls it "the picture of a real revolution". Wilson and Faulkner both agree with this dating, which makes the events too early for V's scenario, though it should be stated that other authorities do prefer the Hyksos period, which is in line with V's dating of the events.

Be that as it may, it is quite obvious from a reading of the text that the upheaval described is a social and political one, not a cosmic one. This much will be made clear in the extracts that follow. When I first read the text as a whole — after reading *WiC* — I was staggered, because it turned out to be nothing like what V had led me to expect. The socio-political element was clear and obvious, but I could find nothing like a direct reference to the Venus Comet — strange indeed, if events happened as V claimed; I found that the "upheaval-of-nature" element of the papyrus was minimal — V's natural catastrophes seemed to be the product of quoting out of context, misinterpreting metaphors, and "reading-between-the-lines"; and lastly, I found that the parallels between the Ipuwer papyrus and the Book of Exodus were much less impressive than V had led me to believe. The parallels seemed to be merely the product of V's selective editing.

So let us see how V derives his "natural" catastrophes from the papyrus.

> *Extract l.* "Behold, noblewomen go hungry, while the priests are sated with what has been prepared for them. Behold, no offices are in their right place, like a herd running at random without a herdsman. Behold, cattle stray and there is none to collect them, but everyone fetches for himself those that are branded with his name. Behold, a man is slain beside his brother, who runs away and abandons him to save his own skin. Behold, he who had no yoke of oxen is now the owner of a herd, and he who could find for himself no plough-oxen is now the owner of cattle" (Faulkner p. 222).

Now a quote from *WiC* p. 64 [I,2,3]

> "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.' 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.' In one day fields were turned to wasteland."

Now the reader will see that in the Ipuwer extract there is no mention of the falling stones (meteorites) and fire that V tells his readers made the frightened cattle flee! The cattle are free-wandering simply because the land is in such a mess that everything is disorganised. As for the perished grain etc. mentioned in the latter half of the quote from WIC, this too is another of V's out-of-context quotations. Here it is, back in context in another extract from the papyrus:

> *Extract 2.* "Indeed, the ways are ... , the roads are watched; men sit in the bushes until the benighted traveller comes in order to plunder his burden, and what is upon him is taken away. He is belabored with blows of a stick and murdered. Indeed, that has perished which yesterday was seen, and the land is left over to its weakness like the cutting of flax, commoners coming and going in dissolution ... Would that there were an end of men, without conception, without birth! Then would the land be quiet from noise and tumult be no more. Indeed, men eat herbage and wash it down with water; neither fruit nor herbage can be found for the birds, and ... is taken away from the mouth of the pig. No face is bright which you have ... for me through hunger. Indeed, everywhere barley has perished and **[Page 11]** men are stripped of clothes, spice and oil; everyone says, 'There is none.' The storehouse is empty and its keeper is stretched on the ground; a happy state of affairs! ... Would that I

had raised my voice at that moment, that it might have saved me from the pain in which I am" (Faulkner pp .217-218).

As can be seen, then, the perishing grain has a totally different context in the original Ipuwer papyrus to that constructed around it in WIC. There is no indication at all that these crops were spoilt by bombardments of meteoric hail from a passing comet! Furthermore, the "noise and tumult" in extract 2 has undergone another Velikovskian context-transplant on *WiC* p. 106: [1.4.3]

"The din caused by the groaning earth repeated itself again and again, but not so loud, as subterranean strata readjusted themselves after being dislocated; earthquakes incessantly shook the ground for years. The Papyrus Ipuwer calls these years 'years of noise'. 'Years of noise. There is no end to noise', and again, 'Oh that the earth would cease from noise, and tumult (uproar) be no more.'"

I would dearly love to know where V's readjusting subterranean strata come from! It seems to me that they are more in V's imagination than in the text of the papyrus. The noise and tumult in the Ipuwer papyrus are sociological rather than geological.

Next, on *WiC* p. 66 [I.2.4] V attributes the burning of buildings to rains of naphtha from the Venus Comet:

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

Now, nowhere does the Ipuwer papyrus say that the sky is in confusion, and nowhere does it mention a fire that almost exterminated mankind. Here, it seems, V has mixed up his notes and allowed his imagination to colour things. There is the phrase "Behold, the fire has gone up on high" (Faulkner p. 219), but the only fires that make their appearance in the text are those usually associated with anarchy and rebellion: "Indeed, gates, columns and walls are burnt up, while the hall of the palace stands firm and endures" (Faulkner p. 213). The last part of this verse, according to Wilson, is either said out of respect for the king, "or it sets an invidious contrast between the fate of the people and the indifference of the Pharaoh."

As I said earlier, nothing like the Venus Comet is mentioned by Ipuwer as the cause of these fires, and the only causes in evidence are very much earthbound human ones: "the homes are laid waste, and barbarians from abroad have come to Egypt … there are no Egyptians anywhere" (Faulkner p. 213). The phrase "no Egyptians anywhere" may be where V got his fires that "almost exterminated mankind" from. However, the phrase simply means that the land was overrun by foreigners.

Next, on *WiC* p. 73 [1.2.6] we have V's "earthquake":

"Ipuwer witnessed and survived this earthquake. 'The towns are destroyed. Upper Egypt has become waste ... All is ruin.' 'The residence is overturned in a minute.' 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.'"

Now there is no actual mention of an earthquake anywhere in the Ipuwer papyrus. But there is lawlessness, violence, destruction, and the following threat to the authority of the pharaoh:

Extract 3. "Behold, it has befallen that the land has been deprived of the kingship by a few lawless men. Behold, men have fallen into rebellion against the Uraeus, the ... of Re, even she who makes the Two Lands content. Behold, the secret of the land whose limits were unknown is divulged, and the Residence is thrown down in a moment. Behold, Egypt is fallen to pouring of water, and he who poured water on the ground has carried off the strong man in misery" (Faulkner p. 219).

The Uraeus is the cobra symbol of authority and the Residence, apparently, the Royal Palace. As to the phrase "thrown down in a moment", this is clearly an alternative rendering of the phrase "overturned in a minute", and seems to refer more to the threat to the power of the pharaoh than to the physical destruction of buildings in general. As I see it, the expressions "overturned in a minute" and "thrown down in a moment" (Wilson renders the same "razed within an hour") refer simply — but not literally — to acts of rebellion. After all, we ourselves use expressions like "I'll be with you in just a second" that are not intended to be taken literally, and under the contextual circumstances I see no reason to postulate some vast earthquake, comet induced or otherwise, in order to explain the use of the phrase "overturned in a minute" in the Ipuwer papyrus.

Next, on *WiC* p. 114 [I.5.1] and again on *WiC* p. 123 [I.5.3], V quotes the Ipuwer papyrus as saying that "the earth turned over like a potter's wheel" and that "the earth is upside down." But this is no inversion of planet earth, as readers of *WiC* are led to suppose. The first is simply a metaphorical description of the upturned social order: "the land turns round as does a potter's wheel; the robber is a possessor of riches, and the rich man is become a plunderer" (Faulkner p. 2l2). As for the earth being "upside down", this doesn't feature in the Ipuwer papyrus, and V seems to have got it from the Ermitage (or Hermitage) papyrus, where it is quite clearly the Egyptian equivalent of our modern expression "topsy turvy". That is, it is another metaphor like the potter's wheel.

Which brings us to V's controversial assertion (*WiC* p. 123 [I.5.3] & 132 [I.6.1]) that Ipuwer was an eyewitness of the Exodus and that the papyrus contains the story of the plagues of Egypt.

[Page 12] To begin with, the reader will look in vain through the Ipuwer papyrus for any mention of the Biblical plagues of frogs, lice, flies and locusts. Nor, it

seems, is the plague of boils and sores specifically mentioned. As for the plague of hail, the best V can do is to see it as the cause of the free-wandering/fleeing cattle in Extract 1 and the perished grain in Extract 2. As we saw earlier, though, there is no justification for V's claims, and nothing like bombardments of meteoric hail are to be found anywhere in the papyrus.

As for the deaths of the firstborn, V sees these as the result of the "earthquake" that "overturned" the Residence in Extract 3. The link between the 10th plague of the Exodus and the Ipuwer papyrus is thus very tenuous indeed.

Velikovsky's matching of Exodus and Ipuwer is thus suspect on at least seven out of ten plagues. So what is there in the papyrus that does match?

Firstly, V matches the murrain of beasts with the following quote from Ipuwer: "All animals, their hearts weep. Cattle moan …" (*Ages in Chaos* p. 46). However, the full quote reads: "All animals, their hearts weep; cattle moan because of the state of the land" (Faulkner p. 216). As I see it, then, they moan for the same reason that they are left free-wandering in Extract 1 — simple neglect in the prevailing social disorder.

Secondly, V matches the plague of darkness with the following quote from Ipuwer: "The land is not light …" (*Ages in Chaos* p. 47). Now, the papyrus text is particularly fragmentary at this point (Faulkner p. 223), but the context of the "darkness" appears to be connected with "poor men". This suggests that the darkness is a metaphorical reference to social disorder, and I would suggest that a suitable parallel for it might be Sir Edward Grey's statement, made in 1914, that "the lights of Europe are going out; they will not be re-lit in our times."

Lastly, V matches the plague of blood with two quotes from Ipuwer (*Ages in Chaos* p. 44). The first comes in the following context:

> *Extract 4.* "Indeed, hearts are violent, pestilence is throughout the land, blood is everywhere, death is not lacking, and the mummy-cloth speaks even before one comes near it. Indeed, many dead are buried in the river; the stream is a sepulcher and the place of embalmment has become a stream" (Faulkner, p. 212).

[Page 13] Now the phrase "pestilence is throughout the land" could, of course, link up with the plagues of the Book of Exodus. On the other hand, it is rather vague and could just as easily link up with something else entirely. The Black Death in England, for example, could also have been described by the phrase "pestilence is throughout the land". I do not think too much stress can be laid on the key word "pestilence" (or "plague") without the contextual background being taken into account, and it has to be said that the back-

A HIEROGLYPHIC TRANSCRIPTION OF PART OF THE IPUWER PAPYRUS

It is lines 8-9 which contain the phrase "the land turns round as does a potter's wheel", a phrase which V takes to refer to a literal inversion of the Earth.

grounds provided by the Book of Exodus and the Ipuwer papyrus are very different.

Indeed, it is possible that the "pestilence" here is not a real plague, like the Black Death or the plague of sores in Exodus, but a metaphorical one. According to Gardiner, the Egyptian word for pestilence used in the Ipuwer papyrus is also used elsewhere to describe the Hyksos invaders of the Second Intermediate Period of Egyptian history. So the "pestilence throughout the land" could be a metaphorical reference to the corruption that attends violence and insurrection, or to foreign invaders, Hyksos or otherwise.

As for the phrase "blood is everywhere" in Extract 4, this too seems to denote violence and murder. Certainly, there is nothing to connect it with the Biblical turning of the Nile into blood.

The second passage of Ipuwer which V matches with the blood of the Exodus is this: "Indeed, the river is blood, yet men drink of it. Men shrink from human beings and thirst after water" (Faulkner p. 212). For comparison, Wilson renders this: "Why really, the river is blood. If one drinks of it, one rejects it as human and thirsts for water."

This does tie in neatly with Ex. 7:20 & 7:24, thus:

> "7.20: And Moses and Aaron did so, as the Lord commanded; and he lifted up the rod, and smote the waters that were in the river, in the sight of Pharaoh, and in the sight of his servants; and all the waters that were in the river were turned to blood."
>
> 7.24: And all the Egyptians digged round about the river for water to drink; for they could not drink of the water of the river."

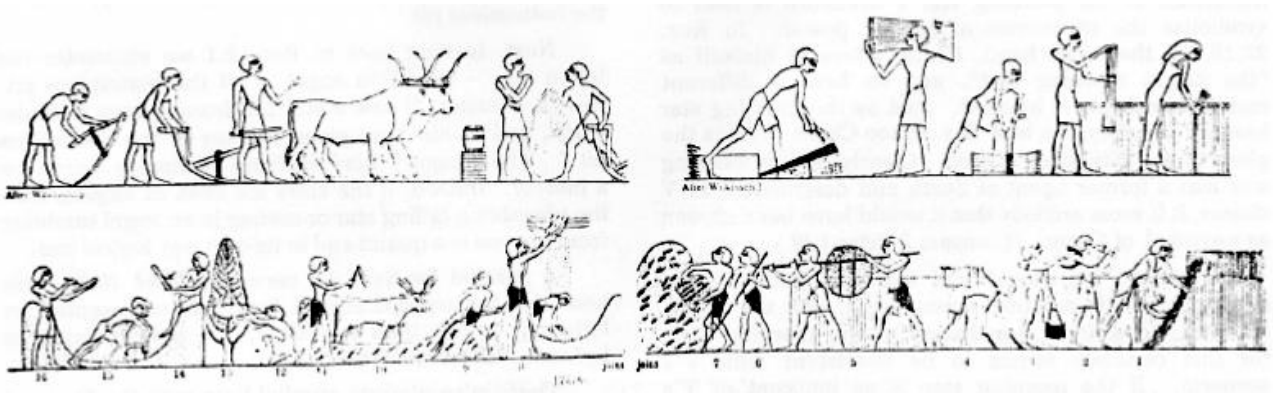
On the other hand, Ipuwer, unlike the Book of Exodus, has no "supernatural" overtones associated with the "blood". As an "event" it apparently does not rate the "front page treatment" given to it in the Book of Exodus, and though perhaps we should not expect to find Moses and his rod featured in the papyrus, it is nevertheless curious that this great "supernatural" event that God is supposed to have inflicted on the Egyptians is reduced by Ipuwer almost to a passing mention. The reason for this, I think, is quite simple: Ipuwer is *not* describing the Biblical plague.

The reason I say this is that there are other mentions of the river in the papyrus that may serve to explain the blood, and in terms very different from those envisaged by V. Thus, for example, we read in Extract 4 of dead bodies floating in the river, and a little later (Faulkner p. 213) how "crocodiles are glutted with the fish they have taken, for men go to them of their own accord." According to Faulkner the "fish" here are "a figure for the corpses the crocodiles have eaten." That men go to the crocodiles of their own accord refers, according to Wilson, to suicides in the river.

Thus the occurrence of the phrase "the river is blood" in the Ipuwer papyrus — the most promising parallel with the Book of Exodus — may actually be no parallel at all, merely a superficial coincidence of words.

In conclusion, then: Whether the events of the Ipuwer papyrus match the plagues of the Book of Exodus is open to debate, but personally I regard the parallels as too circumstantial and too tenuous to be convincing. Even less acceptable, on the evidence supplied by the papyrus itself, is V's assertion that the events described by Ipuwer indicate the occurrence of the immense Venus-induced natural catastrophe postulated in WIC. For a start I find it impossible to believe that a supposed eyewitness of such earth-shaking events would have written so many words about them and yet fail to mention the Venus Comet itself!

DURING THE TURBULENT PERIOD DESCRIBED IN THE IPUWER PAPYRUS, NORMAL HARVEST SCENES LIKE THESE WERE SEVERELY DISRUPTED.



CHAPTER 3: LUCIFER

[Page 14] On *Worlds in Collision (WiC)* p. 199 [I.10.3] Velikovsky (V) quotes Isaiah 14:12-13:

> "How art thou fallen from heaven, O Lucifer, son of the morning! How art thou cut down to the ground, which didst weaken the nations! For thou has said in thine heart, I will ascend to heaven, I will exalt my throne above the stars of God."

Velikovsky claims that this passage denotes "the end of the terror which Venus kept alive for eight centuries after the days of Exodus", and asks, "What does it mean, that the morning star was assailing the heavens, and that it was cut down low to the horizon, and would weaken no more the nations?"

But does Isaiah actually tell us that the planet Venus weakened any nations? Let us look at the context of the verse V quotes.

Is. 14:12-13 is part of a tirade (or "proverb") directed against the King of Babylon, as is shown by Is. 14:4. According to *Peake's Commentary*, he is likened to the morning star "which shines brightly, but only for a brief period, quickly disappearing before the sun." The theme is the fall of the power of Babylon (Is. 14:15) and any earth-shaking and conflagration that might be associated with the Venus Comet is actually that wrought by the King of Babylon ("Is this the man that made the earth to tremble etc.", Is. 14:16-17), and it was he who would no more weaken nations ("Art thou also become weak as we?", Is. 14:10), not the retreating Venus Comet. Likewise, it doesn't make sense to have the Venus Comet saying, "I will exalt my throne above the stars of God", since that phrase refers to the arrogance of the King of Babylon.

The Morning Star, and its counterpart the Evening Star, lend themselves very readily to allegorical usage (see Panel 2). In the case of the King of Babylon, the transience of the morning star's brilliance is held to symbolise the transience of earthly power. In Rev. 22:16, on the other hand, Christ refers to himself as "the bright morning star", and so here a different metaphorical role is invoked. Just as the morning star heralds the glory of a new day, so too Christ heralds the glory of the Kingdom of God. Clearly, if the morning star was a former agent of death and destruction, as V claims, it is most unlikely that it would have been chosen as a symbol of Christ! (Compare 2 Peter 1:19.)

Even so, we should still ask why Lucifer ("the shining one") is a name synonymous with the Devil, as well as being an appellation of the morning star, for this certainly seems to be consistent with V's scenario. If the morning star is as innocent of V's charges as orthodox astronomers claim, why does it share a name with Satan?

Firstly, we should ask when Lucifer merged with Satan. Hastings *Dictionary of the Bible* says that "Lucifer came in the Middle Ages to be a common appellation of Satan", and Murray's *Bible Dictionary* puts the merger back to the time of Saint Jerome (c. 400 AD). In other words, Lucifer was not an appellation of Satan when Is. 14:12 was written, and indeed, as we saw above, the Morning Star does not feature in Isaiah as a rampant iconoclast or an evil planet, but as a symbol of transient brilliance.

The date issue alone is sufficient to scuttle V's interpretation of the Satanic Lucifer, and it remains only for us to outline how later Christian theologians came to connect Lucifer with Satan. The reasons have nothing to do with literal planetary catastrophism, and everything to do with the peculiar machinations of the theological mind engaged in digging beneath the surface meanings of obscure Biblical texts.

Firstly recall that in Is. 14:12 we have the phrase "how art thou *fallen from heaven*, O Lucifer, son of the morning", Lucifer here representing the King of *Babylon*. Key words and phrases are italicised, and the reader should look out for them in what follows.

Secondly, turning to the Book of Revelations, we find that Babylon plays quite a significant role there. Actually the Babylon there featured is probably not the city in Mesopotamia to which Isaiah refers, but Rome. (When the Book of Revelations was written, it would have been dangerous to prophesy openly against Rome or to publicise visions of its downfall. Hence "Babylon" was used more or less as a code name.) But this in itself is not important. All we need to know here is that in Revelations, "Babylon" represents a power that is anti-God, anti-Christ and anti-Church, and is thus a symbol of Satanic agency.

Thus in Rev. 17:3-6 we read of a woman sat upon a scarlet coloured beast, and on her forehead is written "Mystery, Babylon the Great, the Mother of Harlots and Abominations of the Earth." In Rev. 17:8 we read how this beast "shall ascend out of the bottomless pit" and in Rev. 17:11 how the beast represents a king (probably Nero). Thus the King of Babylon — or the Emperor of Rome — is a Satanic power, a product of the bottomless pit.

Next, turning back to Rev. 9:1, we encounter the fallen star — or fallen angel — of the bottomless pit. Rev. 9:1 reads: "I saw a star fall from heaven unto the earth, and to him was given the key of the bottomless pit." The imagery here is fairly obviously based on a meteor. Indeed, if the stars are seen as angels, then the idea that a falling star or meteor is an angel tumbling from heaven is a quaint and in its own way logical one.

A parallel for Rev. 9:1 occurs in Luke 10:18, only here the fall (specifically of Satan) is represented by lightning rather than a meteor: "I beheld Satan as lightning fall from heaven."

There is an obvious parallel here with the "how art thou fallen from heaven" of Is. 14:12. Of course, there are really two different falls involved — the fall of the **[Page 15]** might of Babylon (represented by the "fall"/transience of the Morning Star) and the fall of the angel/Satan (represented by the fall of a meteor), but it is easy to see how the two became fused together.

We are now in possession of all the keys to a probable understanding of how Lucifer the Morning Star came to be Lucifer the Devil. Basically it has little to do with the planet Venus at all and more to do with Babylon. On the one hand it is Babylon that is associated with the transience of the Morning Star (hence Is. 14:12) and on the other hand it is Babylon that is symbolic of Satanic power (hence Rev. 17:3-6). However, one cannot deduce from this that the Morning Star is or was a Satanic power. If I may make an analogy, a poet may liken his love to a "blooming rose". He may also liken his love to "the boundless ocean". But one cannot deduce from these two metaphors that a blooming rose is a boundless ocean!

So, it could well have been the metaphorical association of the King of Babylon with the transient Lucifer the Morning Star that led to (not resulted from!) the connection of Lucifer with Satan, via the Satanic Babylon and fallen star/ angel of Revelations, and via the parallel fall of Satan in Luke.

SATAN/LUCIFER

PANEL 2. VENUS

Venus presents two "opposite" aspects in the Morning Star, which ushers in the day, and the Evening Star, which ushers in the night. As might be expected, this "oppositeness" is reflected in their symbolic usages. Thus Diogenes Laertius in his *Lives of the Philosophers* (3.29) quotes the following epigram by Plato:

> "Even as you shone once the Star of Morn among the living, so in death you shine now the Star of Eve among the dead."

To the Babylonians the Morning Star was male, the Evening Star female; and of the two sides of the goddess Ishtar (see Ch. 4), the Morning Star symbolised the warrior and the Evening Star the love goddess (Ref. 1). In the Americas, Pawnee mythology considered the Morning Star to be male and a warrior; the Evening Star was female, and was associated with fertility and life (Ref. 2).

The warrior role of the Morning Star perhaps arises from the fact that it "arouses" the light of day (cf. Ovid *Metamorphoses* 4.629-630) and "banishes" the night (cf. Ovid *Metamorphoses* 8.1-2). Or it may signify that the Morning Star outlasts all the other stars in the "battle" against the light of the rising sun (cf. Lucan 1.231-232 and 2.719-725). Of the warrior Morning Star in Aztec mythology, B.C. Brundage writes:

> "To the Aztecs the rising of the Morning Star was in no sense the serene event it is to us; it was tense, dramatic, and ominous. The redness of dawn was the stain of blood in the sky and, as Hector fled before Achilles, so did this champion flee before the great one who had outmatched him: he falls, leaving the celestial battlefield in the possession of the Sun" (Ref. 3).

Again, though the Morning Star is not specifically mentioned, it is nevertheless interesting that the *Rig Veda* (I.92.1) tells of the divinities of the morning who "like warriors burnishing their weapons" brighten all things.

Having said that, of course, the Morning Star is not always a warrior. Virgil wrote of the Morning Star "heralding genial day" (*Eclogues* 8.17), and Ovid gave the Morning Star the shepherd-like role of ushering the stars from the dawn sky (*Metamorphoses* 2.114-115).

The love goddess role of the Evening Star is more difficult to account for, though of course one would expect its role to be symbolically peaceful in contrast to that of the "warlike" Morning Star. Thus we read in Sappho:

> "All that the glittering morn hath driven afar
> Thou callest home, O Evening Star!
> Thou callest sheep, thou callest kid to rest,
> And children to their mother's breast." (Ref. 4)

But why the association with a goddess of love, particularly? In the case of Aphrodite the association seems to be bound up with the fact that brides were given to their husbands at sunset. Thus Virgil's *Eclogues* 8.29 - 30 reads:

> "Mopsus, cut new torches! For thee they bring the bride! Scatter, bridegroom, the nuts! For thee the Evening Star quits Oeta!"

See also Catullus 62.1 ff. and 64.328-332. At any rate, the Evening Star was the star of Aphrodite and the friend of lovers (e.g. Bion IX *To Hesperus*).

MARS

[Page 16] The planet Mars, with its prominent red colour, was naturally a source of similar symbolic associations. In the Jewish *Talmud* we find it associated with blood-letting (*Tractate Shabbat* 129b) and the shedding of blood (*Shabbat* 156a). In the Soochow astronomical chart Mars is *Ying-Huo*, the fire planet, and its Greek name *Pyroeis* is similarly descriptive. The symbolic connections of blood and fire with the planet Mars are almost certainly what led to its association with war gods such as Nergal in Babylonia and Ares in Greece. Its colour, too, led to its astrological association with wars, civil insurrection, fires, feverish disorders and haemorrhages (e.g. Ptolemy *Tetrabiblos* 2.8).

REFERENCES

1. S. Langdon, *Semitic Mythology* pp. 24-25 (1931).
2. R. Linton, *The Thunder Ceremony of the Pawnee*, pp. 5-6 (1922).
3. B.C. Brundage, *The Fifth Sun*, p. 111 (1979).
4. C.B. Haines, *Sappho: Poems and Fragments*, p. 157, No.129 (1926).

PANEL 3. ORIGEN ON ISAIAH 14:12.

On *WiC* p. 200 [I.10.3] V tells us how "more than a hundred generations of commentators have occupied themselves with this passage, but have met with failure." The evil reputation of the Morning Star, he claims, has baffled them all, and he quotes a passage of Origen as an example.

The passage comes from *De Principiis* 1.5, but is not quite what V makes it out to be. Here it is, in its proper context (Origen has just quoted Is. 14:12-22):

"Most evidently by these words is he shown to have fallen from heaven, who formerly was Lucifer, and who used to arise in the morning. For if, as some think, he was a nature of darkness, how is Lucifer said to have existed before? Or how could he arise in the morning, who had in himself nothing of the light? Nay, even the Saviour Himself teaches us, saying of the devil, 'Behold, I see Satan fallen from heaven like lightning' (Luke 10:18). For at one time he was light. Moreover our Lord, who is the truth, compared the power of His own glorious advent to lightning, in the words, 'For as the lightning shineth from the height of heaven even to its height again, so will the coming of the Son of man be' (Matt. 24:27). And notwithstanding He compares him to lightning, and says that he fell from heaven, that He might show by this that he had been at one time in heaven, and had had a place among the saints, and had enjoyed a share in that light in which all the saints participate, by which they are made angels of light, and by which the apostles are termed by the Lord the light of the world. In this manner, then, did that being once exist as light before he went astray, and fell to this place, and had his glory turned into dust, which is peculiarly the mark of the wicked …" (Tr. F Crombie, 1859).

Thus Origen is not "confused," as V has it, by the evil reputation of the planet Venus. Origen's questions, as quoted by V, ask why a "dark" Lucifer (dark = evil) should be associated with a "light" planet (light = good). The answer given by Origen, but not quoted by V, is that Lucifer before his fall was in a state of goodness and light, as Satan was before his fall (hence Luke 10:18). Thus Venus represents the good Lucifer before his fall and is not a puzzling "evil planet" at all.

The "fall" of Lucifer is referred to in Milton's *Paradise Lost* 7.l3l f., and earlier in 1.44-45 thus: "Him the almighty power hurled headlong flaming from the ethereal sky." These lines are dramatically illustrated in the engraving by Gustave Dore below.

THE FALL OF LUCIFER (Gustave Doré)

CHAPTER 4. ISHTAR

[Page 17] Ishtar was a fierce Babylonian warrior goddess who was associated with the planet Venus. This association Velikovsky (V) sees as a confirmation of his theories, for if Venus has always been the tame bright star we see today, why would the Babylonians write of Ishtar:

"O Ishtar, queen of all peoples ...
Thou art the light of heaven and earth ...
At the thought of thy name
the heaven and the earth quake ...
And the spirits of the earth falter.
Mankind payeth homage unto thy mighty name,
for thou art great, and thou art exalted.
All mankind, the whole human race,
boweth down before thy power..."

(*WiC* p. 197) [I.10.2]

According to V, these lines reflect dismay at the irregular movements of the terrible Venus comet. But is that so?

The first thing to note about Ishtar (and her Sumerian counterpart Inanna) is that she wasn't just a warrior goddess, and she wasn't just associated with Venus either.

As a warrior goddess she was associated with the morning star. But she was also a love goddess — a goddess of fertility and procreation — in which role she was associated with the evening star (Ref. 1). Now Venus can hardly have developed its connection with a love goddess out of any physical effects the planet might have had on the earth and its inhabitants, and we must conclude that the reasons for its reputation are symbolic. But then if the planet Venus could inherit its love-goddess connection entirely through symbolic associations, it is highly likely that it inherited its war-goddess connection by the same means. As we saw earlier, the morning and evening stars lend themselves quite readily to symbolic association, and here the basic duality of the planet serves to represent the opposites of love and war. (See Panel 2.) The association of a love goddess with the planet Venus is totally at odds with V's scenario, of course. Even at her most licentious, a goddess of love is hardly a fitting symbol of a rampant super-comet. Some attempt has been made by V's followers (Ref'. 2) to explain this, the idea being that Venus wrecked the earth while it was a morning star and that it became "friendly" (that is, went away again) as an evening star. Personally I'm not convinced by this. It seems to me not unlike calling someone a "nice guy" just because he's stopped hitting you! I think the symbolic association hypothesis explains the opposing roles of love and war much better.

As mentioned above, the warlike Ishtar wasn't just associated with the planet Venus. She was also associated with the star Sirius (Ref. 3). Now, clearly, Sirius

VENUS, AS GODDESS OF WAR, ON AN ASSYRIAN SEAL

cannot have inherited its warlike reputation because it once physically descended on the earth in a flurry of fire and brimstone, so the reasons for its warlike character must be (again!) symbolic rather than literal (Panel 4). But if Sirius could inherit a martial character without any form of literal catastrophe, then it is entirely possible that Venus inherited its martial character in a similar non-catastrophic way.

Finally, we should note that Ishtar and the planet Venus were not synonymous, and not everything that the goddess did represented something to do with the planet. The warrior goddess can appear without her planet — as, for example, in an inscription of Esarhaddon, in which Ishtar promises to protect the king and drive his enemies into the sea (Ref. 4). Similarly as a love goddess, it is difficult to see anything planetary in Ishtar's attempt to lure Gilgamesh into a state of holy matrimony (Ref. 5)!

In the light of the foregoing points, let us now consider the so-called Prayer of the Raising of the Hand to Ishtar (Ref. 6), from which V selected the lines quoted at the beginning of this chapter, and let us ask if V is justified in hailing them as references to the Venus comet.

Velikovsky takes the line "at the thought of thy name the heaven and the earth quake" as a literally catastrophic reference to the Venus comet. But let us look at another line of the same text that V doesn't quote: "Where thou lookest in pity, the dead man lives again, the sick is healed." Does this line tell us that the planet Venus has some mysterious power to raise the dead and heal the sick? Clearly not, and I would suggest that one can no more take the first of these lines as a reference to the planet Venus than one can the second. Both relate to the goddess, not the planet. Indeed, the **[Page 18]** fact that heaven and earth quake at the *thought* of Ishtar's *name* suggests that we are dealing with a metaphorical reference to the majesty of the goddess rather than cosmically induced geophysical activity.

Again, the prayer does refer to Ishtar as "lady of the battle" and "one who cannot be opposed," lines that V quotes. But do they refer to the Venus comet? The prayer also describes Ishtar as "bestower of strength" and "summoner of armies," both of which are certainly suitable epithets for a warrior *goddess*, but which are

wholly inappropriate for a *planet*. In the prayer, too, we find Ishtar as a directress of mankind, a goddess of justice, and a shepherdess of the people! Like the "healer of the sick" role mentioned above, none of these titles seems at all planetary, let alone catastrophic, and they cast considerable doubt on V's use of the "warrior" role.

One of the most intriguing of V's references to Ishtar-Venus, and one which caught my attention early on in my study of WIC, features on *WiC* pp. 179-180 [I.9.3]. Here V tells us how "Assurbanipal speaks of Ishtar-Venus, 'who is clothed with fire and bears aloft a crown of awful splendour, and who rained fire over Arabia.'" When I set out to follow this up I naively expected to find some sort of eye-witness account of the planet Venus spewing forth fire. What I actually found was a lengthy list of acknowledgements to various gods (among them Ishtar) for their help in Assurbanipal's warring campaigns against the Arabian tribes. The first part of the inscription reads:

> "Ninlil, beloved of Enlil, the mighty, the proud one among the goddesses, who occupies a station of power along with Anu and Enlil, gored my enemies with her great horns. Ishtar, who dwells in Arbela, who is clothed with fire and bears aloft a crown of awful splendour, spread a conflagration (literally rained fire) over Arabia. The warrior Irra (the pest-god), engaging them in battle, struck down my foes. Urta, the lance, the great warrior, son of Enlil, pierced my enemies to the life with his sharp arrow. Nusku, the exalted messenger of the gods, who makes my rule glorious, and who, at the command of Assur and Ninlil, the valorous lady, goes at my side, guarding my kingship, took his place before my armies and brought low my foes (Ref. 7).

The conflagration was spread over Arabia by the advancing armies of Assurbanipal, but it was the warrior goddess Ishtar who got the credit for its overall success, just as the gods Ninlil, Irra, Urta, and Nuska got the credit for their roles. I leave the reader to draw his own conclusions.

NOTES AND REFERENCES ON CHAPTER 4.

1. S. Langdon, *Semitic Mythology* (1931) pp. 25-26.
2. *Society for lnterdisciplinary Studies Review*, Vol. 1, No. 4, p. 22.
3. S. Langdon, *Tammuz and Ishtar* (1914), pp. 104-105.
4. *Tammuz and Ishtar*, p. 140.
5. N.K. Sandars *The Epic of Gilgamesh* (1964), Chapter 3; J.B. Pritchard, *Ancient Near Eastern Texts*, (1969), pp. 83 f. (Tablet 6).
6. Velikovsky uses the translation in L.W. King, *The Seven Tablets of Creation* (1902), Vol. 1, pp. 223 f. Another translation, under the title "Prayer of Lamentation to Ishtar," can be found in J.B. Pritchard, *op. cit.*, pp. 383 f.
7. D.D. Luckenbill, *Ancient Records of Assyria and Babylonia*, (1926), Vol. 2. Section 829.

ISHTAR (from a terra cotta bas-relief)

PANEL 4. SIRIUS

According to Langdon (*Tammuz and Ishtar*, p. 105) Sirius owed its warlike reputation to the fact that it rose heliacally at the time of the fiercest summer heat. Though I am not aware of any specifically "warlike" references to Sirius in classical literature, there are certainly many references to the "hostile" effects of Sirius during the so-called dog days. Thus Homer says that the dog star bodes no good and brings fever to wretched mortals (*Iliad* 22.29); Virgil calls Sirius the star that brings thirst and disease to suffering humanity (*Aeneid* 10.273-275); Apollonius Rhodius says it is "full of menace for the flocks" (*Argonautica* 3.956); and Horace writes of the terrible scorching dog days (*Odes* 3.13.9). Aratus (*Phaenomena* 331 f.) says that Sirius is a star that "blazes with a searing flame," and Manilius (*Astronomicon* 1.397-399) tells us that "no star comes on mankind more violently or causes more trouble when it departs," later adding (1.408-409): "hardly is it inferior to the sun, save that its abode is far away and the beams it launches from its sea-blue face are cold."

CHAPTER 5. ATHENE, APHRODITE, AND THE ILIAD

[Page 19] According to V (*WiC* p. 173) [I.9.2.] the Greek warrior goddess Athene was a representation of the planet Venus, and the legend of her birth from the head of Zeus (e.g. Hesiod *Theogony*, 924 f) symbolises the expulsion of the planet Venus from the planet Jupiter.

The first snag with this idea is that no known Greek text ever associates Athene with the planet Venus, and the association is pure assumption on V's part.

Secondly, whatever the birth from the head of Zeus might signify, it would be rash to assume that it had anything to do with the planet Jupiter. The god and his planet were not synonymous (cf. Ishtar in Chapter 4). As an example of when Zeus isn't the planet Jupiter, we can take the legend of his birth and concealment in a Cretan cave (Apollodorus 1.1.7). Also before reading too much cosmic symbolism into Athene's birth we should reflect on the fact that Bacchus was re-born from the thigh of Zeus (Apollodorus 3.4.3).

Thirdly, the Greek goddess who was most often associated with the planet Venus was Aphrodite, the goddess of love. Several points arise from this fact:

1. Velikovsky equates Aphrodite with the moon (*WiC* p. 240) [II.3.2], which is quite contrary to accepted mythology. Selene was the moon.

2. Aphrodite's character — that of a love goddess who bore the title "laughter loving" (e.g. *Iliad* 4.10) — has nothing in common with V's comet. Compare Ishtar's love goddess role in Chapter 4.

3. The birth of Aphrodite has nothing to do with the head of Zeus, and so V's expulsion of Venus from Jupiter is no longer mythologically represented. There are two versions of Aphrodite's birth. Firstly, according to the *Iliad* (3.374 and 5.370), Aphrodite was the daughter of Zeus and Dione, which at first appears to give us a Venus-Jupiter link, until we remember that Zeus was the father of a great many offspring, including Ares (Mars) and Hermes (Mercury), and was himself the son of Cronus (Saturn), who was the offspring of Earth and Heaven! If Aphrodite as the daughter of Zeus indicates the expulsion of Venus from Jupiter, what do these other son and father relationships denote? What can it mean that Achilles was the great-grandson of Zeus (*Iliad* 21.186 f.), or that Hermaphroditus was the offspring of Aphrodite and Hermes (Ovid *Metamorphoses*, 4.285 f.)?

The second, perhaps more famous, legend of Aphrodite's birth is that given by Hesiod (*Theogony*, 188 f.): Cronus castrated his father, Uranus, and cast the severed genitals into the sea. These produced a white foam on the surface of the waves and from this arose Aphrodite. It would take a vivid imagination to see anything planetary in that!

4. Even though Aphrodite was associated with the planet Venus, she was not synonymous with it. One would be rash to start looking for planetary significance in the vast majority of the actions of the goddess: Aphrodite's seduction of the mortal Anchises and the subsequent birth of Aeneas, in the fifth Homeric Hymn (*To Aphrodite*), is a case in point. Further examples will be given shortly.

Now in order to rescue V from point 1, some of V's followers have suggested that Athene was the warrior morning star to Aphrodite's love-goddess evening star, thus forming a good Greek parallel for the two aspects of the Babylonian Ishtar. Velikovsky's Aphrodite-Moon equation can then be abandoned.

True, Athene and Ishtar were both warrior goddesses and were similar in other respects too (e.g., healer of the sick; protectress of cities), but to deduce from this that since Ishtar was associated with the planet Venus, therefore Athene must represent the planet Venus as well, may be rather like assuming that since A and B are both bank managers, and since B likes gardening, therefore A likes gardening too. It doesn't necessarily follow, and indeed, as stated above, there is no known text that links Athene with the planet Venus. So, although this new proposal seems eminently more reasonable than V's original proposal, there is still no evidence for it.

Even if we assume Athene equals Venus, we encounter the same problems that we encountered with Ishtar in the last chapter; that is, too many of Athene's characteristics just don't seem to fit in with what V supposes the goddess to represent.

According to the Larousse *Encyclopedia of Mythology*, besides being a warrior Athene was also a goddess of the arts of peace and a goddess of prudent intelligence. She was the patron of architects, sculptors, spinners, and weavers. She was "as benevolent in peace as she was redoubtable in war." She invented the potter's wheel and embroidered Hera's veil; she invented the flute and fulfilled the role of a goddess of health.

A stock pro-Velikovsky challenge to uniformitarians is to explain how, if Venus has been stable in her orbit for billions of years, the innocuous point of light known to us as the morning star could ever have got the reputation of a fierce warrior goddess. Despite having answered this question in Panel 2, let me also counter it with another question: If Athene-Venus was as fearsome as V claims in WIC, how did she ever get mixed up with the invention of the flute?

Having identified Athene with Venus and Aphrodite with the moon and accepting the conventional association between the war god Ares and the planet Mars (see Panel 2), V proceeds to offer a startling planetary interpretation of the *Iliad* (*WiC* pp. 238 f.) [II.3.2]. This comes as something of a shock to those of us who were

ARES AND APHRODITE

under the impression that the great epic was simply a tale of the Trojan War.

[Page 20] The trouble is that the *Iliad* reads like the story of a human battle fought amid a series of divine interventions. It doesn't read like a human drama fought against a backdrop of planetary catastrophe. One can therefore be forgiven for being sceptical of V's revelations.

"What might it mean," V asks (*WiC* p. 243 [II.3.2], "that the planet Mars destroys cities?" What he actually means is: Why should the god Ares bear the epithet "Sacker of Cities" (e.g. *Iliad* 20.152)? The two questions are very different, and the answer to the second is simply that "Sacker of Cities" is an epithet applied to warriors generally, human or divine, — e.g., Achilles in *Iliad* 21.550. Applied to Ares it tells us nothing about the planet Mars, since gods and their planets are not synonymous. It is the god Ares who "sacks cities" in battle, not the planet Mars that sacks them with cosmic catastrophes!

To drive the point home, if Ares is the planet Mars, what might it mean that Ares comes down amongst the ranks of the Trojan army (*Iliad* 5.460 f.) or that he strips the armour off the dead body of Periphas (*Iliad* 5.842 f.)? And what can it mean that Ares was chained up in a bronze jar for thirteen months, by the giants Otus and Ephialtes (*Iliad* 5.385 f.)?

Again, if Athene is the Venus comet, what can it mean that she disguises herself as a man and slips in among the Trojan ranks (*Iliad* 4.86)? What are we to make of Athene's deflection of the spear that Hector hurls at Achilles (*Iliad* 20.438 f.)?

Velikovsky sees the Athene-Ares conflicts of the *Iliad* as planetary interactions. But one seriously doubts this when one reads, for example, how Ares thrust his spear at the warrior Diomedes, but that the blow was deflected by Athene (who was invisible at the time!), thus enabling Diomedes to inflict a wound on Ares instead (*Iliad* 5.850 f.). It was Diomedes, too, who wounded Aphrodite (*Iliad* 5.334 f.).

Finally, if one is going to read planetary symbolism into the *Iliad*, why stop at Mars and Venus? Zeus features prominently throughout the *Iliad*, so logically his planet, Jupiter, ought to feature in V's scenario. Hermes, too, is there, so why not the planet Mercury?

The point is, of course, that the Zeus who appears throughout the *Iliad* is thoroughly un-planetlike, as indeed are Ares, Aphrodite, and Athene when one looks at them fully. First and foremost, Zeus is the abstract father of gods and men, an ethereal being with superhuman powers and attributes. Secondarily, he is the cloud compeller, the thunderer and lord of the lightning flash, epithets that betray the meteorological side of his ancient role as sky god. Every so often Zeus sends portentous lightning flashes (e.g., *Iliad* 9.236-237), but it would be as wrong to see these as interplanetary discharges from the planet Jupiter as it would be to see the moving of the chair by Aphrodite in *Iliad* 3.424 f. as the result of the gravitational pull of the planet Venus! Likewise, when Hermes opens the door in *Iliad* 24.457, one would not hail it as the intervention of the planet Mercury, and no more, bringing us back to Ares again: should one see anything planetary in Ares as "Sacker of Cities."

Quite apart from all the foregoing, there is another good reason for not reading planetary symbolism into the *Iliad*, and that is because at the time the *Iliad* was written, about the 8th century B.C., the Greek gods were probably not associated with the planets at all. According to D.R. Dicks (*Early Greek-Astronomy to Aristotle*, 1970 ed., pp. 29, 66, 73) the gods did not assume their planetary associations until about the 5th century B.C .— some time after the *Iliad* was written.

There is one further hint that all is not well with V's interpretation of the *Iliad*'s warrior Athene as the Venus comet, and it is that the planet Venus is actually mentioned directly, twice, in the epic, with absolutely no hint of catastrophe. In *Iliad* 22.318 we have "the loveliest jewel in the sky, the evening star," and in *Iliad* 23.226 f. we have "the star of morning … after which followeth saffron-robed Dawn." It seems to me that these non-catastrophic direct references to the planet Venus cast considerable doubt on V's attempt to "decode" a catastrophic history for the planet from the symbolism of the goddess Athene.

ATHENE: BORN FROM THE HEAD OF ZEUS

CHAPTER 6. THE PLANETS

[Page 21] If the planets really did cause the mayhem attributed to them by Velikovsky (V), it makes sense to ask ourselves what ancient authors actually said about them.

Here is what Pliny (*Natural History*, 2.6) said about Venus, for example:

> "Below the Sun revolves the great star called Venus, wandering with an alternate motion, and, even in its surnames, rivalling the Sun and the Moon. For when it precedes the day and rises in the morning it receives the name of Lucifer, as if it were another sun, hastening on the day. On the contrary, when it shines in the west, it is named Vesper, as prolonging the light, and performing the office of the moon. Pythagoras, the Samian, was the first who discovered its nature, about the 62nd Olympiad, in the 222nd year of the City. It excells all the other stars in size, and its brilliancy is so considerable, that it is the only star which produces a shadow by its rays. There has, consequently, been great interest made for its name; some have called it the star of Juno, others of Isis, and others of the Mother of the Gods. By its influence everything in the earth is generated. For, as it rises in either direction, it sprinkles everything with its genial dew, and not only matures the productions of the earth, but stimulates all living things. It completes the circuit of the zodiac in 348 days, never receding from the sun more than 46 degrees, according to Timaeus." (Translation: Bostock & Riley, 1855-1857.)

If Venus was ever really "born" amid the cataclysm claimed by V, then surely to goodness Pliny would have said something more extraordinary about it than that it is the only one of the planets bright enough to cast a shadow, or that it "sprinkles everything with its genial dew"! Indeed, Pliny paints Venus in constructive rather than destructive terms [Panel 5].

If Pliny fails to mention catastrophes in his account of Venus, then he becomes actively uniformitarian elsewhere in his *Natural History*. In 2.4 he writes: "Between this body (that is, the Earth) and the heavens there are suspended, in this aerial spirit, seven stars, separated by determinate spaces, which, on account of their motion, we call wandering, although in reality, none are less so."

The phrase "none are less so" here means that though the planets do "wander" against the background of the fixed stars, they do so with perfect regularity. Thus Cicero wrote, in his *De Natura Deorum* (2.20.51):

> "Most marvellous are the motions of the five stars, falsely called planets or wandering stars — for a thing cannot be said to wander if it preserves for all eternity fixed and regular motions, forward, backward and in other directions." (Translation: H. Rackham, 1933.)

Aristotle, in *De Mundo* (400 a) wrote similarly:

> "... the heavenly bodies alone are so arranged that they ever preserve the same order, and never alter or move from their course, while the things of earth, being mutable, admit of many changes and conditions" (Translation E.S. Forster, 1914).

Plutarch (*Moralia*, 604 A) and Lucian (*The Dance*, 7) are similarly uniformitarian, and Plato (*Timaeus*, 38c) says that the Sun, the Moon, and the five planets came into being to define as well as preserve the measures of time (see Panel 6).

Now, it might be argued that these classical references to planetary stability are quite "late," historically speaking, and so they may be the products of collective amnesia. Personally I don't accept this argument. I don't see how one can realistically accept V's symbolic interpretation of the *Iliad*, for example, at the same time as rejecting such direct references to the stability of the planets. Such tactics, it seems to me, are indistinguishable from the von Däniken method of interpreting history; namely, that one picks out what suits one's purposes, and disregards the awkward bits.

Even if we bear with the collective amnesia argument, and move to Egypt, say, in search of more ancient direct references to planetary catastrophes — references which have not been as "obscured" by collective amnesia as our classical ones — we still find nothing to support V's claims.

In the Pyramid Texts, for example, the planet Venus features a number of times in its capacity as the Morning Star. However, it is not as a bringer of catastrophe that Venus appears, but as a symbol of rebirth (the Morning Star heralds the rebirth of the Sun). Thus in Pyr. 1207 the Morning Star is referred to as Horus of the Netherworld. In Pyr. 1123 the dead king ascends to the sky with the Morning Star as his guide, and in Pyr. 2005 he becomes a star which "shines in the train of the Morning Star." Thus in Pyr. 1372, when the king is reborn and becomes a star, it is said of him:

> "... you belong to those who surround Re, who are about the Morning Star. You shall have no evil and your name which is on earth shall have no evil." (Translation: R.O. Faulkner, 1969.)

This passage, if anything, suggests that the Morning Star is protective.

Again, in Pyr. 1366 and 2014, the dead king ascends to the sky "as the Morning Star," though I am not clear whether this means he became, symbolically, the Morning Star itself, or whether it simply means that he became a star like the Morning Star. Either way, similar rebirth symbolism attends the rising of Orion in the dawn sky ("the sky conceives you with Orion, the dawn light bears you with Orion. …" Pyr. 820-821.)

[Page 22] Finally, at various points in the Pyramid Texts it is said of the dead king that his sister is Sothis (Sirius) and his offspring the Morning Star (for example, Pyr. 357, 929 and 1707.)

Of course, these references are not as direct as we would like, and they really belong in Panel 2 with the other symbolic uses of the Morning Star. But the point is that we have here the planet itself and not merely some god or goddess associated with, but not synonymous with, the planet. Yet there is no sign of planetary mayhem. Furthermore, since the Pyramid Texts date from the later half of the third millennium BC (according to Faulkner) they dispose of V's claim that Venus was born in the second millennium BC, and that only four planets could be seen in the third millennium BC (*WiC* p. 162 [I.8.5])!

Nor will it do to argue that V simply got the date of Venus's birth wrong. If one argues that Venus was "born" before the Pyramid Texts were written, but that it didn't clash with the Earth until 1500 BC, after the Pyramid Texts were written, then the problem simply moves forward in time, for the Book of the Dead, still in use well after 1500 BC, uses similar Morning Star rebirth symbolism (see, for example, Budge's translation of the Theban recension, ch. 122, vv. 5-6 and ch. 128, vv. 5-7.) What the Book of the Dead doesn't contain is any reference to a catastrophic Morning Star.

Let us now turn to the Ammizaduga Tablets (*WiC* pp. 195 f. [I.10.2]). These are records of the comings and goings of the Morning and Evening Stars over a period of 21 years in the reign of the Babylonian king Ammizaduga. Unfortunately, the tablets (or copies of them) which have come down to us contain numerous scribal errors and internal inconsistencies. At one point, for example, Venus disappears twice in a row without actually reappearing in between! At another, the tablets tell us that Venus disappeared on the 18th day of the 8th month, and reappeared, 3 days later, on the 1st day of the 9th month. Clearly these figures are inconsistent with each other, and something must be wrong with the tablets rather than the planet!

Uniformitarians claim (Ref. 1) that once such errors and inconsistencies are smoothed out, the tablets are consistent with the modern motions of Venus, and uniformitarianly based retro-calculations are invoked to date Ammizaduga's reign on the basis of the corrected tablets. One possible solution is that the tablets cover the years 1582-1561 BC.

On the other hand, Velikovskians claim (Ref. 2) that by their method of smoothing out the errors and the inconsistencies, the tablets are consistent with Venus moving on a different orbit to what it does now. Since they have to alter less tablet "errors" than the uniformitarians, they claim that their interpretation is the better one.

Certainly the Velikovskians have a point here, and they are right to give the uniformitarian astronomers a tough time. But do the Ammizaduga tablets give us a sound basis for a catastrophist rewrite of solar system history? Hardly.

One reason for saying this lies in the astrological omens which accompany the observations of the planet's appearances and disappearances. Basically the omens can be reduced to the following list: Catastrophes of kings; rain and floods; successful harvests; hostilities; happiness throughout the land; famine; desolation; declaration of war; disasters; and defeats in foreign countries.

Now this rather mixed bag of astrological catchphrases could be held to refer to more or less any time and place in the ancient world (or modern, for that matter), and it is perhaps significant that the omens do not betray any particular hint of V's proposed Venus scenario. There are no mentions, direct or otherwise, of such things as falls of meteorites or rains of burning naphtha.

If Venus had a long cometary tail at the time, it apparently held no significance for the compilers of the tablets. True, the "desolation" could be claimed as suggestive of V's scenario, but on the other hand it is such a vague term that it could refer to any number of other things such as the aftermath of foreign invasion, an earthquake, a crop failure, or a plague. Certainly the Ammizaduga tablets no more indicate a literal planetary cause for the "desolation" than they do for the successful harvests and the famines. The omens attached to Venus seem little different in principle to those attached by more modern astrologers to any other planet. That seems to me quite significant, even if it doesn't prove very much. In particular, of course, the omen "happiness is throughout the land", sits very uneasily with V's scenario.

Sticking with *direct* references to the planets, let us now turn to some of the references to Venus which V gathers on *WiC* pp. 164 f. [I.8.7].

(a) V tells us that to the Mexicans Venus was "the star that smoked." True enough, but what V doesn't mention is that the references to Venus "smoking" date from the sixteenth century AD, and so can have nothing to do with what may or may not have happened back in the mid second millennium BC! In 1533 AD, for example, the record states that the earth shook once, and that the star *sitlal choloha* (= Venus) smoked (Ref. 3).

A possible explanation for this puzzling "phenomenon" was proposed by Humboldt (Ref. 4), who suggested that the "smoke" related to the volcano Orizaba, situated to the east of the city of Cholula, and whose glow, when seen in the distance, resembled or was symbolically related to the rising Morning Star. This explanation is far from certain, of course: All we have are some sixteenth century records which say, every so often, that the star smoked, but since the smoking seems frequently to be intertwined with earthquake activity

PART OF ONE OF THE AMMIZADUGA TABLETS (K 160, Obverse) From S. Langdon & J.K. Fotheringham, **The Venus Tablets of Ammizaduga**, 1928

(as in the record for 1533, cited above), Humboldt's assumption seems reasonable.

(b) Another reference to Venus looking like "fire with smoke" is to be found, according to V, in the Vedas. Actually V here refers to a book by Scheftelowitz, which in its turn refers not to the Vedas but to the **[Page 23]** *Mahabharata* (6.3.15), India's equivalent of the *Iliad*. In any event the context of this fire with smoke is not a story of Venusian catastrophes and global disasters. Instead, it is part of a list of prodigies and portents associated with the approach of a battle between two rival families, the Kauravas and the Pandavas. The list includes women giving birth to peacocks, cocks crowing in strange ways, flowers blooming out of season, and, last but not least, Venus looking like fire with smoke!

(c) Velikovsky quotes Pliny's *Natural History* (2.23), as saying that "sometimes there are hairs attached to the planets," adding that an old description of the Venus Comet must have been the basis for this remark. But what Pliny actually says is that "sometimes there are hairs attached to the planets *and the other stars*." Velikovsky has simply omitted the italicized phrase, and yet this phrase makes it clear that the phenomenon is one of atmospheric refraction only. Interestingly, a case of this was recorded by a weather diarist named John Gadbury, who, in 1686, noted two occasions on which Venus looked "like a comet" (Ref. 5).

(d) Velikovsky takes Chaldean references to "the beard of Venus" to refer to the tail of his Venus Comet. But the beard may have a much more mundane explanation related to (c) above: when the planet Venus is at its brightest, it seems, when viewed with the naked eye, to have a spiky or jagged appearance, this being produced by the effects of turbulence in the earth's atmosphere. The expression "with a beard" may refer simply to this phenomenon (Ref. 6). It is also known, however, that the phrase "Venus has a beard" could refer to stars in the vicinity of the planet (Ref. 7). The presence or absence of a beard was supposed to have astrological significance.

(e) Velikovsky claims that Chaldean descriptions of the planet Venus are not consistent with the Venus we see today — for example, "bright torch of heaven" and "diamond that shines like the sun."

The first of these occurs in the Prayer of the Raising of the Hand to Ishtar (see Ch. 4 above). But when Venus is at its brightest in the early evening sky it is a beautiful sight, and it requires very little imagination to see it as a "bright torch of heaven."

As for the phrase "diamond that shines like the sun" (Ref. 8), V takes this absolutely literally, and points out that "at present the light of Venus is less than one millionth of the light of the sun." I am sceptical of this approach myself. For a start Pliny, in the passage quoted at the beginning of this chapter, says that Venus has the name Lucifer "as if it were another sun, hastening on the day." But I wouldn't take that to mean that Venus was as bright as the sun in Pliny's lifetime! Again, Manilius, in his *Astronomicon*, says that Sirius is "hardly inferior to the Sun" (Panel 4) and that it "doubles the heat of the Sun" to the extent where the Earth foresees its ultimate conflagration (5.206 f.)! And Pseudo-Philo, in his *Biblical Antiquities*, Ch. 12, says that when Moses came down from Mount Sinai with the ten commandments, "the light of his face overcame the **[Page 24]** brightness of the Sun and Moon." I wouldn't take either of these literally, and no more, I think, should we take literally the phrase "diamond that shines like the sun," for it means no more than that the planet "shines brightly."

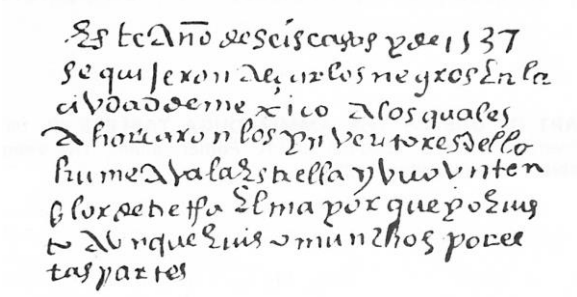
Finally, the phrase "stupendous prodigy in the sky" which V also cites, is from the German "herrliches Schauwunder inmitten des Himmels," which might be

better translated "a magnificent spectacle in the middle of the sky." This I would class with the "bright torch" epithet above.

(f) About the closest V gets to a sound record of a blazing Venus Comet is an extract from the Soochow astronomical chart which reads thus: "Venus was visible in full daylight and, while moving across the sky, rivalled the sun in brightness" (Ref. 9).

The trouble with this reference is that though it is a genuine quote, it does not occur in a catastrophic context, as readers of *WiC* might suppose. There is no mention in the Soochow chart of rains of burning naphtha, earthquakes, upturned skies, or any of the other earth-shattering phenomena associated with V's scenario. Rather, it appears as one item in a list of celestial prodigies that are supposed to have happened in the past, and that were believed to be the result of adverse political circumstances. The Soochow chart tells us that during periods of good government, the sun, moon, and planets move with "regular constancy" but that "if it happens that the emperor interferes with the office of the ministers or the latter usurps the imperial power … the malign influences (planetary) change strangely and behave irregularly."

VENUS—THE STAR THAT SMOKED?
From the Codex Telleriano-Remensis (Ref.3) for the year 1537 A.D. The picture depicts an execution and in the background Venus "smokes."



The claim that Venus once moved across the sky, rivalling the sun in brightness, is one example of such strange and irregular planetary behaviour. But can this prodigy be taken any more seriously than another recorded in the same list — namely, that the planet Mars once wandered off the zodiac and just disappeared! And can either of them be taken any more seriously than a prodigy recorded in the annals of the emperor Sueun, whereby a horse changed into a man? Chinese prodigies are not always terribly believable. There is the occasional suggestion that some of them might have been grossly exaggerated, or even fabricated altogether, for one reason or another (for instance for purposes of revolutionary political propaganda). The day-time visibility of Venus is known to have been regarded as portentous at times of dynastic unrest (Ref. 10), so that it is possible that the Soochow Venus prodigy was actually a bright fireball which was identified as Venus for reasons of political expediency.

What makes it further certain that this Venus prodigy has nothing to do with the global mayhem proposed in *WiC* is the way the Soochow chart fails to class it as a particularly alarming event. After describing the antics of Venus, the chart goes on to say that "in very serious cases" — presumably implying that what has gone before (which includes the Venus prodigy) was not very serious — the planets change into phantom stars or stars of ill omen. Now whatever else might be said of the Venus Comet, there seems no way that it could ever be classed as anything but very serious indeed!

(g) On *WiC* p. 160 [I.8.3] V refers to Augustine's *City of God* (21.8) for a remarkable Venus prodigy:

> "...we read in Varro's book, *On the Race of the Roman People*, that Castor relates, that in that bright star of Venus, which Plautus calls Hesperugo, and Homer 'the glorious Hesperus,' befell a most monstrous change both of colour, magnitude, figure, and motion; the like never was before nor since: and this, say Adrastus of Cyzicus and Dion of Naples (two famous astronomers), befell in the reign of Ogyges." (Tr. J. Healey, 1945).

[Page 25] But has this really anything to do with V's scenario? The only dire consequence of the wayward motions of Venus that Augustine mentions is as follows:

> "This made a foul disturbance in the rules of the astrologers (if there were any then) when they, observing their fixed descriptions of the eternal course of the stars, durst affirm that there never was nor ever would be any such change as this of Venus was."

This is quite a come-down from the catastrophic effects postulated in WIC!

Furthermore, that the prodigy is not what V takes it to be is confirmed later in 21.8 when Augustine writes that some people may not respect Varro's story very much "because this star did not remain long in this new form, but soon resumed its former shape and course again."

So what happened?

A change of colour, magnitude and form is easy enough to account for by effects of refraction in the earth's atmosphere (Ref. 11), but for a long time I was puzzled by the change of motion. I didn't think that such an effect could be produced by atmospheric refraction, but apparently it can. William Corliss (Ref. 11) gives an instance in which the Moon was seen "dancing up and down," and another in which Jupiter was seen to oscillate to the extent of half a degree in all directions. Following up one of Corliss's sources (Ref. 12) yields other cases, notably one of a dancing Venus.

It seems to me, then, that the prodigy to which Augustine refers could well have been just that: a prodigy — a freak of atmospheric refraction.

REFERENCES FOR CHAPTER 6.

1. See P.J. Huber's article in *Scientists Confront Velikovsky* (1977), edited by D. Goldsmith.
2. See L.E. Rose and R.C. Vaughan's article "Analysis of the Babylonian Observations of Venus" in *Kronos* 2.2; also Rose's critique of Huber in *Kronos* 3.2 and 4.2.
3. E.T. Hamy *Codex Telleriano-Remensis* (1899), p. 43.
4. F.H.A. von Humboldt, *Researches concerning the Institutions and Monuments of the Ancient Inhabitants of America* (1814), Vol. 2, p. 174.
5. *Journal of the British Astronomical Association*, June 1948, p. 195.
6. (a) M. Jastrow, *Aspects of Religious Belief and Practice in Babylonia and Assyria* (1911), p. 221; (b) Jastrow's article "The Bearded Venus" in *Revue Archéologique*, Series 4, Vol. 17, pp. 272-273; (c) J. Schaumberger's article on Venus in F.X. Kugler's *Sternkunde und Sterndienst in Babel* (1935), p. 303, 3rd supp.
7. Jastrow — note 6b, p.274; Schaumberger — note 6c, p. 303.
8. B. Schaumberger — note 6c, p. 291.
9. W.C. Rufus and Hsing-Chih Tien, *The Soochow Astronomical Chart* (1945), p. 5.
10. H.H. Dubs, *History of the Former Han Dynasty, by Pan Ku: a Critical Translation with Annotations* (1938), Vol. 3, pp. 350-351.
11. W. Corliss, *Rare Halos, Mirages, Anomalous Rainbows* (1984), pp. 117-118.
12. *The Observatory*, No. 141, pp. 385-386 and No. 142, pp. 404-405.

PANEL 5. POETIC REFERENCES TO THE PLANETS VENUS AND MARS

Virgil talked of "when the Morning Star bedews the earth at sunrise" (*Georgics* 1.288) and "when the Evening Star is cooling the air and the Moon refreshing the glades with dew" (*Georgics* 3.336-337). Pindar said nothing more sinister about the planet Venus than that it was "a sight to see amid the other stars" (*Isthmian Odes* 4.24). Sappho called Hesperus "the fairest of all the stars" (Panel 2, Ref. 4, No. 130). Seneca talked of the grace of the Evening Star and the beauty of the Morning Star (*Hippolytus* 7 4l f.).

First prize for a poetic reference to the Morning Star that is as far away from V's scenario as it is possible to get, must go to Dante (*Purgatory* 1.19-20) for the following:

> "The lovely planet which gives comfort in love was filling the whole eastern sky with laughter."

Just as interesting as the poet's eye-view of Venus is the astrologer's. From Ptolemy's *Tetrabiblos* we glean the following: Venus has "temperate qualities" (1.4) and a generally "favourable temperament" (1.17). Under its good influence happy marriages are contracted and fortunate couples blessed with numerous children (2.8), but under adverse circumstances the planet governs licentiousness (3.14) and debauchery (4.5). Grace and beauty are among its blessings (3.11), and, weather-wise, moistening breezes, and fertilizing showers are produced by its influence (1.19 and 2.8), dampness being particularly marked when it is in Pisces (1.19).

Astrologically, Lucan called Venus "the healthful planet" (1.661) and "mistress of the seeds of all things" (10.208).

I am aware of no poetic references to the planet Mars, though in the Homeric Hymn to Ares the war god is said to whirl his fiery sphere among the planets. Velikovsky refers to this hymn on *WiC* p. 243 [II.3.2]. As indicated in Panel 2, the association of the war god with the planet is almost certainly a symbolic consequence of the fiery red colour of the planet, and not the result of some literal Mars-induced catastrophe. The hymn refers to Ares as "Saviour of Cities" and "helper of men," neither of which relates at all well to V's scenario. If the planet is invoked at all in the hymn it is not by way of begging it to refrain from bombarding the earth with meteoric debris, but by way of asking it to "shed down a kindly ray from above" so as to give strength and courage to the suppliant reciting the prayer!

Some of the blood and fire astrological associations of the planet Mars were mentioned briefly in Panel 2.

PANEL 6. THE GREAT YEAR

[Page 26] One planetary concept that deserves mention here is the Great Year, which Plato mentions in *Timaeus* 39 D. Though the Great Year isn't associated with catastrophe by Plato, it is by other authors, so we consider it here.

Elementary observation of nature reveals cyclic patterns of growth and decay: the Moon waxes and wanes to define the month and as the Sun moves through the signs of the zodiac, the seasons come and go to define the year. The motions of the planets in the vicinity of the ecliptic define further cycles of time, and astrologically these motions were believed to govern the affairs of the world. The Great Year was the ultimate in astronomical cycles. At its beginning all the planets, including the Sun and Moon, were in grand conjunction (that is, in a long straight line in space, or, as seen from the earth, all in the same sign of the zodiac), and the cycle was complete when the planets, having dispersed, came once again into a grand conjunction.

This huge cycle of time, which was variously estimated, seems to have been regarded as the cycle of growth and decay of the World itself. Just as in the ordinary year the world experienced four seasons, so too in the Great Year it experienced four Great Seasons. Corresponding to the heat of the summer solstice in the ordinary year, the World suffered a conflagration in the Great Year. Likewise, corresponding to the wet and cold of the winter solstice of the ordinary year, it suffered a deluge in the Great Year.

As is quite clear from its definition, therefore, the Great Year theory was never anything more than philosophical speculation. It was a web of analogies that had no foundation in fact.

To quote an actual instance of it, here is what Seneca says in his *Natural Questions* (3.29.1):

> "Berosos, who translated Belus, says that these catastrophes occur with the movements of the planets. Indeed, he is so certain that he assigns a date for the conflagration and the deluge. For earthly things will burn, he contends, when all the planets which now maintain different orbits come together in the sign of Cancer, and are so arranged in the same path that a straight line can pass through the spheres of all of them. The deluge will occur when the same group of planets meets in the sign of Capricorn. The solstice is caused by Cancer, winter by Capricorn; they are signs of great power since they are the turning points in the very change of the year." (Translation: T.H. Corcoran, 1972)

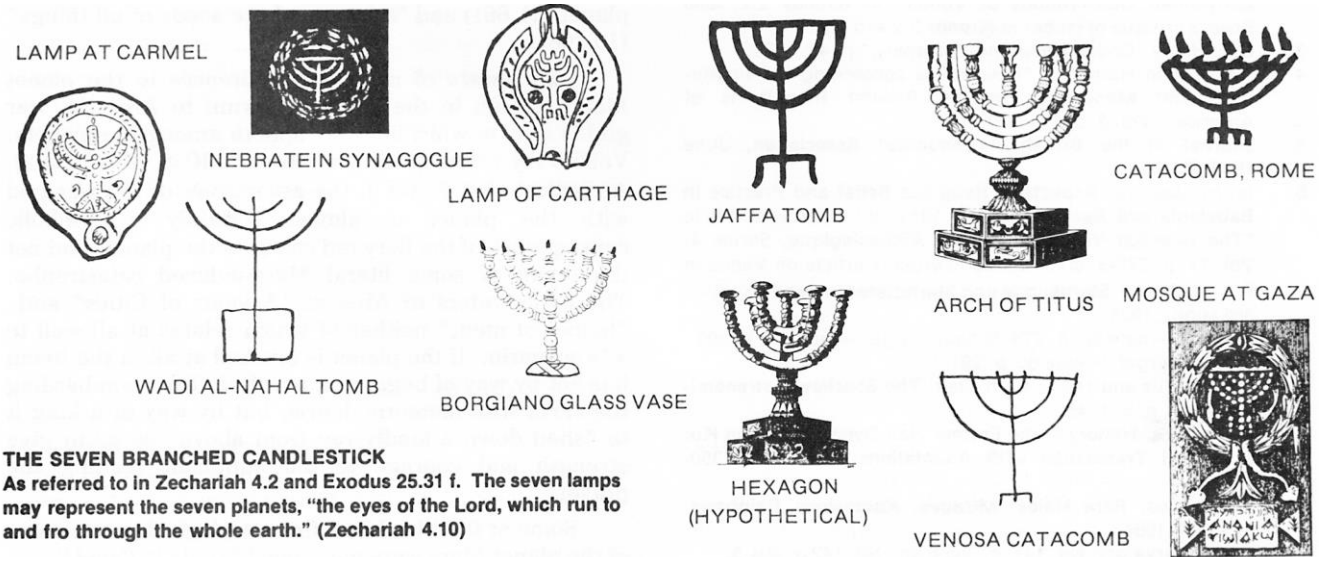
Velikovsky writes of this passage (*WiC* p. 260 [II.4.4]):

> "Disregarding the specific details of this assumption, there still remains a kernel of truth. The catastrophes of flood and of conflagration were ascribed to the influence of planets, and the conjunction was called the fatal moment."

But clearly this will not do. A grand line-up of the planets has nothing in common with V's concept of planetary "collisions." In the Great Year the planets do not leave their regular orbits. On the contrary, the solar system whirls on with perfect regularity like a giant clock marking out the seasons of the Great Year.

Of course, it does make sense to ask why the ancients should postulate alternating fire and water catastrophes, even if they weren't exactly what V had in mind, and we shall discuss this issue in a later chapter on World Ages. But the point is here that V is forcing things when he tries to weave the Great Year doctrine into his own brand of planetary catastrophe.

As stated above, Plato did not associate catastrophes with the Great Year. He defined the Great Year in *Timaeus* 39 D, and dealt with alternating fire and water catastrophes elsewhere, in *Timaeus* 22 B-E, associating them with "a variation in the course of the heavenly bodies." What Plato meant by this will be discussed in a later chapter.



THE SEVEN BRANCHED CANDLESTICK
As referred to in Zechariah 4.2 and Exodus 25.31 f. The seven lamps may represent the seven planets, "the eyes of the Lord, which run to and fro through the whole earth." (Zechariah 4.10)

CHAPTER 7. VENUS-NOGAH AND THE ARCHANGELS

[Page 27] I spent much time poring over the volumes of the *Talmud* and the *Midrash Rabbah* to see whether or not their direct references to the planets bore any relation to Velikovsky's scenario. After all, if V is right, the Exodus took place in the days of the Venus catastrophes, and the Israelites were led out of Egypt by the pillar of cloud and fire, supposedly the planet Venus.

It would not be unreasonable to expect, therefore, some special references to Venus in Jewish lore and literature. Indeed, on *WiC* p. 165 [I.8.7] V leads us to suppose that there is a very concrete reference to the luminous tail of the Venus Comet in the *Tractate Shabbat* of the *Talmud*. According to V the text says that "fire is hanging down from the planet Venus."

Unfortunately, the reference (in *Shabbat* l56a) is not as concrete as V makes out, and any reader who approaches the *Talmud* believing that here is a genuine account of the fiery train of the Venus Comet is in for a grave disappointment.

The context of V's *Tractate Shabbat* "quote" is astrological. It reads as follows in Rabbi Freedman's translation (Soncino Press, 1938):

> "He who is born under the constellation of the sun will be a distinguished man: he will eat and drink of his own and his secrets will lie uncovered; if a thief, he will have no success. He who is born under Venus will be wealthy and unchaste [immoral]. What is the reason? Because fire was created therein [*]. He who is born under Mercury will be of a retentive memory and wise. What is the reason? Because it [Mercury] is the sun's scribe. He who is born under the Moon will be a man to suffer evil, building and demolishing, demolishing and building, eating and drinking that which is not his and his secrets will remain hidden: if a thief, he will be successful. He who is born under Saturn will be a man whose plans will be frustrated. Others say: All [nefarious] designs against him will be frustrated. He who is born under Zedek [Jupiter] will be a right-doing man [zadkan]. R. Nahman B. Isaac observed: Rightdoing in good deeds. He who is born under Mars will be a shedder of blood. R. Ashi observed: Either a surgeon, a thief, a slaughterer, or a circumciser."

A number of comments here:

(1) Footnote [*] to the above reads: "During the hours ruled over by Mercury," though for Mercury we should clearly read Venus. (Every hour of the day is assumed to be governed by one or other of the planets, the order of succession being Mercury, Moon, Saturn, Jupiter, Mars, Sun and Venus. Reference: *Tractate Erubin* 56a.)

(2) How V arrived at "fire is hanging down from the planet Venus" and turned this into a "very concrete" reference to the tail of the Venus Comet is a mystery. I presume he has somehow re-translated the phrase "fire was created therein."

(3) Notice how the influence of the Moon ("building and demolishing, etc.") is derived from its waxing and waning, and how the association of Mars with bloodletting (mentioned in Panel 2) is derived via the red colour of the planet. I would guess that the Venus-fire association is of the same ilk.

Now the foregoing is the principal reference to the planets in the *Talmud*. Yet neither this nor any other direct reference to Venus (or Mars) lends any real support to V's scenario. Indeed, in *Shabbat* 156b there is a rather obscure discussion about whether or not Israel as a nation is subject to (astrological) planetary influence. But there is no particular mention of Venus in it, and no mention either of the pillar of cloud and fire of the Exodus, so that one is left wondering how, if V is correct, the Rabbis succeeded in losing such complete track of their planetary "deliverance" from Egypt! Collective amnesia again?

On *WiC* p. 166 [I.8.7] V tells us that the *Midrash Rabbah "Numbers" XXI* describes how "the brilliant light of Venus blazes from one end of the cosmos to the other end." Unfortunately, like the fire "hanging down from the planet Venus" in *Shabbat*, this is another of those "quotes" that isn't quite as straightforward as V leads his readers to suppose. To explain it requires something of a digression.

Midrash Rabbah "Numbers" is a running commentary on the Biblical Book of Numbers. Book 21 of this commentary deals with Numbers 25:11-29:35, and V's "Venus quote," as I call it, occurs in its 22nd section. This section is a rather obscure digression on the implications of Numbers 28:2, a digression that encompasses a cross reference to Isaiah 4:5. It is this verse from Isaiah that is relevant to V's "Venus quote." The relevant portion of the *Midrash* reads as follows in J.J. Slotki's translation (Soncino Press 1939):

> "Yet the Holy One, blessed be He, will in the future prepare for every single righteous man a canopy of clouds of glory, as is borne out by the text, 'The Lord will create over the whole habitation of mount Zion, and over her assemblies, a cloud and smoke by day, and the shining of a flaming fire by night; for over all the glory shall be a canopy' (Isaiah 4, 5). What is the use of smoke under a canopy? Whosoever sets fuming and evil eyes upon disciples in this world, his canopy will be filled with smoke in the World to Come. What is the use of fire under a canopy? We are informed by this that the canopy of every righteous man will be scorched by the fire from the canopy of the one who is superior to him. The expression shining indicates that its brilliance will shine from one end of the world to the other."

The reader will see that this last sentence is V's "Venus quote," but that Slotki's version is nothing like V's. It is the shining of the Lord's flaming fire by night (Isaiah 4:5) whose brilliance will shine from one end of the world to the other, not the rampant Venus Comet. Slotki's translation doesn't even mention Venus, and the whole context of V's "quote" is not in the least catastrophic.

[Page 28] So how has V arrived at his version?

The answer lies in the word "shining." Isaiah 4:5 talks of the shining of a flaming fire and the *Midrash* says that it is the word *shining* that "indicates that its brilliance will shine from one end of the world to the other." But why should the word *shining* be said to indicate this?

This is where Venus *may* come in, for the traditional Hebrew name for the planet Venus is *Kokab Nogah* — the shining (or brilliant) planet — "*Kokab*" means planet and "*nogah*" shining. The *Midrash* commentator may be assuming that, since Isaiah uses the same word, *nogah*, for shining as is applied to Venus, therefore the fire of Isaiah 4:5 must shine, like the light of Venus, from one end of the world to the other — that is, all over the world. The *Midrash* and the *Talmud* are full of such quizzical deductions based on the usage of particular words (there are a number of words for shining that Isaiah could have used), so that it is not at all unlikely that Venus figured in this sort of way in the-mind of the *Midrash* commentator. But this is a very long way from V's assertion that the *Midrash* describes how the Venus Comet once blazed from one end of the cosmos to the other end!

Incidentally, we can at this point dispose of the "Venus" that V claims on *WiC* pp. 175-176 [I.9.3] is to be found in Isaiah 9:2. According to V, Isaiah 9:2 should be translated "They that dwell in the land of the shadow of death, the light of Nogah was upon them" — that is, the light of Venus was upon them. The Bible, however, renders this, "they that dwell in the land of the shadow of death, upon them hath the light shined." What has happened here is that V has turned the word *nogah* (= shined) in Isaiah 9:2 into a reference to Venus! I need hardly add that the word *nogah* does not always refer to Venus, any more than the word "iron" in English always refers to an implement for removing the creases from newly washed clothes!

Which brings us to Isaiah generally. Velikovsky insists on *WiC* p. 251 [II.3.7] that "the Book of Isaiah, in every chapter, provides abundant evidence that with the removal of Venus, so that it no longer crossed the orbit of the earth, danger was not eliminated, but became even more threatening."

But does the Book of Isaiah really contain abundant references to the planets Venus and Mars? Hardly, for in its 66 chapters there is only one direct and unequivocal reference to the planet Venus, and that is the reference to Lucifer in Isaiah 14:12. But as we saw in Chapter 3, this verse is actually quite consistent with the uniformitarianly stable Venus known to us today, since any "catastrophe" relates to the King of Babylon rather than to the planet.

As we have just seen, V seeks to derive a second reference to Venus from the word *nogah* in Isaiah 9:2, a derivation which seems contrived to say the least, but which pales into insignificance besides the flourish with which V seeks to derive a reference to Mars from Isaiah 33:3 (*WiC* p. 280 [II.5.4]).

Isaiah 33:3 reads: "At the noise of the tumult the people fled; at the lifting up of thyself the nations were scattered." Now, the Hebrew word for "tumult" here is *hamon*, and Hamon is an alternative name for the angel Gabriel, who was sometimes associated with the planet Mars (see below). Pulling these and one or two other threads together (for instance, Gabriel, like the god Mars, was associated with the founding of Rome), we can render Isaiah 33:3 as "at the noise of the planet Mars the people fled …"

Now it seems to me that if Isaiah were really writing about an era of planetary mayhem, then V wouldn't have had to go to such tortuous lengths to find "references" to the planets. They would be there for all to see. Yet V bases his planetary interpretation of Isaiah on just one metaphorical reference to the Morning Star (Isaiah 14:12) plus two pieces of rather contrived wordplay (Isaiah 9:2 and 33:3). As I see it, such a paucity of hard evidence casts very great doubts indeed on V's claims.

After combing the many volumes of the *Talmud* and *Midrash Rabbah* in search of direct references to the planets Mars and Venus which lent *clear* support to V's scenario, I eventually came to the conclusion that there weren't any.

However, on *WiC* pp. 279 f. [II.5.4], V argues that the Archangel Gabriel represents Mars and that the Archangel Michael represents Venus, and that this being the case there are actually a number of references to the scenario of *WiC* — albeit symbolically expressed — in the pages of the *Midrash* and *Talmud*.

Personally I find this an astonishing claim. Call me naive if you like, but I find it incredible that the rabbis should say lots of innocuous things about the planet Venus under its real name, and then tell the awful "truth" about it under the name of Michael! It seems to me rather like writing the life story of Margaret Thatcher but referring to her by the name of Phoebe Proudfoot every time it comes to talking about her economic policies and spiralling unemployment! If this is collective amnesia at work, then its function seems to be indistinguishable from that of giving V a carte blanche to ignore *direct* evidence that doesn't square up with his hypotheses, and to accept in its stead much more dubious *indirect* (symbolic) "evidence" that only *might* mean what V thinks it does.

Now, the archangel Gabriel was associated with the planet Mars in some medieval astrological texts (Ref.

1), but more usually he was associated with the Moon (Ref. 2), an important point which we shall refer back to later.

A possible explanation for Gabriel's association with Mars lies in the fiery red colour of the planet, for Gabriel was the angel associated with the element of fire (cf. Panel 2 on Mars) and the metal gold (Ref. 3). I do not know why Gabriel was more often associated with the Moon, but doubtless the reasons were similarly symbolic.

[Page 29] As for V's association of Michael with Venus, there is no evidence for this at all. Michael's usual association was with Mercury, though sometimes he was associated with the Sun, and less often with Saturn (Refs. 1, 2, 3).

Now, the fact that Michael was not so tied to Mercury that he couldn't be transferred to the Sun or Saturn as rabbinical fancy dictated, or that Gabriel was not so strongly attached to the Moon that he couldn't sometimes be reassigned to Mars, suggests that the associations between angels and planets were of fairly peripheral significance and of a symbolic nature. This in itself is hardly consistent with V's view, for the importance of Michael and Gabriel in Israel's history rests, if V is correct, on their literal planetary interventions.

According to *The Jewish Encyclopedia* the name Gabriel means "man of God." He appears in Daniel 8:16-26 and Daniel 9:21-27 in order to explain Daniel's visions for him, and it is he who announces to Mary the coming of Jesus in Luke 1:19-31. In addition it was Gabriel who:

(1) was responsible for the overthrow of Sodom:
(2) was the "man clothed with linen" in Ezekiel 9:3 & 10:2;
(3) slew the army of Sennacherib (according to *Tractate Sanhedrin* 95b);
(4) was responsible for the ripening of the fruits of the field.

Michael, meanwhile, as the tutelary prince or guardian angel of Israel, appears in Daniel 10:21 and Daniel 12:1. He is the angel of forbearance and mercy (Enoch 40:9) who is said to have taught Enoch the mysteries of clemency and justice (Enoch 71:3). Popular legend also supposes that it was Michael who was the teacher of Moses. Looking to the future, at the resurrection it will be Michael who will sound the trumpet for the graves to open and the dead to arise. According to others, when the Messiah comes, Michael and Gabriel will station themselves at the entrance to paradise, and in the name of God greet the just. In addition to these we read how it was Michael who:

(1) rescued Abraham from the fiery furnace into which he had been thrown by Nimrod (according to *Genesis Rabbah* 44.16);
(2) announced to Sarah that she would bear a son (Genesis 18:10);
(3) rescued Lot at the destruction of Sodom;
(4) prevented Isaac from being sacrificed by his father;
(5) wrestled with Jacob (Genesis 32:25);
(6) led the Israelites during their 40 years of wandering;
(7) delivered the Tablets of the Law at Sinai;
(8) destroyed the army of Sennacherib (according to *Exodus Rabbah* 18.5);
(9) attempted to prevent Israel from being led into captivity by Nebuchadnezzar, but failed because the sins of the people were so great.

Quite clearly, then, V's scenario "works" only on selected bits of the characters of Gabriel and Michael — so what of the rest? Put another way, have we really any a priori grounds for believing that, in the case of Michael, items 6 and 8 have any more to do with the planet Venus than items 1 and 2 have to do with the Pole Star? In the case of Gabriel, it would clearly be absurd to claim that it was the planet Mars that explained Daniel's visions and announced the coming of Christ, but is it any less absurd to claim that it was the planet Mars that slew Sennacherib's army (*WiC* pp. 279-280 [II.5.4])? Indeed, does not point 3 of Gabriel's biography, taken in conjunction with Gabriel's association with the Moon, imply a lunar destruction of Sennacherib's army that is every bit as reasonable as V's Martian one? And returning to point 8 of Michael's biography, can this not be taken in conjunction with Michael's association with Mercury to indicate yet another "possibility" for planetary destruction?

Further to point 3 of Michael's biography, *Baba Mezia* 86b tells us that Michael rescued Lot, but that it was actually Gabriel who overturned Sodom (point 1 of Gabriel's biography). There is thus as much "evidence" that the destruction of Sodom occurred in the midst of a Mars-Venus (or Moon-Mercury!) conflict as there is for the corresponding destruction of Sennacherib's army. Yet as I understand it, this is quite inconsistent with the planetary chronology of WIC. (The destruction of Sodom and Gomorrah happened fully 1000 years before the proposed Mars-Venus clashes, which V dates to the 9th-7th centuries BC.)

Finally, taking the characters of Michael and Gabriel *as a whole*, I cannot help but think that the ancient astronaut brigade would make better sense of these than V does. Indeed, W.R. Drake has already made a start on this in his book *Gods and Spacemen in Ancient Israel* (1976). This is not to say that I am a believer in ancient astronauts, of course. I make the comparison to illustrate V's weaknesses rather than Drake's strengths.

REFERENCES

1. L. J. Trachtenberg, *Jewish Magic and Superstition* (1939), pp. 250-251.
2. As Ref. l; also L. Ginzberg's *The Legends of the Jews* (1925), Vol. 5, p. 164.
3. *The Jewish Encyclopedia*, articles on Gabriel and Michael.

CHAPTER 8. MORE ABOUT THE PLANETS

[Page 30] On *WiC* p. 167 [I.8.7] Velikovsky (V) tells us that in Samoa the natives relate to this day how "the planet Venus became wild and horns grew out of her head." Unfortunately, this "quote" is not a quote at all, and if we follow up V's source here (Ref. 1), we find a story that is far removed from the scenes of cosmic catastrophe portrayed in *Worlds in Collision (WiC)*.

Velikovsky's source repeats a legend about a girl called Tapuitea, who was married to the king of Fiji and had two sons called Toiva and Tasi. For some reason not stated, Tapuitea became wild, horns grew out of her head, and she took to cannibal practices. After she had eaten a number of Fijians, her two sons, worried that they might be next on the menu, fled to Samoa. But Tapuitea pursued them, and Tasi became so frightened that he got Toiva to bury him alive. Eventually Tapuitea caught up with Toiva, but instead of eating him, she declared that from then on she was going to give up cannibalism and go up to the heavens, never to return. Thus she became Tapuitea, the planet Venus, and she promised always to shine down on Toiva as the Evening Star to give him light for his evening meal, and again as the Morning Star to help him catch pigeons.

Quite what this tale of cannibalism has to do with Venus hurling down burning naphtha and meteorites in 1500 BC is something of a mystery.

Equally puzzling is V's claim that in the *Atharva Veda* the planet Venus is compared to a bull: "As a bull thou hurlest thy fire upon earth and heaven" (*WiC* p. 178 [I.9.3]).

Now, this quote comes from verse 10 of the so-called Hymn to the Honey Lash (Ref. 2), but it does not refer to the planet Venus, as V claims. It occurs, instead, in the following meteorological context: "The thunder is thy voice, O Prajapati; as a bull thou hurlest thy fire upon the earth. From the fire, and from the wind the honey lash hath verily sprung, the strong child of the Maruts."

Now Prajapati is not Venus but the master of created beings, the father and protector of those who beget. Here he appears as a bull (a procreative agency) in a meteorological setting — his voice is the thunder and his fire, presumably, the lightning. Certainly the Maruts are storm gods (see below) and it appears fairly likely that the honey lash is connected with fertilizing rain. Thus the burning naphtha of a horned Venus Comet doesn't enter into it.

But it is the Maruts that furnish us with many illuminating examples of the way in which V edits out textual details that don't fit in with his theories. We shall here refer to F. Max Müller's translation (Ref. 3) of the various Vedic hymns devoted to the Maruts, this being the translation which V himself uses in *WiC* pp. 270 f. [II.5.2]. In what follows. 1.171.5 will mean Mandala 1, Hymn 171, verse 5, for example.

According to V, the Maruts are not storm gods but small comets created when Venus clashed with Mars. Many of these followed Mars on its path through the solar system, and when Mars approached the Earth, these new-born comets "added to the terror."

To take a particular instance of how V edits out the more obvious storm details from the hymns to produce his cometary/meteoric deities, consider the following. On *WiC* p. 271 V reminds us that when meteorites enter the Earth's atmosphere they make "a frightful din." He then quotes these lines from I.38.9-10:

> "Even by day the Maruts create darkness ... Then from the shouting of the Maruts over the whole space of the Earth, men reeled forward."

But look at what V has edited out: here is a fuller quote:

> "Even by day the Maruts create darkness with the water bearing cloud, when they drench the earth. Then from the shouting of the Maruts over the whole space of the earth, men reeled forward."

The darkness that the Maruts create is clearly the darkness that precedes the storm, and the shout of the Maruts the booming noise of the thunder. (Compare the parallel "shout" in the storm sequence in Thomas Hardy's *Far from the Madding Crowd*, ch. 37.)

Again, on *WiC* p. 271, V quotes from I.172. The complete text of this hymn, which, like others, is clearly titled *To the Maruts (The Storm Gods)*, reads thus:

1. "May your march be brilliant, brilliant through your protection, O Maruts, you bounteous givers, shining like snakes!
2. "May that straightforward shaft of yours, O Maruts, bounteous givers, be far from us, and far the stone which you hurl!
3. "Spare, O bounteous givers, the people of Trinaskanda, lift us up that we may live."

Obviously the storm gods are "bounteous givers" insofar as they bring life-giving rain, but they are also dangerous, and verse 2 asks that the "straightforward shaft" (lightning?) and "the stone" (thunderbolt) strike the earth far away from the people. This dual bounteous but dangerous nature works only if the Maruts are storm gods. It doesn't work for V's comets.

Incidentally, I would suggest that the shining snakes in verse 1 of the above are not serpentine comets but lightning snakes — a representation of lightning zig-zagging its way across the sky (again, compare Hardy's storm sequence referred to above.)

[Page 31] There are many details in the hymns to the Maruts that prove them beyond doubt to be storm gods, not comets. Thus in I.39.3 the Maruts "overthrow what is firm ... and pass through the trees of the earth, through the clefts of the rocks …"; in I.64.5 they make winds and lightnings by their powers; in I.19.7 they "toss the clouds across the surging sea"; and in V.58.3 they "stir up the rain." Finally, if the Maruts are marauding comets, as V claims, it is difficult to see why in some of the hymns dedicated to them we find pleas for "an invigorating autumn with quickening rain" (for example, I.166.15; I.167.11; I.171.6)!

On *WiC* p. 276 [II.5.2] V claims that "the terrible ones" of Isaiah 25:4-5 and 29:5 are another representation of his Marut-comets. But there is really no evidence for such a claim. Velikovsky quotes Isaiah out of context, and when the proper context is considered it seems quite clear that the terrible ones are human and that, in the words of F.C. Cook's *Holy Bible with Commentary*, they are "those who had vast power and were wont to use it without restraint." Thus in Isaiah 29:20 "the terrible one is brought to nought, and the scorner is consumed"; in Isaiah 13:11 we have "the haughtiness of the terrible"; in Isaiah 25:3 "the city of the terrible nations" and in Isaiah 49:25 "the prey of the terrible."

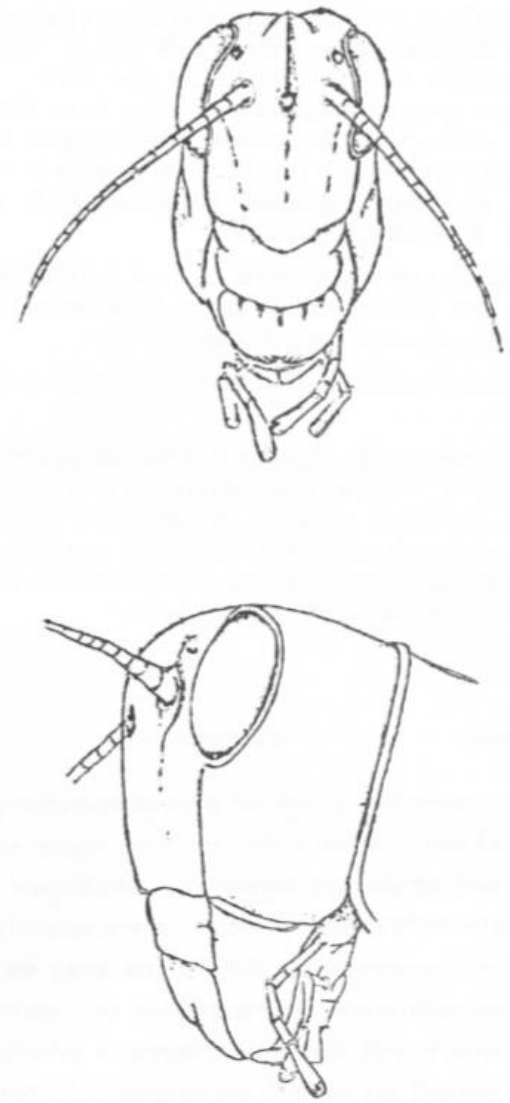
On *WiC* pp. 272-274 [II.5.2] V claims that yet another representation of his comets is to be found in Joel 2. But if we turn to the Book of Joel, we find nothing like a decent description of a band of marauding comets, nor any reference to the planets Mars and Venus. Instead we find references to a devastating plague of locusts (Joel 1:4 and 2:25) and a severe drought (1:10-12 and 1:20). These events are taken by Joel to be a signal that the Day of the Lord is at hand (2:1) and the prophet launches into an imaginative description of this coming Great Day. It is from this description that V draws his Joel extracts.

The first point, then, is that V's quotes from Joel are prophecies rather than historical records. The second point is that far from being cometary references, these verses actually seem to be imaginative enhancements of the plague of locusts described in Joel 1.

Thus the "great people" of 2:2 are the agents of the Lord, and their fire (2:3) devours the land in an unmistakably locust-like fashion. These agents and their devouring advance clearly correspond to 1:6-7.

As for their horse-like appearance (2:4), this is almost certainly a reference to the supposed resemblance between the head/mouth of the locust and those of the horse. The resemblance is also noted in Revelations 9:7 and indeed is reflected in modern German and Italian words for locust, *Heupferd* and *cavelletta*.

The sound of their advance and their perfect battle-array (2:5) are like those of a swarm of locusts, as are the inexorability of their advance (2:7-8) and the



THE HORSE.LIKE FEATURES OF THE LOCUST
"The shapes of the locusts were like unto horses ..."
Rev: 9.7 From **The Locust as a Typical Insect**, by W.M. Clarke and M.M. Richards (1976).

thoroughness of their destructiveness (2:9).

I recommend that you read the actual text of Joel and virtually any commentary on it (for instance, *Peake's Commentary*, or the *Interpreter's Bible*). The picture painted is very different from V's.

We now consider a very different type of text used by V, the *Surya Siddhanta*, a Hindu astronomical work dating from about the 4th or 5th century AD. We refer to the translation by Ebenezer Burgess, this being the translation used by V (Ref. 4).

Velikovsky's main reference to the *Surya Siddhanta (S.S.)* comes in his section "Yuddha" (*WiC* pp. 248-249 [II.3.5]), where he refers to the 7th chapter of the work, "Of Planetary Conjunctions." Velikovsky takes the detailed account of various types of planetary conjunction to refer to actual close approaches of the planets.

[Page 32] But this is not actually the case. The text is talking of conjunctions in the same sense that a modern astronomer talks of them — that is, apparent close approaches, in a purely angular sense (hence *S.S.* 7.2-6), as seen projected against the background of the stars. Two planets come into conjunction not when they literally bump into each other, but when they happen to lie approximately in the same line of sight — that is, when they have the same celestial longitude (*S.S.* 7.6). Indeed, *S.S.* 7.24 tells us just this:

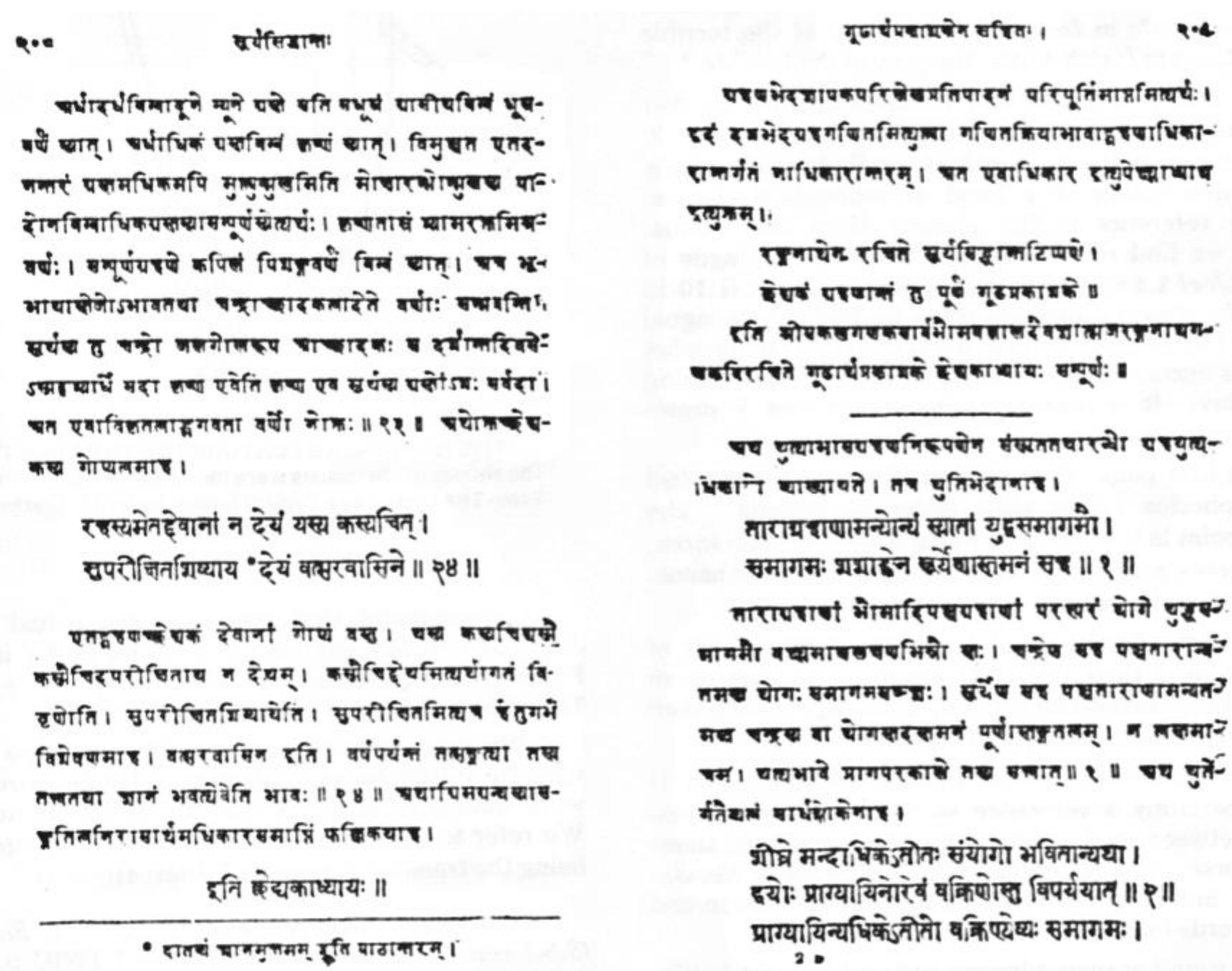
> "Unto the good and evil fortune of men is this system set forth: the planets move upon their own paths, approaching one another at a distance."

As Burgess writes of this verse, the last of *Surya Siddhanta* 7:

> "The final verse of this chapter is a caveat against the supposition that, when a 'conjunction' of two planets is spoken of, anything more is meant than that they appear to approach one another; while nevertheless, this apparent approach requires to be treated of, on account of its influence upon human fates."

The purely angular — and astrological — nature of these planetary conjunctions seems clear enough from such verses as 7:19, where we read that "an encounter (*yuddha*) is called 'ray-obliteration' (*ancuvimarda*) when there is mutual mingling of rays; when the interval is less than a degree, the encounter is named 'dexter' (*apasavya*)." The symbolic implication of a conjunction, which is seen as a sort of contest between the planets involved, is based on their relative brightness, their colours, and whether the brighter passes to the north or south of the fainter. "Venus is generally victor," we read in *S.S.* 7.23, "whether situated to the north or to the south."

As Burgess rightly remarks of *S.S.* 7.18-23, "In this passage … we quit the domain of astronomy, and trench upon that of astrology." Velikovsky is not happy with this appraisal, though. To him there is more to these conjunctions than mere approaches in celestial longitude. But really the whole tone of the text, with its emphasis on "mutual mingling of rays," colour, brightness and north/south passages, lends little support to V's assertions.


१०८ सूर्यसिद्धान्तः

रहस्यमेतद्देवानां न देयं यस्य कस्यचित् ।
सुपरीक्षितशिष्याय *देयं वत्सरवासिने ॥ २४ ॥

गूढार्थप्रकाशकेन सहितः । १०९

तारायहाणामन्योन्यं स्यातां युद्धसमागमौ ।
समागमः शशाङ्केन सूर्येणास्तमनं सह ॥ १ ॥

शीघ्रे मन्दाधिकेऽतीतः संयोगो भवितान्यथा ।
द्वयोः प्राग्यायिनोरेवं वक्रिणोस्तु विपर्ययात् ॥ २ ॥
प्राग्यायिन्यधिकेऽतीतो वक्रिण्येष्यः समागमः ।

THE SURYA SIDDHANTA, ChaPter 7
Astrology or catastrophism? From a printed edition published in Calcutta in 1859.

[Page 33] We turn now to the *Bundahis* (Ref. 5), an Iranian work that V tells us (Ref. 6) refers to a war between the stars and planets. It does, but not quite in the context that readers of *WiC* might suppose.

The content of the *Bundahis* is best explained by quoting the introduction to West's translation:

> "The work commences by describing the state of things in the beginning; the good spirit being in endless light and omniscient, and the evil spirit in endless darkness and with limited knowledge. Both produced their own creatures which remained apart, in a spiritual or ideal state, for 3000 years, after which the evil spirit began his opposition to the good creation under an agreement that his power was not to last more than 9000 years, of which only the middle 3000 were to see him successful. By uttering a sacred formula the good spirit throws the evil one into a state of confusion for a second 3000 years, while he produces the archangels and the material creation, including the sun, moon, and stars. At the end of that period the evil spirit, encouraged by the demons he had produced, once more rushes upon the good creation, to destroy it. The demons carry on conflicts with each of the six classes of creation, namely, the sky, water, earth, plants, animals represented by the primeval ox, and mankind represented by Gayomard; producing little effect but movement in the sky, saltiness in the water, mountains in the earth, withering in plants, and death to the primeval ox, and also to Gayomard after an interval."

The *Bundahis* is thus a creation epic which seeks to explain how nature came to have evil as well as good aspects: the evil aspects were introduced when the evil spirit and his demons attacked a good creation.

Corresponding to the six classes of creation (sky, water, earth, plant, animal and man) we have a six-fold attack by the forces of evil (*Bund*. 3.10 f.), and this is where V's catastrophes come from. The shattered sky and V's "war between the stars and the planets" (*WiC* p. 72) are actually parts of the account of the demons' attempts to disrupt the heavens (more details shortly). Likewise, V's blight on the vegetation (*WiC* p. 136) and his plague of vermin (*WiC* p. 182) are actually demonic corruptions of the plant and animal kingdoms, respectively. They explain the presence in nature of crop diseases and verminous creatures like snakes and scorpions. That these attacks by the forces of evil are not what V takes them to be is further shown by the fact that:

(a) The attacks are deemed equally responsible for the moral corruption of man: they instil in mankind such qualities as avarice and lust.

(b) The chief agitator amongst the demons who persuade the evil spirit (Aharman) to launch his attack on the creations of the good spirit (Auharmazd) is Geh, "the personification of the impurity of menstruation" (West's footnote, p. 15).

But let us take a closer look at V's war between the stars and planets. In the first place, it is not true to say as V does on *WiC* p. 72 and p. 182, that the *Bundahis* describes a series of catastrophes that were caused by the planets. The planetary episode of the *Bundahis* is in fact just one small part of the six-fold attack by the forces of evil and is in no way the root cause of that attack, or even the most prominent aspect of it. Velikovsky put quite a misleading emphasis on this.

The story of the planetary battle begins in Chapter 2 of the *Bundahis*, when Auharmazd creates the celestial sphere and the fixed stars, notably the constellations of the zodiac, followed by the Moon and the Sun.

The fixed stars are likened to an army 6480 thousand strong, destined to do battle with the destroyer when he comes. (Auharmazd, being omniscient, knows that Aharman will eventually launch an attack on his creation. Aharman, not being quite so omniscient, doesn't know that he is destined to lose). Consequently, five leaders are appointed from among the stars to prepare for the coming attack on the sky, these being (*Bundahis* 2.7-8) Tistar (Sirius), Haptok-ring (Ursa Major), Vanand (Fomalhaut?), Sataves (Antares?) and the Rapitvin (Regulus?).

Now, in the beginning, in the untarnished good creation, it would appear that the heavens were stationary, and the Sun and Moon motionless. At least, *Bundahis* 3.20 would seem to imply that the daily rotation of the celestial sphere, and the motions of the Sun and Moon with respect to the stars were only instituted later, by the evil spirit, as a disfiguration of the good creation. Furthermore, in the beginning there were no planets, for these wandering stars were another "disfiguration" of the sky, created by the evil spirit when he launched his attack.

Now, the five above-named chieftains of the fixed stars join forces with the Sun and Moon, and match themselves against the planetary and demonic agents of the evil spirit. The planets are matched by fixed stars thus: Mercury faces Tistar, Mars faces Haptok-ring, Jupiter faces Vanand, Venus faces Sataves, and Saturn faces Rapitvin. As for the Sun and Moon, who are agents of the good spirit, remember, their demonic opponents are Muspar and Gokihar. But who are they?

All the (then known) planets having been mentioned by name in the line-up, it is quite clear that neither Muspar nor Gokihar are planets, and in his footnote to *Bundahis* 5.1, West suggests that they are comets and meteors respectively. The phrase "provided with tails," which is applied to them in *Bundahis* 5.1, certainly supports this view.

The reader should now turn to *WiC* pp. 249-250 for V's view of all this, for there are three major objections to it:

1. Gokihar is not a planet and certainly isn't Mars, since the two are mentioned quite distinctly in the Bundahis.

2. Muspar is a comet but has nothing to do with Venus, again since the two are mentioned as distinct entities.
3. Tistar (= Tistrya) is the fixed star Sirius and not, as V has it, "apparently Venus." We shall return to Tistar later.

[Page34] When one reads the actual text of the *Bundahis*, and sees what it is really all about, it becomes clear that V has twisted it into something it isn't. What it is, is a fanciful explanation of the way the world came to be as it is — a mixture of good and evil traits. What it isn't, is a description of catastrophes induced by the planets Mars and Venus in the 8th century BC or thereabouts.

Before moving on, we might ask why the planets should be regarded as the agents of the evil spirit. One answer appears to be astrological, as is indicated by the following passage from *Minokhirad* 12.7-10:

> "And, afterwards, Aharman produced those seven planets, such as are called the seven chieftains of Aharman, for dissipating and carrying off that happiness from the creatures of Auharmazd, in opposition to the sun and moon and those twelve constellations. And as to every happiness which those constellations bestow on the creatures of Auharmazd, those planets take away as much of it as it is possible for them (the constellations) to give, and give it up to the power of the demons and fiends and the bad." (Ref. 7)

The *Bundahis* itself is not very explicit about why the planets are evil, though their motions clearly have something to do with it (compare the "evil" overtones of the motions of the Sun and Moon, and the diurnal revolution of the sky). *Bundahis* 3.20 tells us that after the attack "the world's struggle … was with the constellations," which may or may not be astrological, and *Bundahis* 3.25 says that the planets, in the attack, dashed against the celestial sphere and "mixed the constellations." This rather suggests that they "disfigured" the sky by disrupting the familiar fixed-star patterns of the constellations. In any event, there is no indication that they gained their evil reputations for reasons anything like those posited by V.

Turning from the *Bundahis* to the *Zend Avesta*, now, let us consider Tistar/Tistrya. As mentioned above, Tistrya is the fixed star Sirius and not, as V has it, the planet Venus.

The part of the *Zend Avesta* with which V is most concerned in *WiC* (Ref. 8) is the *Tir Yast*, a collection of verses devoted to Tistrya and his exploits. According to Darmesteter's introduction (Ref. 9):

> "This Yast is a description of the production of the rain through the agency of the star Tistrya. It has to struggle against the Daeva of Drought, Apaosha, is first overcome and conquers at last. This seems to be a refacimento of the old storm myths, which have been renewed in so far as the role of the hero in the original myth has been transferred to a star ... Tistrya is Sirius. It presides over the first month of summer. This Yast appears thus to have been written in a part of Iran where the dog-days must have fallen in July, and the rainy season began in the last days of July, unless the place of Tistrya in the calendar has been changed at some later period."

That Tistrya is a bringer of rain is made clear at several points in the *Tir Yast*. Thus in v. 1 we read: "I will sacrifice unto the star Tistrya, that gives the fields their share (of waters);" and in v. 12: "We sacrifice unto the rains of Tistrya." Again, in v. 45, Tistrya is called "the most beneficent amongst the stars that have in them the seed of the waters;" and in v. 49 he is called "the lord of a thousand boons." Such epithets would hardly have been applied to V's Venus Comet!

The *Tir Yast's* account of the battle between Tistrya and Apaosha, the demon of drought, is told in vv. 10-34, and it is from here that V derives some of his Tistrya "Venus" quotes.

During the battle Tistrya takes on three forms: that of a man, that of a golden-horned bull, and that of a white horse. It is the bull form that V turns into a horned Venus on *WiC* p. 167. Eventually, when Tistrya wins the battle over Apaosha, he cries in triumph: "The life of the waters will flow down unrestrained to the big-seeded corn-fields, to the small-seeded pasture fields, and to the whole of the material world!" (v. 29). He then proceeds to manufacture the rain by boiling up the sea.to make water vapour to make clouds to make rain. This, of course, is where V gets his "boiling sea" quotations from (*WiC* p. 99 and p. 198), and though Sirius clearly doesn't do this literally, it is a graphic way of imagining how he might! (Recall the similarly graphic references to Sirius in Panel 4.)

It remains only for us to see why the priests of Iran (*WiC* pp. 198-199) keep watch on the rising of Tistrya. It has nothing to do with Venus moving irregularly, as V thinks, for the priests are concerned with the rains which they hope Sirius will bring. Thus v. 36 reads:

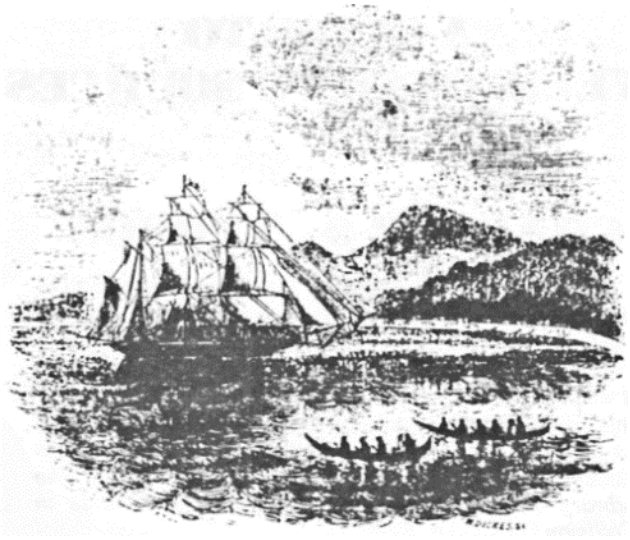
> "We sacrifice unto Tistrya, the bright and glorious star, whose rising is watched by men who live on the fruits of the year, by the chiefs of deep understanding; by the wild beasts in the mountains, by the tame beasts that run in the plains; they watch him as he comes up to the country for a bad year, or for a good year, (thinking in themselves): 'How shall the Aryan countries be fertile?'"

The effects of V's editing are plain to see.

We close this chapter with another of V's supposed references to the Venus Comet, this time from Egypt. On *WiC* p. 166 [I.8.7] V tells us that "the Egyptians under Seti thus described Venus (Sekhmet): 'A circling star which scatters its flame in fire … a flame of fire in her tempest.'" In the first place, though, the Egyptian

goddess Sekhmet is not Venus at all but a divinity associated with the destructive force of the Sun. Second, the proper context of that "circling star" is nothing like the context constructed around it in WIC. It comes not from a tale of planet-induced disasters but from an inscription of Seti I at Karnak. It is a fairly typical piece of pharaonic self-congratulation directed at Amon. The first few verses of it read like this:

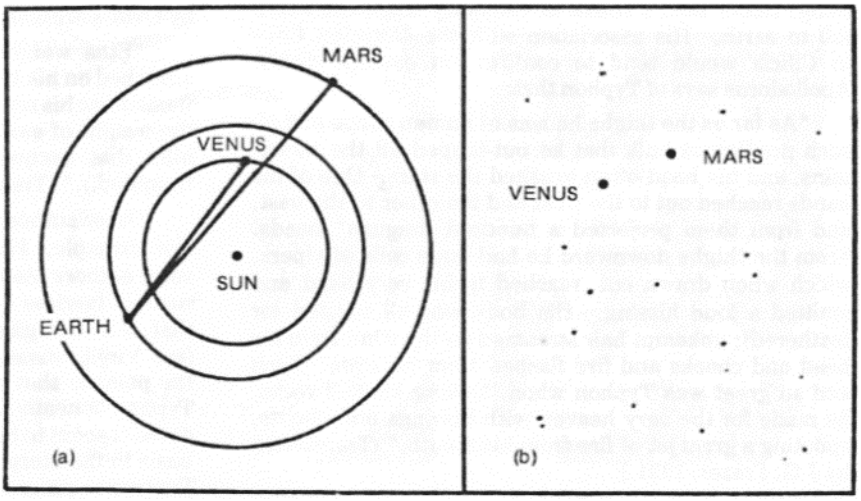
> "1. I have caused them to see thy majesty as lord of radiance, so that thou hast shone in their faces like my image.
>
> 2. I have caused them to see thy majesty, arrayed in thy regalia, when thou takest the weapons of war in the chariot.
>
> 3. I have caused them to see thy majesty like a circling star, which scatters its flame in fire and gives forth its dew.
>
> 4. I have caused them to see thy majesty as a young bull, firm of heart, ready-horned, irresistable.
>
> 5. I have caused them to see thy majesty as a crocodile, terrible on the shore, unapproachable.
>
> 6. I have caused them to see thy majesty like a flame of fire, like the very being of Sekhmet, in her tempest.
>
> 7. I have caused them to see thy majesty as a fierce-eyed lion, so that thou makest them corpses in their valleys." (Ref. 10).



AN ENGRAV]NG OF SAMOA IN THE NINETEENTH CENTURY
Published in **19 Years in Polynesia** in 1861 by Missionary George Turner who collected the legend of Tapuitea.

Sekhmet, in verse 6 (she is a solar deity, if anything, remember), doesn't seem to have anything to do with the circling star of verse 3, and yet V has run the two verses together, and edited out the dew, to make his Venus "quote." In addition, of course, these verses are actually metaphorical praises of Amon and not catastrophic records at all.

THE GODDESS SEKHMET



THE PLANETS VENUS AND MARS
Shown moving into conjunction, (a) as seen "from above;" (b) as seen from the Earth. Clearly no actual "collision" of the planets is involved.

REFERENCES FOR CHAPTER 8

1. R.W. Williamson, *Religious and Cosmic Beliefs of Central Polynesia* (1933), Vol. 1, p. 128.
2. M. Bloomfield (translator), *Hymns of the Atharva Veda*, Sacred Books of the East, Vol. 42 (1897), pp. 229 ff.
3. F. Max Müller (translator), *Vedic Hymns*, Sacred Books of the East, Vol. 32 (1891).
4. E. Burgess (translator), "Surya Siddhanta: A Textbook of Hindu Astronomy", *Journal of the American Oriental Society*, Vol.6 (1860).
5. E.W. West (translator), *Pahlavi Texts*, Pt 1, Sacred Books of the East, Vol. 5 (1880).
6. *Worlds in Collision (WiC)*, p.72 [I.2.5], p. 136 [I.6.1], p. 182 [I.9.5] and pp. 249-250 [II.3.6].
7. E.W. West (translator), *Pahlavi Texts* Pt. 3 (1885), Sacred Books of the East, Vol. 24. See also

Minokhirad 8.17-21, 24.8 and 38.5; also *Sikand-Gumanik Vigar* 4.8-10 (where the planets are called "witches") and *ibid*. 9.17 (where the planets are called "brigands").

8. *Worlds in Collision* (WlC), p.99 [I.4.1], p. 167 [I.8.7] and pp. 198-199 [I.10.2].
9. J. Darmesteter (translator), *The Zend Avesta* pt. 2 (1883), Sacred Books of the East, Vol. 23.
10. J.H. Breasted, *Ancient Records of Egypt*, Vol. 3 (1906), sec. 117.

CHAPTER 9. TYPHON

[Page 36] Velikovsky (V) claims (Ref. 1) that the Greek myth of the battle between Zeus and Typhon relates to the catastrophes involving the planet Venus. The monster Typhon was, in fact, the Venus Comet. Unfortunately, if we turn to the Greek and Roman texts which describe this battle, we find nothing to support this view. Let us begin with one of the most famous accounts of the Zeus-Typhon conflict, that given by Apollodorus in *The Library* 1.6.3. Velikovsky refers to it in *Worlds in Collision* (*WiC*) pp. 87-88.

According to Apollodorus, Typhon was a monster born of Gaea (the Earth) and Tartarus (the Underworld). His parentage, therefore, would tend to suggest that he is an earthbound deity, geologically symbolic, if anything, rather than a comet or cometary fragment which fell to earth. His association with the Corycian Cave in Cilicia would tend to confirm his earthly status. Apollodorus says of Typhon that:

> "As far as the thighs he was of human shape and of such prodigious bulk that he out-topped all the mountains, and his head often brushed the stars. One of his hands reached out to the west and the other to the east, and from them projected a hundred dragons' heads. From the thighs downward he had huge coils of vipers, which when drawn out, reached to his very head and emitted a loud hissing. His body was all winged (or feathered); unkempt hair streamed on the wind from his head and cheeks and fire flashed from his eyes. Such and so great was Typhon when, hurling kindled rocks, he made for the very heaven with hissings and shouts, spouting a great jet of fire from his mouth." (Translation by J.G. Frazer, 1921.]

When the gods saw Typhon rushing at heaven, they fled, leaving Zeus to do battle with him. Zeus pelted him with thunderbolts, and struck at him with an adamantine sickle. Typhon then fled to Mount Casius in Syria, pursued by Zeus, and here they grappled with each other. But Typhon entangled Zeus in his coils, took the sickle from him, and used it to sever the sinews of his hands and feet. Then he bundled the hamstrung Zeus into the Corycian Cave.

With the help of Hermes and Aegipan, Zeus's sinews were restored to him, enabling him to escape, and, pelting Typhon with thunderbolts, Zeus pursued him first to Mount Nysa, then to Mount Haemus, and finally through the Sicilian Sea to Sicily. Here Zeus cast Mount Etna upon him: "That is a huge mountain," Apollodorus concludes, "from which down to this day they say that blasts of fire issue from the thunderbolts that were thrown."

Now if we are to interpret Apollodorus' account of the Zeus-Typhon conflict as anything physical at all (that is, if it isn't "just a story"), then the basis of that interpretation must be volcanic, though we must always beware of reading too much into a myth like this. Nevertheless certain details of Apollodorus' account do tally with a volcanic scenario. The "giant" whose head brushed the stars could easily derive its inspiration from the huge columns of steam, dust and smoke that rise from a volcano, taking on fantastic shapes as they do so (Ref. 2). The fire from Typhon's mouth, the hissings and shouts, and the "kindled rocks" which he hurls, alike need no elaboration. Less certain, now, the hundred dragons' heads could be based on the volcanic lightning that is sometimes seen to accompany an eruption. The "coils of vipers" could belong to the same theme, though they could just as easily find their inspiration in the billows and folds of the column of ash and smoke, whose appearance does sometimes suggest the coils of intertwined snakes. Typhon's "feathered" body (if that is the correct rendering) could have the same origin (Ref. 3).

The idea of the buried Typhon as the motive power behind Mount Etna is likewise graphically indicated by Ovid's *Metamorphoses*, 5.352 ff.:

> "Etna weighed heavily upon his head; as he lay stretched on his back beneath it, he spat forth ashes and flame from his cruel jaws. Often he strove to throw aside the weight of earth, and roll off the towns and massive hills that secured him. At such times the earth trembled..." (Translation by M. Innes, 1979)

Other authors similarly associate Typhon with Etna (for example, Pindar, *Olympian Odes*, 4.6 f.), though some authors place Typhon beneath some other volcano, such as Inarime (= Ischia, Lucan 5.100-1). Others say that it is the giant Enceladus that lies beneath Etna (see Virgil, *Aeneid* 3.578 f.). There are variations, but the point is that as long as our authors are talking of Typhon beneath Etna, or some other volcano, then there doesn't seem to be much point in trying to fit a cometary basis to the story. Especially when, as we saw earlier, Typhon's parentage and his association with the Corycian Cave confirm a geological model anyway. Still less have we any cause to associate Typhon with the birth of the planet Venus!

Let us now turn to Hesiod's *Theogony*. We shall take a look at Hesiod's description of Typhon, and his account of the battle itself, shortly, but first we turn to the end of the story. Unlike Apollodorus and Ovid, Hesiod does not have Typhon (or Typhoeus, as he calls him) buried beneath Etna, he merely has him hurled down to Tartarus, the Underworld:

> "And, angry in his heart, Zeus hurled him down
> to Tartarus. And from Typhoeus come
> the fierce, rain blowing winds — not Boreas
> or Notos or bright Zephyros, for these
> come from the gods, and they refresh mankind —
> but others, reckless gusts, blow on the sea;
> **[Page 37]** some fall upon the misty sea and bring
> calamity to men; as evil storms

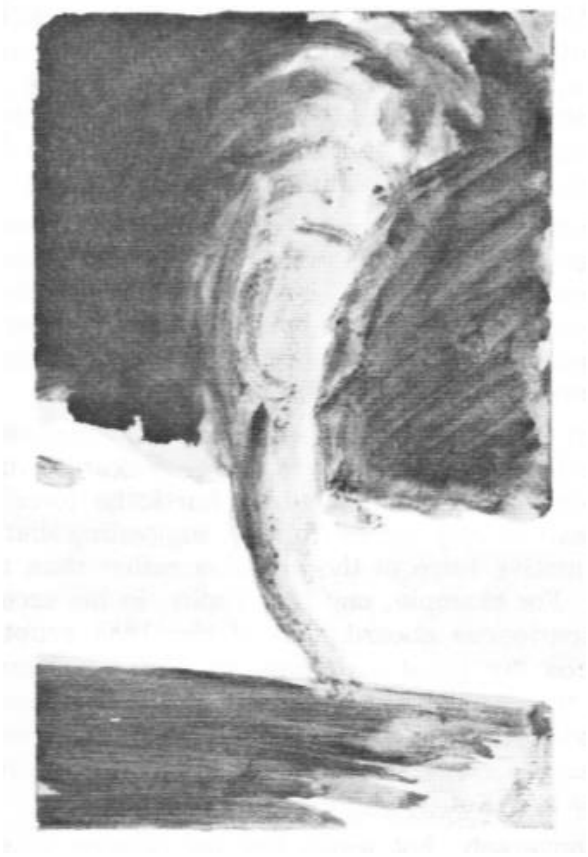
they rage; each blows in season, scattering ships
and killing sailors. Men who meet with them
at sea have no defence against their power.
And sometimes over the vast and blooming earth
they blast the lovely fields of earthborn men
and fill the land with dust and dreadful noise."
(Lines 868-880, translation by D. Wender, 1979.)

Thus Typhon is here not a volcanic monster, but a god of destructive winds, which role is perhaps reflected in the similarity between the words Typhon and Typhoon. In modern Greek the word "typhon" still means typhoon, hurricane or cyclone. The Oxford English Dictionary lists a 16th century English usage of the word *typhon* to denote "a whirlwind, cyclone, tornado, a violent storm of wind, a hurricane."

Turning to Hesiod's description of the monster (lines 823 ff.) now: he has a hundred snaky heads, his eyes flash fire, and he emits strange noises — "all kinds of voices" — bellowings, yelpings and hissings. Earth, sea, and sky resound with the din of battle. There is thunder, lightning, fire and burning hurricane; the whole earth seethes, and the sky and sea likewise. Great waves rage along the shore, and there is an endless quaking, so that even Hades and the Titans under Tartarus are reduced to trembling.

All these, given a little poetic license (Ref. 4), can be related to a wind and storm "collage": the hundred snaky heads whose eyes flash fire could be based on waterspouts or tornadoes, which are often attended by

TPICAL VOLCANIC ERUPTION



TYPICAL TYPHOON

lightning. As for the strange noises, these are easily related to the effects of strong winds. In a storm it certainly does seem as if "earth, sea and sky resound with the din of battle," and with the crash of thunder even Hades and Tartarus might be said to tremble. Finally, the thunder, lightning, fire and "burning hurricane" are all obviously wind/storm related. The waves which rage along the shore could be those whipped up by the formation of a hurricane out at sea (Ref. 5).

Hesiod's description of the actual battle contains similar storm elements. Zeus' arms are specifically "lightning, the blazing bolt, and thunder," and when Typhon is finally struck down "on the jagged mountainside" he is referred to as "the lightning blasted lord," the earth around him being "widely scorched by the awful blast" and "melted in the fire's bright flash." Lightning, of course, does both scorch and melt.

And yet elements of Hesiod's account also seem to relate to a volcanic scenario. Thus lightning, strange noises, boiling sea, tidal waves and earthquakes are all associated with vulcanism, and on this basis some authorities (for example, J.V. Luce) suggest that Hesiod's account may relate to the circa 1500 BC eruption of Thera, though there is no special place-name mentioned in Hesiod to confirm this, and no mention of any catastrophic loss of human life. Unlike Apollodorus and Ovid, who specifically place Typhon under Etna, Hesiod doesn't mention any volcano at all. He simply has

him hurled down to Tartarus, the Underworld, to become the source of destructive winds.

The same apparent combination or confusion of windy storms and volcanic forces is found again in the elaborate version of the Zeus-Typhon conflict contained in Books 1 and 2 of the *Dionysiaca* of Nonnos. The rocks Typhon flings in battle, the showers of poison **[Page 38]** from his throat (lava?), and the terrible rumblings of the earth (2.27 f,. and 2.629-630), all recall the volcanic Typhon, whereas when the monster is finally buried "beneath three-headland Sicily," it is gales at sea and dust storms on land that are the results of his flailing limbs (2.644 f.), these recalling the windy Typhon.

So, what are we dealing with, a stormy Typhon or a volcanic one? The answer may well be *both*, since the two types of phenomena, which are distinct for us, were not clearly differentiated by the ancients. For them earthquakes and volcanoes were "the work of the wind at its most tempestuous" (Ref. 6).

On reflection this was not an unreasonable connection for the ancients to make. Volcanic eruptions are sometimes accompanied by hurricane-force winds and blasts of very hot air (Ref. 3), suggesting that winds are a motive force of the eruption rather than a side-effect. For example, one R.J. Dalby, in his account of his experiences aboard ship of the 1883 eruption of Krakatoa laid great emphasis on the hurricane-force winds that accompanied the disaster. His account is also interesting for the parallels it provides for some of the imagery contained in Apollodorus, Hesiod, Nonnos and the like (Ref. 7).

Conversely, hot winds like the Sirocco have been compared to the blasts of air from a hot oven, and are sometimes said to carry a "volcanic" smell, presumably the sulphurous smell of ozone. Certainly tornadoes and whirlwinds are sometimes reported as bringing with them a sulphurous odour which might be compared to a volcanic smell. To complete the circle, Lane reports that tornadoes are sometimes seen to form over volcanic vents (Ref. 3).

Thus far, as we have seen, there is precious little that is cometary about the Zeus-Typhon conflict. However, as V points out (*WiC* pp. 90-91), there *was* a comet Typhon. Pliny's *Natural History* (2.23) mentions it, saying that it was seen in the reign of an Egyptian king Typhon, and that that king gave his name to it. What Pliny says is this:

> "There was a dreadful one (comet) observed by the Ethiopians and the Egyptians, to which Typhon, a king of that period, gave his own name; it had a fiery appearance, and was twisted like a spiral; its aspect was hideous, nor was it like a star, but rather like a knot of fire." (Translation by J. Bostock and H.T. Riley, 1855-1857.)

Does Pliny tell us that the comet Typhon became the planet Venus? He does not. Does he tell us that this "dreadful" comet rained down meteorites and burning naphtha, and set fire to the world? He does not. Does he tell us that with the approach of this comet the sky turned upside down and the sun reversed its course? Again, no. Are we, then, seriously to believe that this comet was the one that V assures us that it was? Certainly there is precious little in *Natural History* 2.23 to justify such a claim!

More than this, we note that Pliny does not associate this comet with the Zeus-Typhon conflict. Indeed, it seems clear enough that the comet Typhon has nothing to do with the Typhon who does battle with Zeus in the pages of Apollodorus, Ovid, Hesiod, Nonnos and the like. The two merely share the same name, and in fact Pliny tells us that the comet was named after a king Typhon, presumably an Egyptian king, one of whose names was Seth-related (Ref. 8). (Seth was the Egyptian equivalent of the Greek Typhon. See Panel 7.)

If we turn to the 4th century A.D. author Servius, we meet the comet Typhon again. In his (longer) commentary on Virgil's *Aeneid* 10.272 Servius wrote:

> "They say that the sixth comet is called 'Typhon' after the name of king Typhon, seeing that it was once seen in Egypt and which is said to be not of a fiery but a blood-red colour. Its globe is said to be excessive and swollen and it is said that its 'hair' appears with a thin light and is said to have been for some time in the north. The Ethiopians and Persians are said to have seen this and to have endured the hardships of all evils and famine" (Ref. 9).

Servius seems here to be talking not just about the original Typhon comet, but also about comets like the Typhon original in appearance. These "lookalikes" seem almost to be regarded as reappearances of the same object, although it may just be that they were regarded as different objects of the same type.

The 6th century A.D. author Johannes Lydus classified comets for astrological purposes, and in his *De Ostentis* (*Of Portents*) 15b he described the Typhon type thus:

> "This happens as a result of a reverberation of the air; it is sickle-shaped, white, smoky, and sullen. Wherever it looks, there are general evils. Grave foreign and civil wars, public disturbances and lack of necessities. Glorious leaders will be taken away in wars and especially if it appears for three or four days. If it appears for more, it threatens the destruction and overthrow of everything and no end to evils anywhere" (Ref.9).

Lydus goes on to talk of the destruction of the Roman army, of plagues and fires, of political and military struggles, and of war and internal strife, adding that "people everywhere will have misfortunes for as many years as the number of days for which such an omen from the sky as this appears."

Now, from the passages of Servius and Lydus it is difficult to sort out what applies to the original Typhon comet, and what applies to the type generally. If we assume that the list of effects associated with the type

can be used as a guide to the effects of the original, then from Servius we learn little more than from Pliny, save that "all evils and famine" were associated with Typhon. Lydus expands the list to include foreign and civil wars, public disturbances, lack of necessities, and plague and fires.

Now this list of cometary evils seems to me to be typically astrological and as causally unconnected with the comet as are the allegedly good wines of comet **[Page 39]** years, or the deaths of those kings which history insists were attended by one of these portentous heavenly visitors (Panel 8). It requires a rare feat of the imagination to transform the comet Typhon (or Typhon-type), as described by Servius and Lydus, into the Venus Comet as described by V. Neither Servius nor Lydus mentions such things as meteoric "hail," rains of burning naphtha, proliferating vermin, or disruptions of the Sun's motion, in connection with the Typhon comet, and nor does either author connect the comet Typhon with the planet Venus. So again we ask: Have we really any grounds for believing this comet to be what V says it was? I very much doubt it.

To attempt to strengthen his identification of the comet Typhon with the Venus comet, V turns to a very late source, Rockenbach's *De Cometis* (1602), which dates the comet Typhon to the days of the Exodus.

In the first place, though, we note that Rockenbach himself does not associate the comet Typhon with the planet Venus, nor does he tell us that the pillar of cloud and fire *was* the comet. (He tells us that the comet was seen "at the time when the children of Israel advanced from Egypt toward the Promised Land, led on their way by the pillar of cloud during the day and by the pillar of fire at night." *WiC* pp. 9l-92 [I.3.4].) For Rockenbach, apparently, the pillar and the comet were not the same, a point which is rather glossed over by V.

Even so, the dating of the Typhon comet specifically to the time of the Exodus is of some interest. Unfortunately, Rockenbach's sources are not known, as V admits, so we have no way of knowing how he arrived at his dating. But it is perhaps significant that V was unable to find any source *before* Rockenbach's which so dated it, for this suggests that the dating may be a late "deduction" rather than a generally acknowledged fact of history. Whether it is or it isn't, there are three questions which I would like to see answered in connection with Rockenbach's dating, for their answers may lead us in a rather different direction to that indicated by V:

1. How sound is Rockenbach's chronology, and what grounds did he (or his sources) have for placing both the appearance of the comet Typhon and the Exodus in the year 1495 BC?

2. Plagues are evils commonly held to be portended by comets (see Panel 8). So conversely, was the occurrence of plagues in the Exodus story one of the factors which prompted, or assisted, Rockenbach's association of a comet with the time of the Exodus? That is, did Rockenbach and his predecessors reason out that the Exodus plagues may well have been portended by a spectacular comet? (Compare the comet "manufactured" to fit in with Charlemagne's death: Panel 8.) If they did, of course, they would have been thinking in astrological terms, and not in terms of a genuinely causal connection such as that envisioned by V.

3. It seems that according to anti-Jewish propaganda (Ref. 10), one of many ills bestowed upon the world by the wicked Egyptian Seth-Typhon (Panel 7) was the Jewish race. Thus Seth-Typhon was perhaps associated with the Exodus of the Jews from Egypt (Ref. 11). So was this a reason why, following on from point 2, not just any comet, but specifically the comet bearing the name Typhon, was the one associated by Rockenbach and his sources with the time of the Exodus?

Of course, I *am* doing little more than thinking out loud here, and freely admit it, but in any case, such questions are mere pedantry when one stops to consider the obvious, namely, that Rockenbach, like Pliny, Servius, and Lydus before him, does *not* give anything like a description of the stupendous global catastrophe postulated by V. He does not tell us that meteorites and burning naphtha rained down from an upturned sky. He does not tell us that dust and darkness enveloped a world whose volcanoes had been triggered off by a new-born Venus. He does not tell us that vermin proliferated and the Sun reversed its course. In short, he doesn't tell us most of what is supposed to have happened!

Velikovsky's Typhon scenario is stitched together from a suspect interpretation of the Exodus plagues, a mis-association of the comet Typhon with the Typhon of Apollodorus *et al*., and Rockenbach's (unsupported) dating of the comet Typhon to the days of the Exodus. Not much on which to build a revolution in our thinking about ancient history and solar system mechanics!

NOTES AND REFERENCES FOR CHAPTER 9

1. I. Velikovsky, *Worlds ln Collision (WiC)*, p. 87-8 [1.3.3]; pp. 90-93 [I.3.4]; p. 105 [1.4.3]; p. 294 [II.6.4].
2. Compare the account of the A.D. 79 eruption of Vesuvius as given by Dio Cassius in his *Roman History*, epitome of book 66, Chapters 21-23 (E. Carey's Loeb translation, Vol. 8, pp. 303 f.).
3. I refer readers to the excellent accounts of volcanic eruptions in F.W. Lane's *The Elements Rage*, 1948, and R. Hewitt's *From Earthquake, Fire and Flood*, 1957.
4. Compare the storm sequences in Chapter 37 of Thomas Hardy's *Far from the Madding Crowd* and Chapter 9 of William Golding's *The Spire*.
5. See the chapters on lightning, storms, hurricanes, etc. in the works cited in Note 3 above.
6. Lucretius, *The Nature of the Universe*, 6.535 f. and 6.680 f.; likewise, Aristotle, *De Mundo* 395b.
7. Quoted in Hewitt, *op. cit*., pp. 79-80.

8. On the identity of this king, see John Bimson's article in *SIS Review*, Vol. 1, No. 4, p. 9.
9. The translations of Servius and Lydus used here are those by D.M. Young in *The Cosmic Serpent* (1982), by Victor Clube and Bill Napier, p. 197. Clube and Napier mistakenly attribute both passages to Lydus.
10. Plutarch, *Isis and Osiris*, para. 31. See J. Gwyn Griffiths commentary on this passage in *Plutarch's De Iside et Osiride* (1970), pp. 418-419: "The attempt to link the history of the Jews with the legend of Typhon would suggest an anti-Jewish source … An anti-Jewish writer such as Apion may well have fabricated this story."
11. Hence Velikovsky's quote from Bochart's *Hierozoicon*, on *WiC* p. 93, that "the flight of Typhon is the Exodus of Moses from Egypt."

PANEL 7. SETH-TYPHON

[Page 40] We here consider the Typhon who appears throughout Plutarch's *Isis and Osiris*. He is the Egyptian Typhon (that is, the Egyptian equivalent of the Greek Typhon), otherwise known as Seth. Though he encompasses the wind, storm, and earthquake roles of the Greek Typhon [*Isis and Osiris*, para. 55], he is actually a much broader character. Basically the Egyptian Seth-Typhon is the "bad" element of nature (for example, *I. & O.* 27; 45; 64). He is the god who whips up storms, who brings on droughts (*I. & O.* 39), and who eclipses the sun (*I. &O.* 44). He is the god who gives the crocodile its nastiness (*I. & O.* 50) and who governs the darker side of human nature (*I. & O.* 49). Velikovsky's quote from *Isis and Osiris* 49, on *WiC* p. 126 [I.5.4] refers to this Typhon ("the destructive, diseased, disorderly" who causes "abnormal seasons and temperatures"). Nowhere, however does Plutarch associate Seth-Typhon with comets or with the planet Venus.

The identification of Seth with Typhon appears to have been made about the 6th century B.C., and is referred to by Herodotus (2.144 and 3.5) and Aeschylus (*Supplices*, lines 556-561). Aeschylus' reference is interesting as it may refer to Typhon's scorching winds (see H.J. Rose, *A Commentary on the Surviving Plays of Aeschylus*, 1957, Vol. 1, pp. 52-53.) On the other hand it may just refer to aridity generally (compare *I. & O.* 33 and 39). As for Herodotus 3.5, to which V refers on *WiC* p. 90 [I.3.4], this places Seth-Typhon beneath the Serbonian marsh/lake. This could relate either to its connection with the sea (Strabo 16.2.32; Typhon is associated with the sea in *I. & O.* 32 and 33) or to the arid nature of the region in which the lake/marsh is situated (see Godley's footnote to this passage in the Loeb edition of Herodotus), or to the treacherous quick-sands associated with it (Diodorus Siculus 1.30.5-9.) In any event, there is no reason to suppose that Herodotus 3.5 has anything to do with the Earth's near collisions with the planet Venus.

PANEL 8. COMET LORE

Superstitious regard for comets is perennial. It has been argued that the doom commonly associated with the appearance of a comet dates back to the onslaughts of the Venus Comet in the second millennium B.C. This is an interesting point — after all, why should a comet be associated with doom if everyone knows in their heart of hearts that no comet has ever really done anyone any harm? But then there springs to mind a modern superstition associated with comets, and one that is equally difficult to account for, with or without V's scenario — namely, that those years in which a comet is seen in the sky are also good years for wine. According to Brewer's *Dictionary of Phrase & Fable*, in the article on "Comet Wine," there is a belief that "grapes in comet years are better in flavour than in other years." Thus 1839, for example, was a proverbially "good year." But why should such a belief prevail? Heaven only knows. Why do astrologers insist that Venus governs the state of our kidneys, whereas Jupiter governs our livers? These things seem to be determined by symbolic association, if not pure imagination, rather than concrete experience. I cannot help but think that the same is true of the doomy reputation of comets. Certainly I see no pressing need to postulate cometary "collisions" on the basis of the "evil" reputation of comets any more than I need to invoke cometary/planetary exhalations to explain good wine years or the smooth functioning of the human body.

Another example of comet-belief, and perhaps the commonest, is that comets are associated with the deaths of kings. Thus Virgil (*Georgics* 1.488-489) associates comets with the assassination of Julius Caesar, a hint picked up by Shakespeare (*Julius Caesar* 2.2.30-31). Suetonius tells us that a comet appeared at the time of Claudius' death (*Claudius* 46) and that when a comet appeared in the reign of Nero, the emperor was so terrified that it was *his* death that was being portended, that he got up to some very nasty tricks indeed (*Nero* 36.1). That comets portend a change in monarchy is repeated by Lucan (*Civil War* 1.529) and Ptolemy (*Centiloquy* 100), and in more recent times Geoffrey of Monmouth associated the death of Aurelius Ambrosius with the appearance of a spectacular comet whose political symbolism was explained by Merlin (*History of the Kings of Britain*, 8.14-15). So firmly rooted is the association between comets and the deaths of kings that (according to Pingre's *Cometographie* of 1783) when a comet failed to appear to herald the death of Charlemagne in A.D. 814, one was duly invented to fill nature's omission!

The *Anglo-Saxon Chronicle* for the year 975 records the appearance of a comet which preceded a terrible famine — Servius associates famine with the Typhon comet, remember. Tibullus (2.5.71 f.) refers to comets as "the evil sign of war." Pliny (*Natural History* 2.23) associates them with war and civil commotion; and

Ptolemy (*Centiloquy* 100) associates them with foreign invasion as well as "diseases and sudden deaths." Richard Chambers (*Book of Days*, 1864 ed., Vol. 2, pp. 583-584) says that "the Great Plague of London was attributed by some to a comet which appeared in the spring of that year," a notion that was recorded by Daniel Defoe in his work of historical fiction *A Journal of the Plague Year* (1722), Chapter 1. The idea that comets literally do bring diseases was championed by one Thomas Forster in the 19th century, and it has resurfaced again in this century in Hoyle and Wickramasinghe's *Diseases from Space*, 1979.

On a different cometary front, Aratus (*Phaenomena* 360-361) and Aristotle (*Meteorologica* 344 b) associate drought with the appearances of comets, the latter believing that this was an indication of their fiery nature.

CHAPTER 10. PHAETON

[Page 41] One of the myths most frequently cited by Velikovsky (V) and other catastrophists is that of Phaethon, and, of the accounts of the myth available to us, that of Ovid is the most famous. Velikovsky refers to it in *Worlds in Collision (WiC)*, pp. 146 ff. [I.1.2].

According to Ovid, Phaethon is the son of Helios, the Sun, and the nymph Clymene. In order to secure proof of his noble birth, Phaethon one day sets out from Ethiopia, his native land, and makes his way eastwards to the palace of the Sun. There, he asks Helios to give him proof that he really is his son, and Helios responds by promising to grant him any wish. Phaethon immediately asks that he be allowed to drive the solar chariot for one day. At this request Helios sees the rashness of his promise, and attempts to dissuade Phaethon from making such a dangerous request, but the boy insists, and in the end is reluctantly granted his wish.

At the dawn of his big day, Phaethon drives the solar chariot forth from the east, but the spirited nature of the horses and Phaethon's youthful inexperience soon result in disaster. The solar chariot goes out of control, and careers off the zodiac even as far as the regions of the Great Bear. At one time the solar chariot is banging against the stars of the highest heaven; at another it is careering along too close to the earth.

With the sun out of control like this, lakes and springs dry up, the earth is parched and split, and vegetation withers away. Soon the entire world catches fire, and to prevent its complete destruction it becomes necessary for Jove to strike down the unfortunate Phaethon with a thunderbolt. Thus struck, the youth tumbles from the sky into the river Eridanus, where the Italian nymphs, his sisters, bury his smouldering remains.

The wrecked solar chariot is presently restored, and after a period of mourning for his son, during which Helios looks "as he does when he suffers an eclipse," the usual order is restored.

But that is not the end of the story, for following the burial of Phaethon, his mourning sisters change into poplar trees, and from their bark drip tears of amber which, when hardened by the sun, fall into the river Eridanus, one day to become ornaments for Roman brides.

Now too Cygnus, the dearest friend of Phaethon, is transformed into a new kind of bird, the swan. His cries are those of mourning and he puts little trust in the skies on account of Phaethon's fall. Instead, Ovid concludes, he inhabits marshes and lakes, the antithesis of the fiery element that destroyed his friend.

This, then, is the story of Phaethon, as told by Ovid. It is repeated in substantially the same form by numerous other authors (Ref. 1). It is a fascinating legend and a genuinely catastrophic one, but:

(a) Does it have any literal foundation in fact?
(b) Is it what V says it is - a myth based on the disruptions of the Sun associated with the passage of the Venus Comet?

As regards (b) there is no evidence at all in Ovid's account that Phaethon has anything to do with comets or with the planet Venus. Indeed, Ovid (*Metamorphoses* 2.114-115) has the Morning Star shining quietly away in the dawn sky at the start of Phaethon's adventure!

Of course, though there is no evidence in Ovid of cometary or planetary involvement, it remains a fact that here is a myth about a disruption of the Sun, and it does make sense to ask why such a myth should ever have arisen if such things are as impossible as modern astronomers claim.

The trouble is that there are some curious notions about the Sun around. For example, there is the Pueblo idea that the Sun is actually a shield which protects the world from the infinitely more intense light of the Great Spirit which made it (Ref. 2). Again, I have come across a tradition that on Easter Morning the Sun dances "as an exulting memorial of the Resurrection" (Ref. 3). Not many of us would believe either of these things, I suspect, but they serve to make the point that the mere existence of a story about the Sun is no assurance of some underlying reality.

This is particularly well illustrated by a story told by the Indians of Northern California:

> "Once the sun fell by accident down from the sky just about sunrise, but the quick little mole was watching, and caught it before it touched the earth, and succeeded in holding it up until others arrived when, by exerting all their strength, they succeeded in replacing it where it belonged in the sky, but ever thereafter the mole's hands were bent far back to show how he had worked to hold up the sun." (From: W.T. Olcott, *Sun Lore of All Ages*, 1974, pp. 131-132.)

Again, the very unerring regularity of the Sun may have led to speculations about what might happen if that regularity were ever to fail. In much the same way, the physical fact of bodily death led to speculative ideas on an afterlife, and the one-directional flow of time led to stories of its reversal or slowing down.

The regularity of the Sun, too, seems to have become a target for magical control. Various primitive and ancient societies believed that the Sun could be **[Page 42]** slowed down in his daily course, just as they believed that the weather could be controlled (Ref. 4). Some of the sun-snaring myths to be discussed in Chapter 12 come under this heading, as indeed does the halting of the Sun in Joshua 10:13. See also Panel 9.

Personally I think it is against this sort of background — speculative and magical disruptions of the

Sun — that the Phaethon myth should be seen. I think that a number of details of Ovid's story confirm its very clever fantasy-status:

(i) That the Ethiopians acquired their dark skins at the time of Phaethon's venture: "for the blood rose to the surface of their bodies" (*Metamorphoses* 2.235-236).
(ii) That Libya became a desert at this time: an "obvious" explanation for a desert is that it is an area "burnt out" in a catastrophe such as this (*Metamorphoses* 2.237-238).
(iii) That the Nile was terrified by Phaethon's antics, and "fleeing to the ends of the earth, hid his head, which is still hidden" — that is, the source of the Nile is still unknown (*Metamorphoses* 2.254-255).
(iv) That beads of amber are the tears shed by Phaethon's sisters (*Metamorphoses* 2.364-366): the connection here may well rest on colour. Amber in Greek is *elektron* (as in *Herodotus* 3.115), and the word *elektor* (as in *Iliad* 6.513) means the beaming sun. There thus seems to be some connection between amber and the Sun. Phaethon's sisters were the daughters of the Sun.
(v) That Cygnus was transformed into a swan (*Metamorphoses* 2.367 ff.).
(vi) That an eclipsed or veiled sun is "in mourning" (*Metamorphoses* 2.381 ff.).

Of course, details of this type do not prove that the Phaethon myth is "just a story" — they may merely show that the poet has cleverly woven together various themes conceptually connected with the Sun and superimposed them on a solar disruption. But these themes do set us wondering if we can take the actual disruption of the Sun any more literally than the transformation of Phaethon's sisters into trees, for it must be emphasized that this part of the story is not just an invention of Ovid's. It is found wherever the story of Phaethon is told (Ref. 5).

Even if we ignore the peripheral details of the story and concentrate just on the disruption of the Sun itself, all is not well. Phaethon drives the solar chariot on one particular day (*Metamorphoses* 2.47-48), yet Ovid refers to the Sun's motion through the zodiac (*Metamorphoses* 2.78 ff.), and to Phaethon's careering off the zodiac, towards the Serpent and the Great Bear (*Metamorphoses* 2.167 ff.). Such details can only relate to irregularities in the *annual* course of the Sun, for such motions with respect to the fixed stars simply could not take place in a single day. Thus there is a contradiction in Ovid's account. Whichever way we try to take the disruption literally, something doesn't quite fit. Of course, the confusion of annual and diurnal motions may be just a poetic error, but equally it may be another confirmation that the story is pure fantasy. Only in poetic imagination can the Sun wander among the stars exactly as described by Ovid. The poet can move the Sun among the stars as if by magic, but V must play to stricter rules. All of which is not just an attempt to pick holes in V at all costs, but a reiteration of the point that if one is going to interpret a myth in literal terms, then one's critics are perfectly entitled to complain if the thing is not done properly.

Having said that, I should also repeat that no one can conclusively disprove, on textual grounds alone, V's claim that the Phaethon myth relates to a real disruption of the Sun. No one can prove that the myth is pure fantasy and nothing more. But one can cast doubts on attempts to take the myth literally and that is my aim here.

Though one cannot disprove the claim that the myth relates to an actual disruption of the Sun, I think one can be more definite in one's objections to V's claim that Phaethon was a comet which became the planet Venus. As already stated, there is nothing in Ovid to support this part of V's claim, so let us follow him into other sources.

On *WiC* p. 161 [I.8.4] V writes:

> "Phaethon, which means 'the blazing star' [*see Note a*], became the Morning Star. The earliest writer who refers to the transformation of Phaethon into a planet is Hesiod [*see Note b*]. This transformation is related by Hyginus in his *Astronomy*, where he tells us how Phaethon, that caused the conflagration of the world, was struck by a thunderbolt of Jupiter and was placed by the sun among the stars (planets)" [*see Note c*].

Several points here:

Note a refers to Cicero's *De Natura Deorum* 2.52. Here we read that Phaethon means blazing star all right but V omits to tell us that Cicero has Phaethon as a name of the planet Jupiter and not Venus!

Note b refers to an innocuous passage in Hesiod's *Theogony* (lines 984 ff.) that doesn't read much like the tail end of a cataclysmic planetary drama:

> "And to Tithonus Eos bore two sons,
> Memnon, the king of Ethiopia
> bronze helmeted, and lord Emathion.
> To Kephalos she bore a brilliant son,
> strong Phaethon, a man much like the gods.
> When he was young and had the fragile bloom
> of glorious youth, and tender, childish mind
> the laughter-loving Aphrodite seized
> and took him to her shrine and made him serve
> as temple-keeper, bright divinity."
>
> (Translation by D. Wender, 1973.)

Now V, of course, is claiming that Aphrodite's abduction of Phaethon denotes the transformation of the Venus Comet into a planet. But the text of Hesiod lends little support to this assertion. The context seems ail wrong. For a start, *if* this passage refers to the Evening Star, it is in connection with Aphrodite, the **[Page 43]** goddess of love, and not in connection with the destruction of the world by a comet! It should be emphasized that Hesiod makes no mention at all of the Phaethon story as told by Ovid, and this raises the obvious ques-

tion of why Hesiod missed the most exciting bit of the story. Equally, why did Ovid say nothing about Phaethon's abduction by Aphrodite?

The answer seems to be that there are two Phaethons in the arena (Ref. 6). Hesiod's is the son of Eos and Cephalus, and it is he who (perhaps) ends up as the guardian of the evening star. Ovid's Phaethon is the son of Helios and Clymene, and it is he who drives the sun off course and sets fire to the world. Of these two Phaethons, only Ovid's can be said to support V's scenario, and Hesiod's is there only by virtue of a coincidence of names. This being the case, the Phaethon-Venus connection that V makes on the basis of Hesiod becomes something of a red herring.

Now. reputable attempts *have* been made to connect the two Phaethons via a "lost" play (Ref. 7), so let us assume now that the two can be identified, and that Hesiod missed the catastrophic bit, and Ovid missed Hesiod's bit. Does this bring us any nearer V's particular interpretation that the thing which caused the catastrophes became the Morning Star?

Let us now go back to the quote from *WiC* above.

Note c. Velikovsky refers to Hyginus's *Poetica Astronomica* 2.42. In this section of his work, Hyginus gives an account of each of the planets in turn, and the following extract is of interest:

> "The second star is that of Sol; others say of Saturn. Eratosthenes claims that it is called Phaethon, from the son of Sol. Many have written about him — how he foolishly drove his father's chariot and set fire to the earth. Because of this he was struck with a thunderbolt by Jove, and fell into the river Eridanus, and was conveyed by Sol to the constellations."
>
> (Translation by M. Grant, 1960.)

Thus Hyginus has Phaethon as Saturn and not, as V has it, Venus!

But if Hyginus has Phaethon as Saturn, and if we deduce from *Note a* above that Cicero has him as Jupiter, and if V is right and Hesiod has him as Venus, how do we know which planet to choose? Actually, I think each is as "correct" as the others. All should be seen against the general background of catasterisms — that is, the supposed transformations of human beings into stars or constellations, legends of which are found all around the world (Ref. 8).

The validity of tracing planetary "realities" from catasterisms is thrown completely into doubt, for example, by Nonnos's *Dionysiaca* 38.424ff. As reported therein, after plunging to his death, Phaethon is transformed by Zeus into the constellation of Auriga, while the river Eridanus, into which he has tumbled, becomes the Milky Way (Ref. 9). (Diodorus Siculus 5.23.2 tells of the solar chariot going out of control in the sky "setting it afire and creating what is now called the Milky Way.") Claudian 28.165 ff. likewise has Phaethon transformed into the constellation of Auriga, with Eridanus and Cygnus becoming, respectively, the constellations of the same names. So can we take any of the transformations into planets any more seriously than the similar transformations into constellations? Personally, I doubt it. Incidentally, we should not forget that some authors for example, Ovid, have *no* catasterisms resulting from the Phaethon story, and so this type of detail does seem to be a sort of optional extra to the story.

But getting back to Hyginus, here is what he says about Venus:

> "The fourth star is that of Venus, Lucifer by name. Some say it is Juno's. In many tales it is recorded that it is called Hesperus, too. It seems to be the largest of all stars. Some have said it represents the son of Aurora and Cephalus, who surpassed many in beauty so that he even vied with Venus, and as Eratosthenes says, for this reason it is called the star of Venus. It is visible both at dawn and sunset, and so properly has been called both Lucifer and Hesperus."
>
> (Translated by M. Grant, 1960).

Thus we see that Hyginus mentions the planet Venus in blatantly non-catastrophic terms, and yet, almost incredibly, V manages to twist Hyginus into supporting his Venus Comet scenario!

Notice, incidentally, that the Greek Evening Star-Phaethon of Hesiod, the son of Eos and Cephalus, who was abducted by Aphrodite, here makes his Roman appearance as the son of Aurora and Cephalus. He is not here named as Phaethon, and his abduction by Aphrodite has become simply a beauty contest with Venus. The catastrophic Phaethon, as we saw earlier, is associated with Saturn by Hyginus.

Having rejected V's interpretation of the Phaethon myth, I had better offer my own ideas on what it represents.

HELIOS IN HIS CHARIOT
(from a Bowl of the Fifth Century B.C.

PHAETON DRIVING THE CHARIOT OF APOLLO
(Painting by Max Klepper)

As I have already said, I see the Phaethon myth as an imagined disruption of the Sun itself. Phaethon is not a comet, nor is he the Sun disrupted by a comet. He is the Sun, but with its regular constraints removed. Whereas Helios sticks to the zodiac, Phaethon does not. Whereas Helios keeps to his well-defined (geocentric) orbit, Phaethon does not — one moment he dips down close to the earth, and the next he is banging against the celestial sphere. Velikovsky's interpretation doesn't really do justice to the poet's imagination. In the myth, as I see it, the Sun is careering around like a slowed-down version of an inflated balloon that zigzags all over the place as the air escapes from it. Thus the Sun not only moves hither and thither among the stars, lurching well off the zodiac, it also moves now closer to the earth, now further away from it (*Metamorphoses* 2.206 ff.).

[Page 44] Now the fierceness of the Sun's heat, according to the ancients, depended on his proximity. When the Sun was nearly overhead, he was nearer or approached more closely the earth. Thus in Ovid's *Amores* 2.16.3-6 we read:

> "Though the Sun draw nigh and crack the earth with heat, and the wanton star of the Icarian dog (Sirius: see Panel 4) blaze forth, the acres of the Paeligni are wandered through by the liquid wave, and green in the tender soil rises the fruitful plant."
>
> (Translation by G. Showerman, 1958.)

Helios, in his instructions to Phaethon, tells him to beware of driving the solar chariot either too high above the earth, or too close to it: "If you drive too high, you will set the dome of heaven on fire, and if you are too low, you will scorch the earth" (*Met*. 2.134 f.).

The heavens, like the earth, were divided into five zones, as Ovid notes in *Metamorphoses* 1.45 ff.: the central zone was so hot as to be uninhabitable, and the two extreme zones were cold and icy. Between these two extremes were the two temperate zones. Helios again instructs Phaethon on the correct path:

> "And do not try to drive straight across the five zones of heaven — there is a track that slants in a broad curve, confined within the boundaries of three zones, which avoids the Southern Pole and also the North with its chilling winds. Travel by this road, where you will see clear marks of wheels."
>
> (*Metamorphoses* 2.129 ff.
> Translation by M.M. Innes, 1979.)

Phaethon, of course, breaks both sets of rules, and it is interesting that Herodotus 2.26 also imagines breaking the rules, though in a way rather less dramatic than the Phaethon myth:

> "And in my opinion the dryness of the air in those parts (Egypt) is due to the same cause, that he (the Sun) scorches all that lies near his passage; and for this reason it is always hot in the upper regions of Libya. If there could be such a change in the seasons that where the north wind and the winter are there were the south wind and the summer, and the north and south winds were to change places, the sun, driven out of the middle heavens by the winter and the storms, would pass over the upper parts of Europe, as now he does over Libya, and would work the same effects in the Ister as he does now in the Nile."
>
> (Translation by H. Carter, 1962)

Having got Phaethon to "break the rules," Ovid and the other poets must imagine the consequences, and they take their cue, I think, from the only solar catastrophe known to them: drought.

Even when the Sun keeps to his normal course, the heat of a prolonged drought can bake and crack the earth, dry up wells and streams, destroy vegetation, and make life generally intolerable. Ovid's description of the effects of Phaethon's adventures simply exaggerates all of these, and from here to the burning of cities, the boiling of rivers, and the drying up of seas is not a great step for the poetic imagination to take.

Of course, the Velikovskians can argue that droughts do not entail volcanic eruptions (*Metamorphoses* 2.220). This is true, but then the sceptic can also argue that the

THE FALL OF PHAETHON AS
DEPICTED ON AN ARRETINE BOWL

passage of super-comets doesn't turn people into trees and swans either, so the argument works both ways!

That Etna erupts requires no great explanation, I think. The Sun threatens to consume the world with fire, and fire from heaven begets fire from the earth. As above, so below.

There remains one point to be made. What evidence have we that the Phaethon myth has anything at all to do with the Typhon myth discussed in the last chapter? Neither myth, so far as I am aware, is ever associated with the other in classical literature, and indeed, considered as wholes, the two are most unlike each other. Yet if V is right, the two myths relate to the same series of planetary catastrophes, and this just doesn't seem right somehow. (The problem gets even worse when one considers, for example, that Phaethon and Typhon ought to relate to the events described in the Book of Exodus!)

Again, neither the Phaethon myth nor the Typhon myth bears much resemblance to the scenario of *WiC as a whole*. The Typhon myth doesn't have a disrupted Sun or any falls of burning naphtha, for example, and the Phaethon myth doesn't have any earthquakes or verminous plagues.

Things just don't seem to match up at all well. It is this circumstance which makes me think that in *WiC* Velikovsky has created his own myth by stitching together, out of context, strands of ancient myths. Phaethon, Typhon, and the Book of Exodus between them do not tell a single, coherent story. They are three different stories.

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REFERENCES

1. The other detailed version, besides Ovid's, is that in Nonnos, *Dionysiaca* 38.108 ff. A nice, concise account is to be found in Diodorus Siculus 5.23.2-4; a rather sketchy account in Hyginus, *Fabulae* 154 (with a curious variant in *Fabulae* 152A); and a comic account in Lucian, *Dialogues of the Gods* 24.
2. Jacquetta Hawkes, *Man and the Sun*, p. 62, 1963.
3. Thomas Forster, *Researches about Atmospheric Phenomena* (1823) pp. 287-288. Also Charles Hardwick, *Traditions, Superstitions and Folklore* (1872), pp. 70-71.
4. Sir James Frazer, *The Golden Bough* (3rd ed., 1914), Vol. 1, pp. 311 f, section entitled "The Magical Control of the Sun."
5. In addition to the sources listed in Note 1, see also: Apollonius Rhodius, *Argonautica* 4.603 ff.; Pliny *Natural History* 37.11; Euripides, *Hippolytus*, lines 737 ff.
6. Actually there are more. Phaethon is the nickname of Apsyrtus in the *Argonautica* of Apollonius Rhodius (3.245), and the name of one of the colts that draws the day-chariot in Homer's *Odyssey* (23.246. Incidentally, Homer nowhere mentions the Phaethon myth as such.) The word "phaethon" is used as an epithet of the Sun (that is, Helios Phaethon = the bright sun) in *Iliad* 11.735 and *Odyssey* 5.479, and the name Phaethon denotes the Sun itself in Nonnos' *Dionysiaca* 5.81 & Virgil's *Aeneid* 5.105.
7. See J. Diggle, *Euripides: Phaethon* (1970), p.4 and pp. 10-15. Diggle himself believes the two Phaethons are unconnected.
8. References to catasterisms can be found in virtually any book on mythology, references to the Great Bear, the Pleiades and Orion being perhaps the commonest. Many of these mythical transformations into stars and constellations can be found in W.T. Olcott's *Star Lore of All Ages* (1911).
9. This according to the Loeb edition, translated by W.H.D. Rouse, 1940, Vol.2, p.123, though I suppose the constellation of Eridanus could be meant.

PANEL 9. MAGICAL CONTROL

The magical control of the sun and heavens should be seen against the background of the magical control of nature generally, and there are plenty of references to this in classical literature.

Lucan (6.438 ff.) refers to the Thessalian witches in very graphic terms. They can, he says, prolong the night, arrest the firmament, control the weather, halt waterfalls, and reverse the tides. As if this weren't enough, they can also conjure the stars down from the sky and dim the light of the moon! At the bidding of one such witch, Lucan tells us, "Night held back day and gave them thick darkness until they should set foot in safety within the encampment" (6.828-830). Elsewhere (9.647-648) Lucan says of Medusa that "she had power to threaten sky and sea with strange paralysis."

Horace (*Epodes* 5.49-50) also talked of Thessalian incantations by which one could tear the moon and stars from the sky. See also *Epodes* 17.4-5 and 78-79. In lighter vein, see Aristophanes, *The Clouds*, lines 749 ff.

Ovid (*Metamorphoses* 12.263-264) mentions Mycale "whose spells, so men agreed, had often drawn down the horned moon from heaven despite its struggles." Virgil (*Aeneid* 4.488-489) says of a Massilian priestess that "she can stay the current of a river and reverse the movement of the stars." Apollonius Rhodius (*Argonautica* 3.531-533) says of Medea how with magic "she can put out a raging fire, she can stop rivers as they roar in spate, arrest a star, and check the movement of the sacred moon." See also *Argonautica* 4.59 f. for a disorbed moon.

Also of Medea, Ovid (*Heroides* 6.85-86) says "she is one to strive to draw down from its course the unwilling moon, and to hide in darkness the horses of the sun." In Seneca's *Medea* (lines 768-769) Medea herself is made to boast that "Phoebus (that is, the Sun) has halted in mid-heaven, and the Hyades, moved by my incantations, totter to their fall."

CHAPTER 11. THE AMERICAN PHAETON

[Page 46] *In Worlds in Collision (WiC)*, p. 100 [I.4.1], Velikovsky (V) writes:

> "On the North Pacific coast of America the tribes insist that the ocean boiled: 'It grew very hot ... many animals jumped into the water to save themselves, but the water began to boil."

Velikovsky here refers to S. Thompson, *Tales of the North American Indians*, 1929, pp. 44-45, a Bella Coola tale entitled "The Man who Acted as the Sun".

The story tells of a Bella Coola woman who married the Sun and had a male child by him. One day, back on earth, some village children were teasing the boy, saying that he had no father. This upset him, so he got a bow and some arrows and began shooting at the sky. The first arrow stuck fast in the sky, the second arrow stuck in the first, the third in the second, and so on until a chain of arrows extended from the sky to the earth. The boy then climbed up this chain and went in search of his father, the Sun. I now quote Thompson's account:

> "He told his father that the boys had been teasing him, and he asked him to let him carry the sun. But his father said, 'You cannot do it. I carry many torches. Early in the morning and late in the evening I burn small torches, but at noon I burn the large ones.' The boy insisted on his request. Then his father gave him the torches, warning him at the same time to observe carefully the instructions that he was giving him in regard to their use.
>
> "Early the next morning, the young man started on the course of the sun, carrying the torches. Soon he grew impatient, and lighted all the torches at once. Then it grew very hot. The trees began to burn, and many animals jumped into the water to save themselves, but the water began to boil. Then his mother covered the people with her blanket, and thus saved them. The animals hid under stones. The ermine crept into a hole, which, however, was not quite large enough, so that the tip of its tail protruded from the entrance. It was scorched, and since that time the tip of the ermine's tail has been black. The mountain-goat hid in a cave, hence its skin is perfectly white. All the animals that did not hide were scorched, and therefore have black skins, but the skin on their lower side remained lighter. When the sun saw what was happening, he said to his son, 'Why do you do so? Do you think it is good that there are no people on the earth?'"
>
> "The Sun took him and cast him down from the heavens, saying, 'You shall be the mink, and future generations of men shall hunt you.'""

The similarities between this and the Phaethon myth as told by Ovid are quite striking. In both stories there is a conflagration in which the seas and rivers boil, and in both it is caused by the son of the Sun taking over his father's role for a day. In both stories, too, the son assumes his father's role against his good advice, and in both the son seeks to assume that role in response to teasing by his friends (Ovid, *Metamorphoses* 1.753 ff.). Finally, in both stories the son ends up being cast down from the sky.

There are, of course, differences as well. In Ovid's version the Sun's light shines from a fiery chariot, and in the Indian version it is supplied by burning torches. It is also worth noting that in the Indian story there is no mention of the Sun going off course — it merely blazes too brightly. In Ovid it is Jove who shoots down Phaethon with a thunderbolt and in the Indian version it is the sun himself who casts down his son. In Ovid, Phaethon dies and his burnt body is buried by the Italian nymphs. In the Indian version he lives on as the mink. Finally, the curious chain of arrows by which the boy climbs up to the sky in the Bella Coola story has no counterpart in Ovid.

Then there are interesting parallels which fall half way between similarity and dissimilarity. In Ovid the heat of the errant sun is responsible for the dark colour of the Ethiopians. In the Indian version the fact that the mountain goat hides from the heat is responsible for the whiteness of its coat.

But on the whole, I think, the similarities outweigh the dissimilarities in importance, and this leads naturally to the question: Do these similarities indicate independent invention based on the common global experience of a disrupted sun, or do they indicate cultural borrowing? For example, is the Bella Coola myth a relatively modern composition derived from post-Columbian European influences — perhaps from a campfire chin-wag in which Ovid's "phaethon" was told in exchange for some entertaining Indian story? Such things can and do happen. The result of such exchanges, not infrequently, is that the myths of one culture become adopted by another, and later even retold as original compositions (Panel 10).

Though the common conception of a disrupted sun *can* be explained by global witness, the other common details and similarities can hardly be so explained. Two cultures working independently from their like experiences of a disrupted sun would hardly be likely to hit on the same idea of having the son of the Sun goaded by teasing into mishandling his father's job! Some cultural influence must surely have taken place to explain this degree of similarity, though how, where or when it took place is something which may well never be known.

[Page 47] For a variation on the Bella Coola story and a similar tale of the Kwakiutl of British Columbia, see J.G. Frazer's translation of Apollodorus's *The Library* (Loeb, 2 Vols., 1921), Appendix XI. Frazer writes (Vol. 2, p. 394):

> "Whether the remarkable resemblances between the Greek and the Indian versions of the tale are to be explained as due to independent invention or to European influence, is a question which, so far as I know, there is no evidence to determine, and on which therefore it would be rash to pronounce an opinion."

What I say in this chapter, therefore, I say at the risk of being considered rash. But the fact remains that the American Phaethon is a little too like his Greek counterpart for comfort,

PANEL 10. "BORROWING"

The borrowing of the myths of one culture by another is an interesting phenomenon well illustrated by a story told by Dorothy Vitaliano in her *Legends of the Earth*, 1973, pp. l51-152.

Vitaliano tells how Alice Lee Marriott was collecting the folklore of a South Dakota tribe some years ago. Being challenged by an old Indian to tell one of the stories of her own people, she told the story of Beowulf. Some years later, she was surprised to read in an ethnological journal of the occurrence of a Beowulf-like myth among the North American Indians. A graduate student had collected it from the old Indian, without realizing that he (the Indian) was simply adapting and embellishing a story which he had got from a European source (Miss Marriott) in the first place.

The similarity of the American Phaethon to the Greek Phaethon may well be explained in a similar fashion, though whether the Phaethon story was taken over before or after Columbus is a matter which may never be resolved. Presumably after Columbus, but on pre-Columbian contacts, see Walter Krickeberg et al., *Pre-Columbian American Religions*, 1968, pp. 1-2.

Other mythological coincidences strongly suggestive of mythological borrowing come from a study of flood legends, a subject we will turn to in a later chapter. One which deserves particular mention here concerns the end of the Greek flood story of Deucalion and Pyrrha (for example, Apollodorus 1.7.2), where the surviving human pair are instructed to cast stones behind their backs in order to repopulate the earth. Each stone cast turns into a human being, those cast by Deucalion becoming men, those by Pyrrha, women. An exact parallel for this is to be found among the Maipure of the Orinoco, the only difference being that coconuts are cast instead of stones (Sir James Frazer, *Folk-lore in the Old Testament*, 1918, Vol. 1, pp. 266-267).

For a Zuni version of Cinderella, see Thompson's *Tales of the North American Indians*, pp. 225-231. For a Cheyenne version of the crossing of the Red Sea, see pp. 264-266 of the same work. For a Hopi version of the pillar of cloud and fire (but visible only to those with the requisite psychic powers!), see Frank Waters, *The Book of the Hopi*, 1963, p. 16.

CHAPTER 12. SUN-SNARING

[Page 47] In Chapter 10 we touched briefly on the subject of the magical control of the Sun. Stories of sun-snaring come under this heading, and I here consider two examples which Velikovsky uses in *Worlds In Collision (WiC)* as references to former disruptions of the Sun.

The first example, to which V refers on *WiC* p. 296 [2.6.5] comes from Roland B. Dixon's *Oceanic Mythology*, (1916), pp. 44-45. Dixon tells it as follows:

> "A Hawaiian version of the snaring of the sun may be taken as an example of Maui's next exploit. Maui's mother was much troubled by the shortness of the day, occasioned by the rapid movement of the sun; and since it was impossible to dry properly the sheets of tapa used for clothing, the hero resolved to cut off the legs of the sun so that he could not travel so fast. His mother, accordingly, made strong ropes for him and sent him to his blind old grandmother to get added assistance. He found her cooking bananas, and as she laid them down one after the other, Maui stole them. At length discovering her loss, but unable to see the culprit, she sniffed about angrily until she smelt a man, whereupon she asked who it was, and when Maui told her that he was her grandson, she forgave him and presented him with a magic club to aid him in his attack on the sun. Maui now went off eastward to where the sun climbed daily out of the underworld, and as the luminary came up, the hero noosed his legs one after the other and tied the ropes strongly to great trees. Fairly caught, the sun could not get away, and Maui gave him a tremendous beating with his magic weapon. To save his life, the sun begged for mercy and, on promising to go more slowly ever after, was released from his bonds."

If this story describes a variation in the course of the sun that was induced by the passage of a super-comet and accompanied by a monumental upheaval of nature, then I would dearly love to know why the comet, the earthquakes, the hurricanes, and the meteorites have been left out of it, whereas drying tapa sheets and cooking bananas have been featured prominently! There is indeed a variation in the course of the sun involved — but it doesn't seem to be quite what V has in mind!

I would submit that this myth is no more factual than the famous whispering of a hint to time, in Alice in Wonderland, Chapter 7: "For instance, suppose it were nine o'clock in the morning, just time to begin lessons: you'd only have to whisper a hint to Time, and round goes the clock in a twinkling! Half past one, time for dinner!" The parallels between whispering a hint to Time and beating the Sun are quite striking, I think. Notice, too, Maui's use of a *magic* weapon.

[Page 48] The second example — again referred to by V on *WiC* p. 296 — is a Menomini Indian myth entitled "The Sun Snarer." It comes from Thompson's *Tales of the North American Indians*, pp. 42-3, and tells of a young Indian who lay down under a beaver-skin robe to rest. The Sun being directly overhead it burned spots on the robe and made it shrink. This annoyed the boy greatly — he felt like he had been punished for something he didn't do — and he went sorrowfully to his wigwam, where his sister found him crying. She asked him what was the matter, and he told her. Then he asked her for a hair-thread, so she plucked a hair from her head and gave it to him. I now quote Thompson's account:

> "Then he started out to where the Sun's path touched the earth. When he reached the place where the Sun was when it burned his robe, the little boy made a noose and stretched it across the path, and when the Sun came to that point the noose caught him around the neck and began to choke him until he almost lost his breath. It became dark, and the Sun called out to the ma'nidos, 'Help me, my brothers, and cut this string before it kills me.' The ma'nidos came, but the thread had so cut into the flesh of the Sun's neck that they could not sever it. When all but one had given up, the Sun called to the Mouse to try to cut the string. The Mouse came up and gnawed at the string, but it was difficult work, because the string was hot and deeply embedded in the Sun's neck. After working at the string a good while, however, the Mouse succeeded in cutting it, when the Sun breathed again and the darkness disappeared. If the Mouse had not succeeded, the Sun would have died. Then the boy said to the Sun, 'For your cruelty I have punished you; now you may go.' The boy then returned to his sister, satisfied with what he had done."

Now V relates the mouse in this curious story to the destruction by mice of Sennacherib's army and a mouse-like shape assumed by the atmosphere of the planet Mars on one of its close approaches to the earth. But I would submit that it requires more than a little imagination to make such an interpretation work. For a start, there is no indication at all of a planetary basis for this myth, and nothing like a Velikovsky-style global catastrophe to go with it.

I would suggest, instead, that this story sees the darkness of (say) an eclipse as a punishment of the Sun for his tendency to burn and scorch things. As the mouse succeeds in gnawing through the string, the 'eclipse' ends, thus preventing the 'death' of the Sun (permanent darkness).

As for the thread, this is like the rope used by Maui in the myth quoted earlier in this chapter: it snares the Sun. This has nothing to do with Velikovskian disruptions of the Sun, for, as I pointed out earlier, it really comes under the heading of the magical control of the Sun, as discussed by Sir James Frazer in *The Golden Bough* (see Chapter 10, note 4 for reference). Frazer writes:

"As some people think they can light up the sun or speed him on his way, so others fancy they can retard or stop him. In a pass of the Peruvian Andes stand two ruined towers on opposite hills. Iron hooks are clamped into their walls for the purpose of stretching a net from one tower to the other. The net is intended to catch the sun. On a small hill in Fiji grew a patch of reeds, and travellers who feared to be belated used to tie the tops of a handful of reeds together to prevent the sun from going down. As to this my late friend the Rev. Lorimer Fison wrote to me: I have often seen the reeds tied together to keep the sun from going down. The place is on a hill in Lakomba, on the eastern islands of the Fijian group. It is on the side — not on the top — of the hill. The reeds grow on the right side of the path. I asked an old man the meaning of the practice, and he said, 'We used to think the sun would see us, and know we wanted him not to go down till we got past on our way home again.' But perhaps the original intention was to entangle the sun in the reeds, just as the Peruvians try to catch him in the net. Stories of men who have caught the sun in a noose are widely spread". (Vol. 1, p. 316).

This puts the snaring of the sun on a par with controlling the weather, or with emulating King Canute!

The following paragraph, from Frazer Vol. 1, p. 318, is also of interest. It illustrates the occurrence of similar obscure practices in widely scattered parts of the world, and since it seems unlikely that such distant peoples would develop the same obscure practices quite independently, the very recurrence of these practices suggests that cultural links may well extend much further afield than we are apt to suppose:

"When an Australian blackfellow wishes to stay the sun from going down till he gets home, he puts a sod in the fork of a tree, exactly facing the setting sun. For the same purpose an Indian of Yucatan, journeying westward, places a stone in a tree or pulls out some of his eyelashes and blows them towards the sun. When the Golos, a tribe of Bahr-el-Ghazal, are on the march, they will sometimes take a stone or a small ant heap, about the size of a man 's head, and place it in the fork of a tree in order to retard the sunset. South African natives, in travelling, will put a stone in a fork of a tree or place some grass on the path with a stone over it, believing that this will cause their friends to keep the meal waiting till their arrival. In this, as in previous examples, the purpose apparently is to retard the sun."

These "coincidences" should be classed with those of Panel 10.

CHAPTER 13. COTTONTAIL

[Page 49] In *Worlds in Collision (WiC)* p. 298 [II.6.5] Velikovsky (V) refers at some length to the Shoshonean story of Cottontail. This is to be found in "Shoshonean Tales" by Robert H, Lowie, published in the *Journal of American Folklore*, vol. 37, pp. 59-62, and it is both curious and obscure. It is also, as a whole, singularly unlike V's scenario, and once again V's use of it works only on certain bits of the story quoted out of context.

The story opens: "Cottontail went round the world killing people everywhere. He had two necklaces made of cedar cones (?)." Thereafter the story lurches into a curious episode in which Cottontail kills Bear with an arrow and causes a woman and her children to fall over a cliff. Next:

> "Cottontail went all over the country. He had set out from the west and was going eastward. He wanted to kill the Sun, but first he wanted to kill all the people."

There then follows an incoherent story about two boys, their dead mother, and a store of food under a rock, the upshot of which is that Cottontail turns over the rock, retrieves the food, and offers the boys as much as they want if they will cook some for him. But the boys are troubled, because to cook the food requires water for the cooking pot, and fire-wood to heat it with. I here quote Lowie — not because what follows is relevant to V's scenario, but because the story takes such a peculiar turn at this point that I am not sure a paraphrase of mine would do justice to it:

> "The boys did not want to build a fire. 'The cedars do not allow us to touch them, they always shoot us with their spines.' They had scratches on their body therefrom. Cottontail told them to get wood nevertheless. The boys were afraid. He urged them. They went to the cedars, but the trees shot at them and they ran back crying for their brother. Cottontail was angry. He went up close with his big club. The cedars blew up to shoot him, but he broke them all to pieces, saying, 'You shall never do this anymore. Anyone, woman or child, shall be able to use you until the end of the world.' Then the boys got wood and built a fire. Next he asked them to get water. 'No, we can't get water. Whenever we get close to it, a wave comes to wash us away, so we never use water.' — 'Go on while I am here, I'll fix it so it will be all right.' The boys were afraid, but he went with them, standing far back. They walked to the river slowly. As soon as they approached, it came in a big wave, which almost caught them. They ran away calling for help. Cottontail said, 'Let us go on and see whether it will catch the three of us.' They went a short distance, and when the river came he struck the water with his club and said, 'You shall not be mean any longer. Any person, even a child, shall be able to use you for a drink. Only sometimes in the spring you may drown people. Thus it shall be forever.' Then the river ceased to trouble the boys, they got water and cooked dinner."

The boys wanted Cottontail to stay with them, but he declined, saying that he had to go about his business "which was to go to the east and break the sun all to pieces." We now join Lowie's account of the sun-breaking myth quoted by V on *WiC* p. 298:

> "He went a great ways towards the sunrise. He made a hole to catch the Sun as he came up. He had arrows and a club. The Sun began to rise. As soon as he came up a little, he asked, 'Cottontail, what are you doing?' At the mention of his name he became angry. The Sun went down again. Spider came and asked, 'What are you doing?' — 'I am waiting for the Sun.' 'He won't come up if he sees you, but I have a web for you if you want to cover yourself.' — 'Yes, let me have it.' Cottontail put the web over himself and waited for the Sun, who slowly rose but did not notice him. He shot at the Sun several times, but each arrow was burned up. Soon all his arrows were gone. Then he struck the Sun with his club, breaking off a piece, which touched the ground and set fire to the world."
>
> "The fire pursued Cottontail, who began to flee. He ran to a log and asked if it would save him if he got inside. 'No, I burn up entirely.' So he ran again and asked a rock with a cleft in it. 'No, I cannot save you, when I am heated I burst.' He fled again and asked various things for aid, but only to be told they were unable to give help. He asked the brushes. At last he got to a river. The river said, 'No, I cannot save you; I'd boil and you will get boiled.' He went to the plain. The fire came close to him. He had already run over the mountains. In the plain the fire came very near. He went to the kogwanna'o weed and asked for help. 'Yes, I may burn a tittle at the top and sizzle, but otherwise I pay no attention to fire.' Cottontail dug a little under the weed and hid below it. The fire came and struck the top of the weed, which burned a little. It fell on Cottontail and struck his neck, where cottontails are yellow now. Thus the little weed saved Cottontail."
>
> "From everywhere he saw smoke rising. He walked a little ways on the hot ground and one of his legs was burned up to the knee; before that he had been long-legged. He thought it would not matter if he had only three legs. Then another leg burned off. 'I suppose two legs will be enough.' He walked on two legs, and one of them burned off. 'I'll use one.' He jumped on one till that also burned off. He made a house for himself to stay in overnight. At night the Sun caused snow to fall, which put out the fire. Cottontail saw the snow on the ground next morning, but did not go out. The Sun came up and wanted to punish Cottontail. He spoke as follows: 'Cottontail, you must be a rabbit until the end of the world, you shall not be human any more. After a snowfall anyone shall be able to track and **[Page 50]** kill and eat you. Even

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children shall be able to play with you. Why did you injure me?' Cottontail heard him, went outside and turned into a cottontail rabbit."

Now this story *does* have elements of V's scenario in it: the sun is "disrupted" and a conflagration *does* ensue. But again the myth as a whole bears little resemblance to the scenario of WIC. The taming of the cedars and the river waters, for example, seem to cry out for "explanation" (or literal interpretation) just as much as the sun-breaking episode, and the fact that V dwells on the latter and completely ignores the former must be regarded with suspicion. If the sun-breaking myth *does* refer to the days of the earth's "collisions" with Mars, how did it ever come to be mixed up with all these other innocuous storylines? Myths do get mixed in with other myths, it is true, but it is difficult to see how the earth-shaking events of V's scenario could ever have become reduced to this form. More to the point: how could an iconoclastic planet-god become transformed into a cottontail rabbit, condemned forever to leave tell-tale tracks in the snow?

Now, having rejected V's interpretation of the myth, I am bound to be asked what *I* think it is all about, and here I have to confess that I really have no idea! The illogical and dream-like way in which the story lurches from episode to episode leaves me with the uneasy feeling that I don't really understand it at all. Nevertheless, I feel it is as misguided to attempt a literal interpretation of the sun-breaking as it would be to attempt a literal interpretation of the "taming" of the cedars! The peculiarity of the context in which the "solar catastrophe" takes place tends to rebuff any attempt to relate it to real events. Would it not be just as misguided, for example, to start interpreting the pool of tears in Alice in Wonderland (Chapter 2) as a "memory" of some real historical flood?

Finally, although V relates (*WiC* p. 100 [I.4.1]) the boiling waters in the story of Cottontail to the same "event" as the boiling waters in the Bella Coola "Phaethon" myth (discussed in Chapter 11), how much evidence is there for this assumption in the myths themselves? True, the two stories relate the boiling waters to the Sun, but they do so in different ways (in the first, a piece of the Sun is broken off; in the second the heat of the Sun is turned up to "fu1l" too quickly). So are these the same event or aren't they? Either way, it remains a fact that neither myth says anything about Venus or Mars, or about meteorites, earthquakes, verminous plagues, or inverted skies.

CHAPTER 14. JOSHUA AND LU-YANG

[Page 50] In Joshua 10:12-13 we read how, on the day of the battle with the Amorites at Beth-Horon, Joshua implored the Sun and Moon to stand still, and they did just that, "until the people had avenged themselves upon their enemies."

As already indicated in Chapter 10, I personally would class this "event", with other attempts to control the Sun by magic, and with the sun-snaring myths discussed in Chapter 12. The Sun halts, at Joshua's request, so that the day might be prolonged, to enable the Israelites to satisfactorily complete the slaughter of their enemies

To turn this "event" into an axial shudder of the Earth, induced by a close passage of the planet Venus — all of which happens just as Joshua and the Israelites need some extra daylight — requires more than a little imagination. Furthermore, such an interpretation glosses over the essentially *magical* nature of the event. The event happens after a deliberate act of invocation. As with the passage of the Red Sea in the Book of Exodus, ignoring the magic leaves the would-be-interpreter with an awkward coincidence on his hands. The Sun stood still for Joshua just when he needed it to; the Red Sea parted for Moses just when he needed it to.

True, one can bring "literary embellishment" into play: the magic was tagged onto the event after it had happened, and the events probably didn't happen *exactly* as portrayed. But this is to assume that on the one hand the story is reliable enough to take the solar standstill as literal, at the same time as to admit that the text isn't totally reliable, because it has been embellished with magical trappings. This, of course, borders on the contradictory, and we should recall the dangers of picking out the favourable details of a text and ignoring the unfavourable ones. Personally I am left wondering if the solar standstill can be taken any more seriously than the magic that accompanies it. The very phrasing of the verses in Joshua is artificial: the Sun stands still over the royal city of Gibeon, and the Moon over the valley of Ajalon.

Again, though there *is* a solar standstill in the Book of Joshua, it has to be admitted that the book as a whole is noticeably devoid of most of the trappings of V's scenario, notably, of course, the planet Venus. There is the destruction of Jericho in Joshua 6:20, but this is an isolated "magical" event and not part of an ongoing catastrophic scenario. There is also the hail that rains down on the Amorites in Joshua 10:11, which V takes to be meteoric hail (*WiC* p. 144 [I.2.1]). But for myself, I think Joshua 10:11 could be based just on ordinary hail of the frozen variety, and the following passage from *Hastings Bible Dictionary* (the article "Hail" l gives a couple of interesting parallels:

> [Page 51] "In 1339 the army of Edward III was stopped in its march to Chartres by hail (Holinshed); and, later, a violent hail shower completed the defeat of the Austrian army at Solferino (1859)."

But do hailstones kill people? Apparently sometimes they do. *Symon's Monthly Meteorological Magazine* (Vol. 2, pp. 53-54) records that at Goommanur, India, in March 1867, there was a terrific hailstorm:

> "All the trees in the neighbourhood were stripped of their foliage, heavy branches were torn down, and many trees torn up by the roots. People's clothes were removed from their backs, and a tent was shivered to rags. The hailstones were as large as cocoa nuts and good-sized mangoes. Some four hundred sheep and twenty head of cattle were killed, as were also several human beings, a large number of whom were severely hurt."

The Velikovskians might argue that even the most violent hailstorm doesn't result in the Sun and Moon standing still! This is true, but then neither would a meteorite shower kill off the Amorites, apparently pursuing them "unto Azekah," but not the Israelites — which brings us back to the same sort of arguments we encountered in relation to V's interpretation of the Exodus plagues!

Velikovsky cites other references to Joshua's solar standstill and hail, and we shall here take a look at one of these — Louis Ginzberg's *Legends of the Jews* (1925). This is a fascinating source, but, as will become clear in a moment, it is hardly one that can be used to reveal a forgotten history of the solar system. However, it does demonstrate how different V's sources are from the picture he paints from them in WIC.

On *WiC* p. 144 [I.7.1] V cites Ginzberg in support of the fact that the "hailstones" were hot, and a remnant of the "hail" that rained down on Egypt in the time of Moses (see Panel 11). This he takes as confirming his idea that the hail was meteoric. However, there is another passage of Ginzberg (Vol. 2, p. 356), which V doesn't quote, that makes it quite clear that these hailstones were nothing so hum-drum as meteorites:

> "As a rule, fire and water are elements at war with each other, but in the hailstones that smote the land of Egypt they were reconciled. A fire rested in the hailstones as the burning wick swims in the oil of a lamp; the surrounding fluid cannot extinguish the flame. The Egyptians were smitten either by the hail or by the fire. In the one case as the other their flesh was seared, and the bodies of the many that were slain by the hail were consumed by the fire."

Now this is a fairly typical passage of Ginzberg, whose accounts of events are almost invariably more colourful than their biblical counterparts. Unfortunately, readers of *WiC* do not always realize this from the edited quotations V gives. From what V says in WIC, his readers could all too easily assume that Ginzberg

gives a level-headed, more-or-less-factual account of great events and this really isn't the case. Decoding history from Ginzberg's *Legends* may be rather like trying to write Lewis Carroll's biography by decoding *Through the Looking Glass*! The "suspension" of the hail by Moses — another magical act, note — is a further case in point. Here is a quotation from Ginzberg Vol. 2 p. 357:

> "Moses went a short distance out of the city from Pharaoh, and spread abroad his hands unto the Lord, for he did not desire to pray to God within, where there were many idols and images. At once the hail remained suspended in the air. Part of it dropped down while Joshua was engaged in battle with the Amorites, and the rest God will send down in His fury against Gog. Also the thunders ceased at Moses' intercession and were stored up for a later time, for they were the noise which the Lord made the host of the Syrians to hear at the siege of Samaria, wherefore they arose and fled in the twilight."

So, if we are to take the hail in the time of Moses and Joshua literally, perhaps we cannot afford to dismiss the promise of Gog too lightly!

Next, Ginzberg's version of the solar standstill. The following passage comes from Vol. 4, pp. 10-11:

> "The battle took place on a Friday. Joshua knew it would pain the people deeply to be compelled to desecrate the holy sabbath day. Besides, he noticed that the heathen were using sorcery to make the heavenly hosts intercede for them in the fight against the Israelites. He, therefore, pronounced the Name of the Lord, and the sun, moon and stars stood still. The sun at first refused to obey Joshua's behest, seeing that he was older than man by two days. Joshua replied that there was no reason why a free-born youth should refrain from enjoining silence upon an old slave whom he owns, and had not God given heaven and earth to our father Abraham? Nay, more than this, had not the sun himself bowed down like a slave before Joseph? 'But,' said the sun, 'Who will praise God if I am silent?' Whereupon Joshua: 'Be thou silent, and I will intone a song of praise.'"

Even Velikovsky tip-toed quietly away from Ginzberg's talking sun. Perhaps he should have done the same for the hot hailstones.

Velikovsky *does* use Ginzberg's version of Joshua's song of praise, however (*WiC* pp. 54-55 [I.1.1]) He quotes lines such as "sun and moon stood still in heaven" and "thou didst destroy them in thy fury" — presumably taking the "thou" to refer to the Venus Comet. What he does not tell his readers is that the song also contains such lines as "thou art the strength of my salvation" and "we will sing and praise thy wondrous works." "Thou," of course, is God. A destructive super-comet could hardly be said to perform wondrous works worthy of praise!

On *WiC* p. 229 [II.2.3] V turns his attention to Chinese accounts of solar standstills and the like, one concerning the Duke of Lu-Yang, and the other Prince Tan of Yin. Velikovsky's source here is Alfred Forke's book *The World Conception of the Chinese* (1925), pp. 86-87. Forke refers to the first "event" thus:

> **[Page 52]** "Huai-nan-tse tells us that 'when the Duke of Lu-Yang was at war against Han (in the 5th century BC), during the battle the sun went down. The Duke, swinging his spear, beckoned the sun, whereupon the sun, for his sake, came back and passed through three solar mansions.'"

The similarity of this "event" to that of Joshua is so striking that, as Forke (following Gaubil) says, one suspects that Huai-nan-tse, or his source, was familiar with the Joshua story, and simply grafted it onto Chinese history. As for the fact that this "evert" is supposed to have taken place in the 5th century BC, *after* V's scenario had finished — we'll return to that shortly. First, some more from Forke:

> "In Chinese sources still other similar cases are mentioned. The King of Ch'in promised Prince Tan of Yin that he would allow him to return home provided that the sun returned to the meridian, and the sun actually came back to the meridian. This is said to have taken place in 230 BC. In the year 163 BC a similar case happened under the regime of Han Wen-ti. Hsinyuan P'ing waited for the event, and when the sun returned to the meridian the emperor selected this memorable year, the seventeenth of his reign, and with it commenced his reign again, calling it the later beginning."

I would make a number of comments on this and the previous quote:

1. It is a significant fact that both of these solar prodigies, like the Lu-Yang case, occurred *after* V's scenario had finished. Thus, if such prodigies really do "happen" (which I doubt!), they can happen just as well without an ongoing planetary scenario as with one. Put another way, I am not at all sure that I can take the solar standstill of Joshua any more seriously than the "events" of 230 BC and 163 BC (which happened at a time when everyone agrees the solar system was stable), and I'm not at all sure that I can take any of them more seriously than the Easter-day dancing sun mentioned back in Chapter 10!. If the people of China in the first few centuries BC took some delight in livening up their history with fictitious solar prodigies, perhaps the Book of Joshua itself was a similar "livening up."
2. Velikovsky somewhat lamely says (*WiC* p. 229 [II.2.3]) that even if Han did reign in the 5th century BC, his prodigy could still refer to a real event of an earlier period. But this is to reduce the status of the Han event to that of a mere story, and this must surely diminish its value as support for V's scenario. One might just as well argue that Flash Gordon stories provide evidence for extra-terrestrial life.
3. Though V does mention the date discrepancy of the Han event (*WiC* p. 229 [II.2.3]), he doesn't mention the even greater discrepancy of the Prince Tan

event (230 BC), which tallies neither with V's scenario nor with the Han event. Yet V sees the Han and Tan events as views of the same thing from different parts of China!

4. The Prince Tan event is a prodigy that occurred in relation to some key event of human history. This puts it rather on a par with the more directly magical events of Joshua and Lu-Yang, insofar as the would-be literal interpreter, if he is not to dismiss the event as pure fiction, must come to grips with the coincidence of its timing.

It is, I suppose, possible to argue that Joshua, Lu-Yang, and Prince Tan each knew of a forthcoming axial tilt of the earth, with its resultant solar prodigy, and that they capitalized on this knowledge to manufacture a "magical event." A popular story line in a similar vein is that of the intrepid explorer about to be sacrificed by hostile savages. Luckily, he happens to know that a total eclipse of the sun is about to take place, and he uses this knowledge to secure his release in a way I'm sure I needn't elaborate here.

The trouble is that this argument still leaves us with a coincidence. To put it bluntly, it is still pretty incredible that the brave explorer faces his sticky end precisely in the path of a total eclipse and at exactly the right time! Even so, it makes a good story, and *that*, I think, is precisely the aim of the solar standstill in the Book of Joshua.

PANEL 11. HAIL WITII FIRE IN THE BOOK OF EXODUS

The description of the plague of hail in the Book of Exodus (9:18 f.) matches well the effects of a severe hailstorm: crops and trees are destroyed (9:25 and 31), and sometimes even cattle are killed (9:19). The Goommanur example quoted in the body of Chapter 14 is a case in point, and for other examples see *Symons's Monthly Meteorological Magazine*, Vol. 9, p. 104; Vol. 29, pp. 134-135; Vol. 32, pp. 87-88 and p. 90; Vol. 37, pp. 141-142.

Now, Exodus 9:24 talks of hail "and fire mingled with the hail," and one naturally assumes that this fire is lightning, corresponding to the thunder mentioned in Exodus 9:23. However, the use of the phrase "the fire ran along upon the ground" in Exodus 9:23 doesn't sound much like an effect of lightning, and this intrigued me for quite a long time. Then I happened to come across a reference to a storm in John Nichols's "History and Antiquities of the County of Leicester" (1798: Vol. 2, Part 2, p. 467). It took place in and around Husbands Bosworth in 1755, and the sentence that particularly caught my eye was this: "flashes of lightning in a terrible manner ran along the streets." Likewise, in *Symons's Monthly Meteorological Magazine*, Vol. 7, p. 56, we read how lightning, having struck a house, "ran to the end of the street;" and in Vol. 41, p. 131: "the lightning came hot and forked, and ran along the paths."

CHAPTER 15. SOME LITERARY DISRUPIONS OF THE SUN

[Page 53] In *Worlds in Collision (WiC)* p. 169 [I.9.1], Velikovsky (V) tells us that at "the birth of the planet Athene" the sky reeled horribly and the Sun stood still for a long time. Velikovsky refers to the Homeric Hymn to Athene (No. 28).

As we saw in Chapter 5, however, there is no evidence that Athene was in any way associated with the planet Venus. Indeed, the hymn to which V refers here is clearly addressed to Athene "the glorious goddess, bright-eyed, inventive, unbending of heart, pure virgin, saviour of cities," none of which is at all applicable to V's Venus Comet.

True, at the birth of Athene from the head of Zeus, Olympus reels horribly and the Sun stands still ("the bright Son of Hyperion stopped his swift-footed horses a long while"). But for my money this is simple poetic fancy rather than stylized catastrophism. The poet is simply telling us that creation was astonished at the might of the new-born goddess Athene. In much the same way, Virgil, in the *Aeneid* (8.240), has a river flow backwards in alarm and, elsewhere in the same work (9.125), has the River Tiber stop in mid-flow, then reverse itself, in fear.

Another disruption of the Sun — one to which V only refers in passing (WIC, p. 282 [II.5.4], footnote) — centres on the conception of Hercules. The story goes that Zeus took a shine to Alcmena, the wife of Amphitryon. As Apollodorus 2.4.8 puts it: "Zeus came by night and prolonging the one night three-fold he assumed the likeness of Amphitryon and bedded with Alcmena." The result of this union was Hercules.

This prolonged night, of course, is another flight of fancy, rather than a historical fact, and its literary origins are revealed, I think, in such sources as Hyginus, *Fabulae* 29: "He lay with her with so much pleasure that he spent one day and doubled two nights, so that Alcmene wondered at such a long night." Also Diodorus Siculus 4.9.2: "For when Zeus lay with Alcmene he made the night three times its normal length and by the magnitude of the time expended on the procreation he presaged the exceptional might of the child which would be begotten."

A similar prolonged night comes in Homer's Odyssey (23.243-244), where Athene prolongs the night when Odysseus and Penelope are reunited. Something of an opposite to this comes in the *Iliad* (18.239-240), where the Sun is reluctant to set but is urged on its way by Hera. Again, in the *Odyssey* (Chapter 12) there is an episode in which Odysseus's men kill some of the Sun's cattle. The Sun threatens to disappear to Hades and shine among the dead (lines 382-383) unless the offenders are punished, which in due course they are, in a shipwreck. The world is thus spared the loss of the Sun.

But perhaps the most famous literary disruption of the Sun is that associated with the names of Atreus and Thyestes, to which V refers in *WiC* pp. 211 ff. [II.1.4].

Atreus and Thyestes were brother-rivals for the kingship of Mycenae, and it is in connection with this bitter rivalry that the reversal of the Sun occurs. There are two different versions of the story. In Apollodorus (*Epitome* 2.10-14), Thyestes claims the kingship on the basis of his ownership of a golden lamb, but Zeus declares his displeasure at this by reversing the sun and making it set in the East. Thereupon Atreus assumes the kingship and banishes Thyestes. In Seneca's version (*Thyestes*, lines 776 ff.) the Sun reverses in horror (compare the reversals of the rivers in the Aeneid, cited above) when Atreus, having butchered the three sons of Thyestes, serves them up to him at a banquet. (The banquet does feature in Apollodorus, incidentally, but not in connection with the reversal.)

In both versions, then, the reversal of the Sun is presented not as the side effect of an ongoing catastrophic scenario, but as a miraculous event that highlights a human drama. So far as I am aware, the same is true of all other accounts of the reversal, which fall into one or other of the moulds typified by Apollodorus and Seneca. The sole exception, I think, in which the reversal is presented in something approaching a Velikovskian context, but which is nevertheless of dubious evidential value for other reasons, is that given in Plato's Statesman. We shall return to this in some detail in a later chapter. Meanwhile we here concentrate on Seneca's account, which is the one V uses in his section "The Argive Tyrants."

But does V use Seneca's play fairly? For a start, V does not mention that the reversal occurs in horror at the crime of Atreus. But let us suppose that this is merely fictional embellishment. Secondly, V says that Seneca tells of the "fear of world destruction experienced by those who lived at the time of Atreus and Thyestes." But this isn't quite true. What happens is that when the Sun reverses and sets, the world is plunged into an untimely darkness (designed to veil the atrocious deeds of Atreus). This darkness is Seneca's cue to send a chorus on stage to treat us to an imaginative view of the End of the World (lines 828 ff.), the idea being that the unnatural darkness may be the herald of this ultimate catastrophe (Note 1). Seneca appears to have launched into this lengthy digression purely for the sake of its dramatic effect. It is not really part of the plot (the world does not "end," or even threaten to "end," in the play). It seems to be there merely as an excuse for the poet to show off his art, which he does with great gusto.

The chorus begins by wondering what can have forced the Sun to reverse its course and plunge the world into untimely darkness:

[Page 54]

> "What can have forced you, Sun, from your heavenly road? What can have made your horses bolt from their fixed course? Are the Giants escaped from their prison and threatening war? ... Or has Typhoeus stretched his muscles to throw off his mountain burden? ... Is all the order of the universe plunged into chaos? ... What darkness it may be, we cannot tell, but pray that it be nothing else than night."
>
> (Lines 802 ff.: translated by E.F. Watling, 1966.)

As can be seen, then, this is all rather different from what V has in mind, and what readers of *WiC* might be led to expect.

Let us take a look at one particular aspect of "the End," as it is envisaged by the chorus — namely, the collapse of the sky. Notice the future tense in which it is phrased:

> "That belt of constellations that marks out the passage of the years, the highway of the holy stars that lies oblique across the zones, will fall away, and see the stars fall with it. The Ram, at whose approach, even before the spring's full warmth, ships may spread sails to balmy zephyrs — he who once carried the frightened Helle over the sea, into the sea himself will fall. The Bull, who holds the Hyades between his shining horns, falling will drag the Gemini down, and down will fall the bent-armed Crab. Leo, resplendent with the fires of summer, victim of Hercules, will fall again. Virgo will fall, back to the earth that once she knew; Libra's true-balanced scales will fall, and after them sharp Scorpio. So too the aged Chiron, with feathered arrows and Thessalian bow, will lose both bow and arrows. Capricornus, slow winter's icy harbinger, will fall and break the urn of the unknown one whom we call Aquarius; and last of the twelve signs, the Fish, will disappear. Into the universal deluge will the Wain descend, which never touched the sea before; the Snake, like a meandering river sliding between the Bears; and the great Dragon's smaller neighbour, the freezing Cynosura; and the slow-footed watcher beside the wagon, Arctophylax, will be shaken and fall into the deep" (lines 844 ff.).

Now V (*WiC* p. 212 [II.1.4]) interprets this fall as a shift in the poles occasioned by an axial tilt of the Earth, but as I see it, it is nothing of the kind. This is a collapse that imagines the stars to be ornaments hung from the ceiling of the sky, and their fall is like that of a chandelier whose support has given way. It is a literal tumble, down onto the Earth and into the sea. If one imagines the sky to be a dome-like roof over the world, then a logical component of an imagined description of the end is the collapse of that dome (Note 2).

Incidentally, the reference to the Wain (the Great Bear) "which never touched the sea before" almost certainly refers to the circumpolarity of that constellation, as seen from Mediterranean latitudes, during Seneca's era, and for some considerable time previously. This is entirely in accordance with uniformitarianly based retrocalculations of the effects of precession. If the heavens had been as disrupted in the past as V claims, it would be odd indeed if Seneca had used the phrase "which never touched the sea before" of the Wain (see Panel 12).

Not only this, but earlier in *Thyestes* (lines 476-477) we read, in a speech of Thyestes: "My brother love me? Sooner will Ocean wash the Seven Stars," meaning effectively never. That is, Seneca appears to have believed that it was quite impossible for this change to *really* take place, which confirms, I think, the purely imaginary nature of the "event" from Seneca's point of view. (Compare Seneca's *Hercules Oetaeus*, lines 1584-1586: "sooner shall the icy Bear come down and enjoy the forbidden waters than shall the nations be silent of thy praise.")

The same is true of solar reversals. In *Hercules Oetaeus*, lines 335-338, Seneca writes: "sooner shall day be born in the western sky … than shall the dames of Thessaly see me abandoned." This, of course, is the poet's way of saying "never"! He uses the same device in *Hercules Furens*, lines 373-375: "sooner shall the East extinguish, the West bring back, the day; sooner shall snow and flame be in lasting harmony ..."

Ovid, too, uses this device in *Tristia* 1.8.1-10, and this brings us back to where we started, for he puts solar reversals on a par with the reversals of rivers:

> "To their sources shall deep rivers flow, back from the sea, and the sun, wheeling his steeds, shall hurry backwards ... water shall produce flame and flame water ... everything that I once called impossible shall now take place ... because I have been deceived by that man who I thought would bring aid to me in my wretchedness."
>
> (Translation by A.L. Wheeler, 1959.)

Certainly, such passages do not *prove* that solar reversals are impossible. They only show that Seneca and Ovid thought they were. Velikovskians can, therefore, argue that these authors were merely the victims of collective amnesia. I am not swayed by this argument myself (see my comments on collective amnesia in the Introduction). As I see it, passages that use the reversal of the Sun and the dipping of the Bears in the Ocean to denote impossibility are the results of traditions based on experience of the long-term stability of the heavens. They show us that when Seneca and Ovid do describe such events with apparent seriousness, as Seneca does in Thyestes and as Ovid does elsewhere (Note 3), they do so knowing that they are writing *fiction*.

Finally, in a similar vein, in Herodotus 8.143 the Athenians are recorded as saying that "so long as the sun goes on his present course we will never make a treaty with Xerxes." This, of course, is a roundabout way of saying "never!" Yet, if V is to be believed, this remark was made only two centuries after the close of an era in which the sun had *repeatedly* changed his course! This just doesn't seem right, somehow.

NOTES ON CHAPTER 15

[Page 55]

1. Compare the remark of Dio Cassius, on the eruption of Vesuvius in AD 79: "… the whole atmosphere was obscured … the sun was entirely hidden, as if eclipsed … Some … believed that the whole universe was being resolved into chaos or fire." (*Roman History*, Epitome of book 66, paragraph 23: translation by E. Carey, 1914-1927).
2. Seneca gives another description of the collapse of the sky dome in *Hercules Oetaeus*, lines 1102 ff. See also Lucan 1.72 ff.
3. Ovid refers to the reversal of the sun at the time of Atreus and Thyestes in *The Art of Love* 1.327-330 and *Heroides* 16.207-208. Of particular interest in the present context is *Ex Ponto* 4.6.45-50:

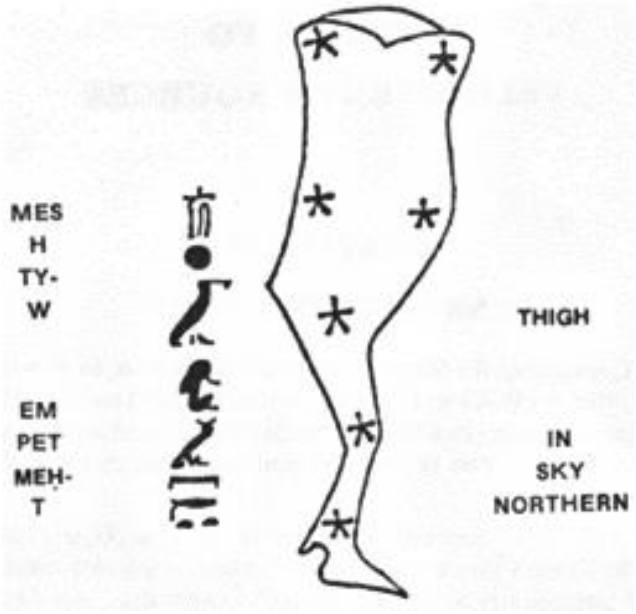
> "Sooner shall the Hister, all too near me, turn his march back from the Euxine sea towards its source and, as if the age of Thyestean banquets should return, the chariot of the sun shall sooner be driven towards the eastern waters than that any one of you who have mourned my exile shall call me a forgetful ingrate."
>
> (Translation by A.L. Wheeler, 1959.)

Perhaps, too, Ovid's use of a reversed sun to convey the sense of "never" gives us some insight into his views on the reality of the Phaethon myth, which he so vividly described in *Metamorphoses*?

PANEL 12. THE CIRCUMPOLARITY OF THE GREAT BEAR

Homer refers to the circumpolarity of the Great Bear in *Odyssey* 5.273-275 and *Iliad* 18.487-489, both of which refer to the Wain,/Great Bear as "the only constellation which never bathes in Ocean's Stream, but always wheels round in the same place." These early classical references, of course, are supposed to have been penned in the midst of V's cosmic upheavals!

In Egypt, the Wain/Great Bear was *Mshtyw*, the bull's foreleg, which, it must be said, the constellation resembles much more than it does a Bear! (See diagram.) Uniformitarianly-based retro-calculations imply that it was circumpolar as seen from the latitude of Cairo throughout the Pharaonic period (Ref. 1), and this finds confirmation in the Pyramid Texts (para. 458), in which the constellation is classed with the Imperishable Stars — that is, the stars that never set, or the circumpolar stars. The constellation also features in Chapter 17 of the *Book of the Dead*, where it is referred to as "the Thigh in the northern sky," and in Chapter 98 of the same, where it is "the Thigh which dwellest in the northern heaven ... and which diest not" (Ref. 2). A 20th dynasty reference to the constellation says that "it always existeth in the northern sky" — a clear reference to its circumpolarity (Ref. 3).



THE BULL'S FORELEG: FROM A COFFIN OF THE HERAKLEOPOLITAN PERIOD

On *WiC* pp. 301-302 [II.7.1], V gives rather a misleading interpretation of the circumpolar *Mshtyw*, which he purportedly bases on Ref. 1, and on two other articles by the same author (Refs. 4 and 5). In the first place, though, Wainwright does not say that the actual pole of the sky was *in* the Great Bear. True, he says in Reference 4 that "the Great Bear played the part of pole star," but this is simply careless phrasing. Since he refers his readers back to Reference 1 anyway, it is clear that all he means by this is that the Great Bear moved in a tight circle *around* the pole. (The pole was at that time unmarked by any bright star, so the circling of *Mshtyw* served to highlight the point about which the whole sky turned and was thus a rather splendid *alternative* to a pole star.) All of which is not inconsistent with uniformitarianly-based retro-calculations, but, on the contrary, perfectly consistent with them!

As for the "bowing down" of the Great Bear, which V takes to be a sudden lurch of the constellation brought on by a catastrophic tilt of the Earth's axis, this too, is perfectly consistent with uniformitarian calculations. The constellation would "bow down" *every day* as it dipped towards its lower meridian passage between the pole and the northern horizon.

This "bowing down" thus has nothing whatever to do with the plunge of the Wain into the sea in Seneca's Thyestes.

REFERENCES FOR PANEL 12

1. S.R.K. Granville (ed.), *Studies Presented to F.L. Griffith* (1932), article by G.A. Wainwright, "A Pair of Constellations", pp. 379-380.
2. E.A. Wallis Budge, *The Book of the Dead* (1909).
3. As Ref. 1, p. 375.

4. G.A. Wainwright, “Orion and the Great Star”, in *Journal of Egyptian Archaeology*, Vol. 22, pp. 45-46.

5. G.A. Wainwright, “Letopolis”, in *Journal of Egyptian Archaeology*, Vol. 18, pp. 159-172.

CHAPTER 16. SUNRISE IN THE WEST?

[Page 56] Continuing the theme of reversals of the Sun, in *Worlds in Collision (WiC)* p. 177 [I.9.3] Velikovsky (V) writes: "The people of Ugarit (Ras Shamra) in Syria addressed Anat, their planet Venus: 'You reverse the position of the dawn in the sky.'"

Velikovsky here cites Virolleaud's *La déesse Anat* (1938), but he doesn't give a page number, which is unintentionally very appropriate since this "quote" simply does not exist. What seems to have happened (Note l) is that in reading through Virolleaud's French translation of the Ras Shamra tablets, V came upon the phrase, *La rosée des cieux, tu la verseras* (Virolleaud, p. 26). This phrase, which seems to be spoken *by* Anat, actually means "The dew of the heavens, you will pour it out," but by mistranslating *rosée* as "dawn" instead of "dew," and then mistranslating *verseras* as "reverse" instead of "pour out," V has managed to invent a reversal of the Sun induced by the planet Venus!

Next, on *WiC* p. 114 [I.5.1], V tells us that "Harakhte is the Egyptian name for the western sun," and that, according to an inscription, "Harakhte, he riseth in the west" (Note 2).

Velikovsky here refers to J. H. Breasted's *Ancient Records of Egypt* (1906), Vol. 3, Section 18, which concerns an inscription from the tomb of Horemheb. Part of the inscription, according to Breasted, reads: "Harakhte, only god, king of the gods, he rises in the west … ," so that this quote at least is not, like the Anat inscription above, just a figment of V's imagination.

For a long time this inscription puzzled me. I couldn't work out why Breasted didn't comment on it if it implied (as V said it did) that the Sun rose in the west in Horemheb's day. Such an extraordinary "fact" would surely warrant *some* comment from Breasted, I thought, even if only a statement to the effect that it was "obviously" a mistake.

But whatever the explanation, I was quite sure that the inscription had nothing to do with the Sun actually rising in the west. I had a number of very solid reasons for thinking so — namely, the pyramids of Egypt.

In Egyptian religion, death and the west were closely associated with each other precisely because the sun set in the west each day (Note 3). For this reason, the pyramids of the Egyptian dead were all built on the *west* bank of the Nile valley, as a map of Egypt readily shows. The Valley of the Kings is similarly situated, of course, as indeed was the tomb of Horemheb from which the Harakhte inscription came. This geographical distribution of pyramids and tombs, therefore, can be taken as confirmation that sunrise and sunset have not changed places during the course of Egyptian history. (Incidentally, the precise orientation of the sides of the Great Pyramid can also be taken as confirmation that the geographical locations of the ends of the earth's axis of spin have not suffered any appreciable displacements since the pyramid was built.)

If further confirmation were needed that the Sun set in the west in Horemheb's day just as it does in our own, Breasted's book supplies it, for in Vol. 3, Section 17, is another inscription from the tomb of Horemheb, which refers to Osiris, god of the dead and ruler of eternity, as "Presider over the West."

All in all, then, "Harakhte, he rises in the west" is the "odd man out," but how to explain it?

I enlisted the help of a professional Egyptologist, Dr Patricia Spencer, who is the archivist of the Egypt Exploration Society. She was able to tell me two things. Firstly, that a photograph of the inscription and details of its contents can be found in *Hieroglyphic Texts from Egyptian Stelae*, Part 8, by I.E.S. Edwards (1939). Secondly, that Breasted's translation of the phrase "Harakhte ... he rises in the west" is actually a mistranslation. The phrase should read "he shines in life" or "he shines with life," and not "he rises in the west." We can thus dispose of yet another solar reversal.

Not so easy to dispose of are the solar reversals mentioned in Herodotus 2.142, to which V refers on *WiC* p. 112 [I.5.1]. Four times in the course of Egyptian history, Herodotus tells us, the Sun rose contrary to his wont, twice rising where he now sets, and twice setting where he now rises. This startling "phenomenon" is neither a figment of V's imagination nor the result of careless translation: it is there, and it can be found in any translation of Herodotus. So what can it signify?

In the first instance, it seems unlikely that these reversals have anything to do with V's scenario. What V doesn't tell his readers in his account of Herodotus 2.142 is that he has edited out the following sentence: "yet Egypt at these times underwent no change, neither in the produce of the river and the land, nor in the matter of sickness and death." This, of course, is hardly consistent with V's scenario, where the reversals of the Sun are accompanied by world-wide upheavals of many kinds, not to mention unprecedented carnage!

So that the reader can see just what Herodotus did say, here is a translation of the relevant text:

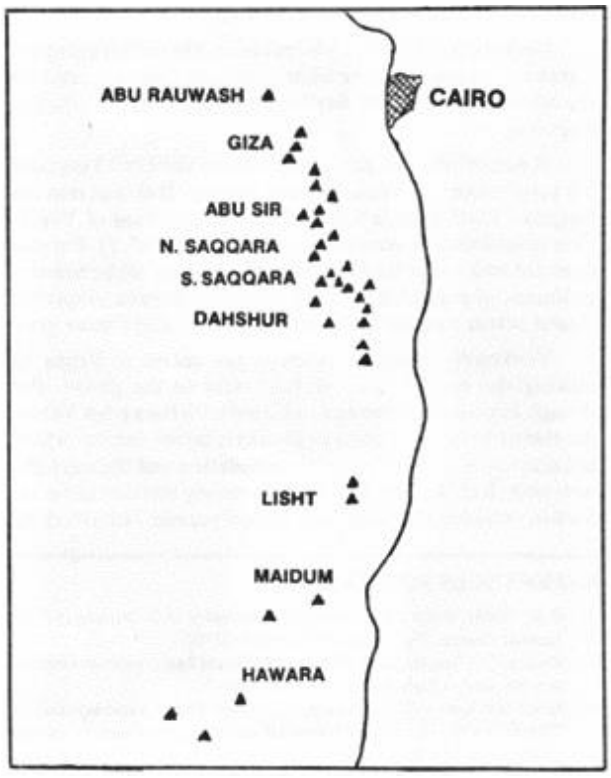
> "Thus far went the record given me by the Egyptians and their priests; and they showed me that the time from the first king to that priest of Hephaestus, who was the last, covered three hundred and forty one generations of men, and that in this time such also had been the number of their kings, and of their high priests. Now three hundred generations make up ten thousand years, three generations being equal to a century. And over and above the three hundred the remaining forty one cover thirteen hundred and forty years. Thus the whole sum is eleven thousand three hundred and forty years; in all which time (they said)

> they had had no king who was a god in human form, nor had there been any such thing either before or after those years among the rest of the kings of Egypt. Four times in this period (so they told me) the sun rose contrary to **[Page 57]** his wont; twice he rose where he now sets, and twice he set where he now rises; yet Egypt at these times underwent no change, neither in the produce of the river and the land, nor in the matter of sickness and death."
>
> (Translation by A.D. Godley, 1921.)

Ignoring the fact that Herodotus's reversals lack the catastrophic associations of V's, and ignoring the evidence of the pyramids and so forth, discussed above, what was Herodotus talking about?

It is, of course, possible that Herodotus — or, more likely, his priestly informant — was spinning a yarn that had no foundation in fact. But personally I think there is more to it than that. The best explanation — in orthodox terms — that I have seen is that it stems from a misunderstanding of calendar drift.

This requires some explanation. The Egyptian Civil Year consisted of 365 days, made up of l2 schematic months of 30 days apiece, plus 5 extra days, known as the *epagomenae* or epagomenal days (Panel 13). The actual solar year, however, consists of 365¼ days, so that the civil calendar would have fallen behind the solar (seasonal) calendar by ¼ day every year, or by 1 day every 4 years. Left without correction, therefore, the civil calendar would have drifted with respect to the seasons, and eventually, for example, summer festivals would have ended up taking place on winter days, and vice versa. We prevent such calendar drift by having leap-years, but the Egyptians didn't. As a result, their civil calendar did drift through the seasons (Note 4) in a way which seems most peculiar to us today.



A MAP SHOWING THE DISTRIBUTION OF EGYPTIAN PYRAMIDS
(All are on the west bank of the Nile Valley)

With summer festivals taking place on winter days — or vice versa — it could be said that the Sun was operating "contrary to his wont" — that is, "out of his proper course" or "not as he should be." This could have been misinterpreted by Herodotus — or by his informant — as a literal reversal of the sun's motion.

Falling out of step at a rate of ¼ per year, the civil calendar would take 365¼ divided by ¼ = 1461 solar years to get back in step again, a period of time we now call a Sothic Cycle. If we relate "easterly rising" in Herodotus to being "in step with the seasons," and "westerly rising" to being "out of step with the seasons," then 1461 years would correspond to a return from "easterly rising" to "easterly rising." Since Herodotus has four reversals taking place in the span of Egyptian history, this would correspond to two Sothic Cycles — that is, 2 x 1461 = 2922 years. Herodotus seems to be counting the kings up to about 667 BC, the time of the priest of Hephaestus, so by the present method of reckoning, the date of the first king would be around 2922 + 667 = 3589 BC which is roughly in line with the start of the first dynasty.

As for the 341 kings, this number could well be about right for the kings who ruled over Egypt — or were reckoned to rule over Egypt — between the beginning of the first dynasty and the end of the 25th. (See, for example, the king lists in Margaret A. Murray's *The Splendour That Was Egypt* (1949). I take the Assyrian invasion of Egypt at the end of the 25th dynasty — the 667 BC used above — to be that associated by Herodotus with the priest of Hephaestus in 2.141.) What is quite clearly wrong is Herodotus's allocation of a generation-long reign to each king. Some kings reigned, if the records are to be believed, only for a matter of days, let alone 33 years, and there were some co-regencies.

The obvious weakness of the above interpretation of Herodotus 2.142, in terms of calendar drift, is that the validity of the interpretation depends on the invalidity of the text (or, more likely, I think, on the invalidity of Herodotus' source). I am well aware of this weakness, but nevertheless I believe it to be the correct explanation of the "reversals."

NOTES AND REFERENCES FOR CHAPTER 16.

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Note 1. This was first suggested to me by Michael Behrend, and later confirmed by me from other details of context, etc. Sean Mewhinney came independently to the same conclusion see *Kronos* X.2, pp. 105-108. For an English translation of the relevant portion of text, see J.B. Pritchard, *Ancient Near Eastern Texts* (1969 ed.), p. 136, col. 2, "dew that the heavens do shed."

Note 2. Velikovsky gives the impression there is more than one inscription, but so far as I am aware, there is only the one.

Note 3. ln the Pyramid Texts, for example, Anubis, the god of the dead, "presides over the Westerners" (pyr. 57) and is "Foremost of the Westerners" (pyr. 1833). When the pharaoh dies he is placed "at the head of the Westerners" (pyr. 1908-1909); when he is reborn, it is in the east, like the Sun (pyr. 1465 and 1530). The symbolic roles of both east and west are well illustrated in pyr. 306: "The king rests in life in the west, and the dwellers in the netherworld attend him. The king shines anew in the east … Rejoice at the king, for he has taken possession of the horizon." Likewise pyr. 1469.

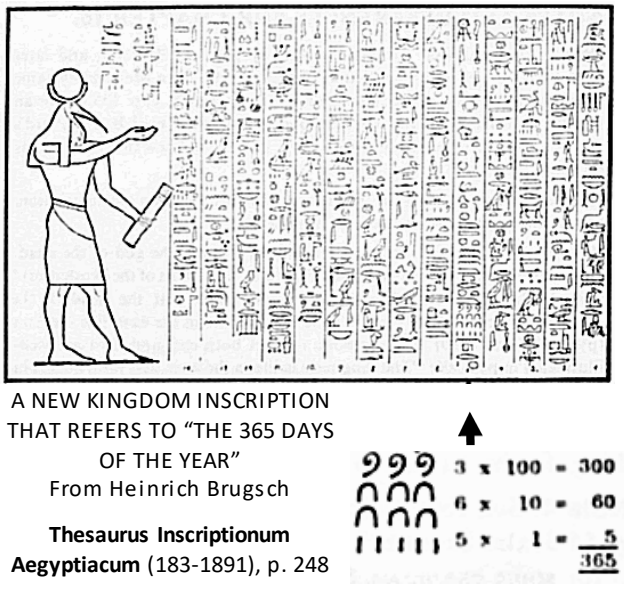
Note 4. See, for example, Sir Alan Gardiner, *Egypt of the Pharaohs* (1966), pp. 64-65; also Breasted's *Ancient Records of Egypt* (1906), Vol. l, Sections 42-43 for some examples. See also Panel l3 on the Canopus Decree.

PANEL 13. THE EGYPTIAN CALENDAR

Herodotus 2.4 tells us that "the Egyptians make each of the 12 months 30 days, and then add 5 days to make up the year." By "schematic months" I mean, of course, months which make no attempt to keep in step with the phases of the moon. Our own months are like this, though our calendar is less sensible than the Egyptian insofar as some of our months have 3l days, some 30, and one has only 28. One cannot, of course, deduce that since Egyptian "months" were 30 days long, this therefore was the length of an actual lunation in ancient Egypt, since this would be like someone in the future deducing that in the twentieth century some lunations took 3l days, others 30, and yet others 28 or 29 days! Yet V seems to adopt such reasoning in regard to the 30 day "months" of the Egyptians in *WiC* pp. 316 ff. [II.8.l and 2].

Similarly with the epagomenae: l2 months of 30 days apiece made 360 days, and the 5 epagomenae were a sort of "dead" period, not properly part of the calendar, tagged onto the end to make up a solar year, or rather, something close to it. Velikovsky however, interprets the 360 days as representing the true length of a former year. For him the epagomenae represent an "extension" that had to be added on to the year when its length was changed from 360 days by a cosmic catastrophe.

But there is really no evidence for this, and V's claim, on *WiC* p. 123 [I.5.4], that there are no references to a year of 365 days or to the 5 epagomenae prior to the seventh century, is simply not true. There are numerous references to them stretching right back through Egyptian history, and for a list of sources I refer the interested reader to Raymond Weill's *Bases, méthodes et résultats de la chronologie Egyptienne* (1926), pp. 63-65. I here cite two examples from Weill: the earliest mention of the 5 epagomenae is in paragraph 1961 of the Pyramid Texts (which V tries to dismiss on *WiC* p. 123); and from the New Kingdom, well before the 7th century,



A NEW KINGDOM INSCRIPTION THAT REFERS TO "THE 365 DAYS OF THE YEAR"
From Heinrich Brugsch
Thesaurus Inscriptionum Aegyptiacum (183-1891), p. 248

comes a text which specifically mentions "the 365 days of the year." (See illustration.) Another example, not from Weill, was brought to my attention by Sean Mewhinney. In problem 66 of the Rhind Mathematical Papyrus, which concerns the division of a yearly ration into daily portions, the year is taken to consist of 365 days.

There seems little doubt, then, that the 365 day civil year of the Egyptians was of great antiquity, and the 360 day 'year' which V pursues is merely the number of days in l2 schematic months (that is, the civil year with the epagomenae not counted.)

Quite apart from anything else, it would be what schoolboys used to call "pretty much of a fluke" if nature had ever served up 30 day lunar months with 360 day solar years. Such an arrangement is simply too elegant, numerically, for nature to have produced unaided!

THE CANOPUS DECREE.

The Canopus Decree was an attempt to reform the Egyptian calendar so as to eliminate calendar drift. An extra day was to be added onto the 5 epagomenae every 4 years so that "it may not happen that some of the popular festivals which ought to be held in the winter come to be celebrated in the summer ... even as hath formerly happened." (Greek text, lines 4l ff.: tr. Budge — Ref. l.)

On *WiC* p. 321 [II.8.1] V quotes the decree's reference to the "360 days and to the 5 days which were afterwards ordered to be added" (Sharpe's translation — Ref. 2). He takes this to mean that the 5 days were ordered to be added to the calendar after the year ceased to be 360 days long. However, Budge's translation of the same line (line 44 of the Greek text) reads: "360 days and the 5 additional days which it is customary to add thereto." In other words, Sharpe's "afterwards ordered to be added" refers merely to the customary addition of the 5 epagomenae to the other 360 days of the civil calendar, and says nothing about their being added

to the calendar after the actual year ceased to be 360 days long!

On *WiC* p. 193 [I.l0.l] V makes another reference to the Canopus Decree. Here he claims that the decree represents the replacement of a 365 day Venus calendar by a 365¼ day Sirius calendar.

However, the 365 day year is simply the Civil Year, and V's involvement of Venus is a red herring. It is true that the Egyptian Civil Year is 5/8 of the synodic period of Venus. This coincidence is mentioned by Ptolemy (Ref. 3). But this does not mean that the Civil Year was defined with reference to Venus, or regulated by it. The number 365 was simply the closest whole number to the number of days in a solar year.

Velikovsky attempts to relate the decree to Venus by making the epithet "star of Isis" refer to the planet. But though Isis was sometimes associated with the planet Venus, the star of Isis in the Canopus Decree is Sirius, the star whose heliacal rising heralded the Nile inundation and the start of a new year (Ref. 4). The star of Isis is merely another name for Sothis, or Sirius, the "year" star of the Pyramid Texts (Ref. 5).

REFERENCES FOR PANEL 1

1. E.A. Wallis Budge, *The Decrees of Memphis and Canopus* (1904).
2. Samuel Sharpe, *The Decree of Canopus* (1870).
3. Ptolemy's *Almagest*, book 10 chapter 4: "Eight Egyptian years without a sensible error equals five circlings of Venus."
4. Greek text lines 36-38; Egyptian text lines 18-19. Plutarch also says that the Dog Star is the star of Isis "because it is the bringer of water" (*Isis and Osiris* paragraph 38).
5. Pyr. 965. See W. Max Müller, *Egyptian Mythology*, (1918) (Vol. l2 of *Mythology of All Races*), p. 56.

CHAPTER 17. THE TEN SUNS

[Page 59] On *WiC* p. 108 [I.4.4] V writes of an event which occurred in the reign of the Chinese emperor Yao (Yahou):

> "At that time the miracle is said to have happened that the sun during a span of ten days did not set, the forests were ignited, and a multitude of abominable vermin was brought forth."

Velikovsky gets this from the article on Yao in the *Universal Lexicon*, an eighteenth century German encyclopaedia. He quotes another account of the same "event" from J. Hübner's *Kurtze Fragen aus der Politischen Historia* (1733), this time associating it with a flood (Panel 14). We here concentrate on the solar prodigy and ask: what happened?

The first thing to note is that the *Universal Lexicon* (UL) seems to have got its account of the solar prodigy direct from Hübner—the wording is almost identical, and Hübner is listed among the sources for the UL article.

The second thing is to ask why V had to turn to rather obscure eighteenth century German sources for accounts of such an extraordinary event. Could this be because there were no other, more recent accounts of it to be had? And why didn't he cite any original Chinese sources which referred to this event? Could it be because there weren't any of these either?

Certainly I know of no sources besides UL and Hübner — Chinese, English or otherwise — which refer to this solar prodigy. But there are many references (Note 1) to another prodigy, which can be summarized as follows:

> "In the reign of the emperor Yao ten suns appeared together in the sky, scorching the crops and killing trees and plants, so that the people had nothing to eat. The people were further harassed by a variety of fearsome beasts like panthers, baboons, wild boars, and pythons (Note 2). Yao therefore ordered the archer Yi to slay these troublesome beasts, and to shoot nine of the suns from the sky. The people were delighted, and pronounced Yao the Son of Heaven."

Now it seems to me that Hübner's (and thus UL's) account of the Sun not setting for 10 days is a misquoted version of this 10 suns myth. It is not difficult to imagine that somewhere along the line the idea of 10 suns together became mistranslated or misinterpreted as 10 days rolled into one, and thence as a 10 day long "day." Compare the phrasing of Isaiah 30:26: "the light of the sun shall be sevenfold, as the light of seven days."

Now, I cannot see what the 10 suns myth can have to do with V's scenario, and we must dismiss it, I think, as evidence. But what is this myth about, and what inspired it?

The idea of 10 suns immediately calls to mind mock suns or parhelia. Thus Joseph Needham, in his *Science & Civilisation in China* (1959) writes:

> "One cannot but wonder whether haloes and parhelia were not the basis of the Chinese mythological story, to which there are many references in ancient works, of the appearance of ten suns in the sky simultaneously in the time of the emperor Yao."
>
> (Vol. 3, p. 476.)

Of course, parhelia don't generate vermin, let alone panthers and pythons. Nor do they "burn up" crops and vegetation. But then as regards this last, perhaps it is not what parhelia do which counts so much as what people think they are trying to do. The following passage is from Dr G. Hartwig's fascinating old book *The Aerial World* (1881), and is of interest to us here: It tells how the country people of Geneva reacted to the appearance of four mock suns on September 15th, 1851:

> "Instead of admiring the wonderful optical illusion, they were struck with the utmost terror, for in their simplicity they firmly believed that the sun was multiplying himself to set the earth on fire. With fear and trembling, they expected every moment to hear the trumpets of the Last Judgement; but a few minutes showed their terror to be vain, for soon the lustrous phantasms disappeared, and the heavens remained mute." (p.220)

As regards the panthers and pythons, etc., in the Chinese tale, I have no idea what they signify, or, assuming that the 10 suns do derive their inspiration from parhelia, what such creatures can have to do with mock suns. They may be purely symbolic beasts, as stated in Note 2, but if so, the significance of their forms eludes me at the time of writing.

On *WiC* p. 47 [P.2.6], V writes:

> "The aborigines of British North Borneo, even today declare that the sky was originally low, and that six suns perished, and at present the world is illuminated by the seventh sun."

Velikovsky's footnote to this refers to R.B. Dixon's *Oceanic Mythology* (1916), the relevant paragraph of which reads thus:

> "The theme of raising the sky is well known in Borneo. In the north-west the deed was accomplished by the daughter of the first man, while the Dusun of British North Borneo declare that the sky, originally low, retreated when six of the seven original suns were killed. Similar tales are told in the south-east and elsewhere in the island, and also occur in the Nias, Rotti, and Loeang-sermata" (p. 178).

Now V refers to Dixon as if the seven suns signify seven ages or seven consecutive epochs. But actually the myth tells us that there were seven suns in the sky simultaneously, but that six of them having been done

away with, today only the one remains. In other words, this myth is a seven sun cousin of the ten sun myth from China.

Another source of the same type is Chapter l3 of the *Visuddhi Magga*, written by Buddhaghosa in the fifth century AD. Velikovsky refers to it numerous times in *WiC* (Note 3), using the translation by Warren (Note 4).

[Page 60] It is a strange piece of work. In a dream-like and totally fanciful manner it sees history as a series of lengthy world cycles, each of which is terminated by a catastrophe of either fire, water, or wind. Of primary concern to us here is the mechanism by which a world cycle is destroyed by fire (*WiC* p. 46 [P.2.6]). I here paraphrase Warren p. 323:

> When the end of the world cycle is approaching, a second sun appears in the sky. There is no distinction of night and day, since each sun rises when the other sets, and an incessant heat begins to assail the world. Clouds disappear from the sky and streams dry up. After a long period, a third sun appears, and the larger rivers dry up. After another long period, a fourth sun appears and even the sources of the great rivers in the Himalayas dry up. With the coming of the fifth sun' the ocean dries up and when the sixth sun appears the world starts to fill with smoke. After another long period, the seventh and final sun appears. The whole world bursts into flames and everything is consumed.

Once again, then, these seven suns are not seven consecutive ages, as V would have it, but seven suns which appear together in the sky and burn up the world after the fashion imagined by the people of Geneva in the extract from Hartwig quoted earlier.

The above paraphrase, though it does give the gist of the *Visuddhi Magga*'s multiple-sun destructions, does not convey the peculiarly fanciful style of the original. ln *Velikovsky's Sources* I quoted almost the whole of its Chapter 13 precisely because I knew I could not convey this aspect of the original in a paraphrase, and because I felt that this aspect was important insofar as it gave the reader a valuable insight into the likely reality — or lack of it — of the "events" described. Unfortunately, we cannot reproduce such a long text here, so I must settle instead for saying that a reading of Warren's translation left me with the distinct impression that these world cycles and their catastrophes were elaborate philosophical flights of fancy, which were about as reliable a guide to real history as the fancies of Buddhist cosmography were to world geography (Note 5). In other words, definitely not a guide to pin much faith in.

It is difficult, even in paraphrase, to take the seven suns as an account of a real catastrophe, let alone one which has any relevance to V's scenario. But it is even more difficult to take the actual text seriously when it deals in "a hundred thousand times ten million worlds" and "all the heavens to which access is given by the first trance." And when, after everything has been burnt up by the seven suns, a great cloud gathers, rain falls, and, with the help of the wind, a giant water drop forms from which the next world emerges, well, one's instinct is to tip-toe quietly away!

Destructions by water and wind are similarly fantastic. When a world cycle is destroyed by water, it comes in the form of a rain of salt water, which floods the earth "until it engulfs the heavens to which access is given by the second trance." (One is tempted to see here a link with the notion that the world's seas are the remnants of such rains.) When, on the other hand, a world cycle is destroyed by wind, it is like a hurricane which increases in force until whole mountains are torn from the earth and jostled against each other until they are ground to powder. The destruction continues "until it has embraced all the heavens to which access is given by the third trance." Neither of these catastrophes bears much relation to V's scenario, except perhaps the "hurricane" with a goodly slice of its poetic licence removed (*WiC* p. 80 [I.3.1]). On the other hand, since there isnt a single mention of either of the planets Venus and Mars in *Visuddhi Magga*, Chapter 13, or even of a comet or other suitable cosmic body, it would be rash to jump to any Velikovskian conclusions, especially when one considers the very poor overall agreement between the text and V's scenario. For myself, I think our text is simply a philosophical extravaganza based on the destructive effects of sun (drought), wind (hurricane) and rain (flood), these being intensified to almost ridiculous cosmic proportions. I don't think we need look any further than this for an explanation of the text.

We shall return to the subject of world ages generally in a later chapter.

NOTES ON CHAPTER 17.

1. See, for example, E. Morgan, *Tao the Great Luminant: Essays from Huai-Nan-Tzu* (1969 edition), pp. 88-89.
2. These beasts may actually be more symbolic than real — see, for example M. Granet's translation and notes in *Danses et légendes de la Chine ancienne* (1926), Vol. I, pp. 377-379. My thanks to Sean Mewhinney for his notes on this and other points in connection with the ten-suns myth. Thanks also to Donald Cyr, Carl Masthay, and Bian Depai for useful information.
3. *WiC* p. 43 [P.2.5]; p. 46 [P.2.6]; p. 64 [I.2.3]; p. 80 [I.3.1]; p. 103 [I.4.2]; p. 134 [L6.1]; p. 139 [1.6.2].
4. H.C. Warren, *Buddhism in Translations* (1896), pp. 315 f.
5. At the centre of the world is Mount Meru. It is surrounded by eight concentric rings of mountains, the outer ring, *Chakravala*, being made of iron, the others of gold. Between each ring of mountains flows an ocean, and in the ocean between the seventh and eighth rings lie the four continents or "abodes of mankind." See the article "Cosmogony & Cosmology (Buddhist)" in J. Hastings, *Encyclopedia of Religion and Ethics*. Sir Charles Eliot in his *Hinduism and Buddhism* (1921; l971), Vol. I, p. 334, writes that "the systematising of the imaginary" is the "besetting intellectual sin of India." He goes on: "Ages, continents, and worlds are described in detailed statements which bear no relation to facts."

PANEL 14. THE CHINESE EVIDENCE FOR VELIKOVSKY'S SCENARIO

On *WiC* pp. 80-81 [I.3.2] and p. 108 [I.4.4] V refers to the Chinese flood legend, his source being Legge's translation of the *Canon of Yao* (Ref. l). It is true that the text reads: "destructive in their overflow are the waters of the inundation. In their vast extent they embrace the mountains and overtop the hills, threatening the heavens with their floods." Because of this, some early Christian missionaries thought the inundation of Yao was to be identified with Noah's flood (Ref. 2), but really there is no evidence that this "inundation" was anything other than the recurrent result of the then ineffectively controlled overflows of the rivers (Ref. 3). Indeed, in the account of the reign of Yao as outlined in the *Annals of the Bamboo Books* (Ref. 4) we read that: "in his 19th year he ordered the minister of works to undertake the regulation of the Ho." Again, in his 6lst year he set the baron K'wan of Ts'ung to work on the same task, and in his 75th year, Yu. Yao's reign appears to have been notable for the first serious attempts to regulate the rivers, and to drain marshlands so as to make way for an expanding population, this work being most effectively accomplished by the great engineer, Yu (Ref. 5). As Yong Yap and Arthur Cotterell write in their book *Chinese Civilisation* (1977):

> "Yet, above all, the perennial concern of government was water control. The founder of the first dynasty, the legendary Hsia (c. 2000-1500 BC), was Yu the Great Engineer, who dealt with 'the inundating waters' by opening 'passages for the streams throughout the nine provinces and conducting them to the seas.' The model of public service, Yu spent thirteen years mastering the waters without once returning home to see his wife and family, and brought 'water benefits' to all the people: floods ceased and the fields were irrigated" (p. l6).

Floods there certainly are in the *Canon of Yao*, but the emperor's indignant claim that they overtop the hills and assail the heavens is more likely to be royal poetic licence than a reference to "a great tidal wave" which "swept over the mountains and broke in the middle of the Chinese Empire!" (*WiC* pp. 80-81).

On *WiC* p. 110 [I.4.4] and p. 160 [I.8.3] V refers to a brilliant star that appeared in the days of Yao, the implication being that this was the new-born Venus Comet. In fact, according to the *Annals of the Bamboo Books*, two such stars appeared, one in Yao's 42nd year, and the other in his 70th. But there is no indication that either of these had anything to do with the planet Venus, as V supposes, and no evidence that they were anything other than novae.

As for the astronomers Hi and Ho (*WiC* p. 109 [I.4.4]), there is nothing sinister in their orders "to calculate and delineate the movements and appearances of the sun, the moon, the stars …," and nothing to indicate that their activities were any more linked to catastrophic changes in the length of the year and month, than is the preparation of a modern *Nautical Almanac* or *Agricultural Calendar*. In none of the texts is there any mention of a change in the length of the year or month, and indeed, in the *Canon of Yao*, it is expressly stated that "a round year consists of 366 days."

Incidentally, Hi and Ho were sent about their business in the first year of Yao's reign. Comparison of this date with those of the regulations of the river Ho (19th, 61st, and 75th years) and the appearances of brilliant stars (42nd and 70th years) reveals no correlation at all.

Velikovsky's Chinese catastrophe is a product of his own selective editing, and no one tells the story as V does. The sun not setting for 10 days comes, as we have seen, from UL and Hübner, and it doesn't feature - even in its proper ten suns form — in either the *Canon of Yao* or in the *Annals of the Bamboo Books*. The "new star" comes from the *Annals*, and doesn't feature in the *Canon*. The "flood" comes from the *Canon*, and seems to correspond to the regulation of the river Ho in the *Annals*.

There may well have been a succession of serious and disastrous floods in Yao's day, but that they had anything to do with the planet Venus (the new star), or a disruption of the Sun (the ten-suns prodigy), is seriously to be doubted. Let me press the point home by analogy: in Queen Victoria's reign a new star appeared in the constellation of Corona (1866), fish fell from the sky (1859), and an earthquake shook the land (1884). But what of it?

On *WiC* p. 110 [I.4.4], Velikovsky writes:

> "When we summarise what has been told about the time of Yahou, we have the following data: the sun did not set for a number of days, the forests were set on fire, vermin filled the country, a high wave reaching the sky poured over the face of the land and swept water over the mountain peaks and filled the valleys for many years; in the days of Yahou the four quarters of the heaven were established anew, and observations of the duration of the year and month and of the order of the seasons were made. The history of China in the period before this catastrophe is quite obliterated."

It seems to me that this version of Chinese history is little more than a fantasy created by V.

NOTES AND REFERENCES ON PANEL 14.

1. J. Legge, *The Chinese Classics*, (1960 reprint), Vol. 3, Text pp. 15-27.
2. Legge, Vol. 3 *Prolegomena*, pp. 74-76, gives examples.
3. Article "Deluge" in J. Hastings, *Encyclopaedia of Religion and Ethics* (1959), Vol. 4, p. 549 (B.i) and p. 556 (E); H. Murray, J. Crawfurd and others, *An Historical and Descriptive Account of China* (1836), Vol. l, p. 49; and Legge, Vol. 3, *Prolegomena* p.76.
4. Legge, Vol. 3, Prolegomena, pp. 112-114.

5. For a full account see the text “The Tribute of Yu,” in Legge Vol.3, Text pp. 92-151, and Legge’s comments on it in Vol. 3, *Prolegomena*, pp. 56-60. See also *Mencius* Book 3, Part I, iv. 7, in Legge Vol. 2, Text pp. 250-251.

CHAPTER 18. PLATO

[Page 62] There are three items of particular interest to Velikovskians in the writings of Plato, and we will deal with each of them in turn, starting with the episode in *The Statesman* (269 f.) in which Plato refers to catastrophic reversals of the Sun and other heavenly bodies. At least, this is Velikovsky's (V) somewhat edited version of Plato, which the reader is recommended to reread at this point (*WiC* pp. 115-116 [I.5.l]).

First, the context of these reversals in Plato needs some explanation. They are mentioned in a political dialogue that is, a piece of political philosophising presented in the form of a play. The dialogue is between the Eleatic Stranger and the Young Socrates, and the story of the catastrophes is related by the former to the latter as a mythological aside to the mainstream dialogue, whose purpose is to analyse the qualities of the ideal statesman.

The Stranger (or rather Plato) weaves together three myths:

(i) That the Sun reversed its course at the time of Atreus and Thyestes. Plato here gives a rather different version of the myth to that told by others elsewhere. He says that "the sun and the stars once rose in the west, and set in the east, and that the god reversed their motion and gave them that which they now have as a testimony to the right of Atreus." (Translated by B. Jowett, 1892.)

Now, in other versions the Sun rose in the east *before* as well as *after* the day of the reversal. On the actual day of the prodigy it rose, as usual, from the east, but was reversed some time during the day, and on that particular day only, it set in the east. The following day it rose again from the east, and thereafter maintained its usual east to west course. At no time did it rise in the west. This version of the reversal can be found in Euripides (*Orestes* 995 f.), Apollodorus (*Epitome* 2.12), Ovid (*Art of Love* 1.327-330) and Seneca (*Thyestes* 784 f.).

Some accounts of the reversal are not specific enough for us to say which interpretation is intended. For example, Lucan 1.544 simply says that "the sun fled back to where he rose," and this would admit of either interpretation. Personally, I have always assumed that the interpretation of Euripides and the others was the one intended, rather than Plato's. Certainly, I know of no other version besides Plato's (Note 1) which specifically says, or even unequivocally implies, that the Sun used to rise in the west before it was made to rise in the east at the time of Atreus and Thyestes. It is possible, therefore, that Plato's version was his own invention, specially designed to fit in with (ii) and (iii) below, rather than a genuine alternative tradition.

(ii) That under the rule of Cronus, man lived in a Golden Age of peace and innocence in which there were no wars, no quarrels, no violence, and no need for government of any sort. The Earth gave them fruits in abundance, so they had no need for agriculture. The climate was perpetually mild, so they had no need to manufacture clothes or build houses. The Golden Age is referred to in many sources — see, for example, Hesiod's *Works and Days*, lines 109 f. and Ovid's *Metamorphoses* 1.89 f. We shall return to the subject of the Golden Age and World Ages generally in a later Chapter.

(iii) That in former times men were not born of one another (that is, by mating of the sexes), but were born from the Earth. This curious idea is referred to by Plato in *Menexenus* 6-7, and by Hippolytus in *Refutation of All Heresies* 5.7. Presumably the idea is that "in the beginning" men, like animals, arose from the earth by spontaneous generation, a process which the ancients believed was still operative in the case of some smaller animals. See Diodorus Siculus 1.7, 1.10.2 and 1.10.67; also Ovid's *Metamorphoses* 1.416 f. Possibly, too, men were conceived as growing from the earth like trees, as the Phrygian Corybantes in the passage of Hippolytus just cited (cf. also Virgil's *Aeneid* 8.314 f.).

So, how does Plato interweave these myths? What he does, through the character of the Stranger, is to turn the three myths into three facets of one single myth, seemingly his own invention, as follows:

God guides the world and keeps it on an orderly course, but there are times, on the completion of a certain cycle, when he "lets go," and the Universe "by an inherent necessity" grinds to a halt and reverses itself. Such a reversal is naturally a catastrophic event on account of the shock of the sudden change, and it is accompanied by great destruction of men and animals.

The aftermath of such a reversal is not unlike running a film backwards, and one side-effect is that the Sun, Moon, and stars reverse their motions, rising in the west and setting in the east. This is where the reversal of Atreus and Thyestes comes in, of course. But much more seriously, time itself reverses, and the old grow young again! One consequence of this is that "birth" and "death" reverse, so that whereas birth is the beginning of life in a cycle like our own, it is the end of life in an opposite cycle. Likewise, death as the end of life in this cycle becomes the beginning of life in an opposite cycle.

ln a cycle like our own, men die and are buried in the earth. In an opposite cycle, therefore, this order of events is reversed, and men emerge from the earth to be "born." Hence, the Stranger says, the origin of those curious legends about the birth of people from the earth in former times.

Now, we today are living in the Age of Zeus, and its imperfections are a direct result of God having "let go"

of the helm of the Universe at the end of the Age of Cronus. In contrast to the imperfections of our own cycle, the previous cycle was one of perfections, and this is where the Golden Age comes in.

In this way, Plato weaves together myths (i) to (iii) to yield a Golden Age of Cronus in which the Sun rose in the west and in which men were "born" from the earth.

Now, so far as I am aware, nowhere other than in Plato are these three myths woven together in this way, so it would **[Page 63]** appear that the weaving is Plato's own invention. Certainly I am aware of no other source which connects (i) with either (ii) or (iii), and though I am aware of vague associations between the ideas behind (ii) and (iii) (see note 2), I do not know of any specific statement, outside Plato, to the effect that the men of the Golden Age were earth-born.

As mentioned in Chapter 15, Plato is the only author who presents the reversal of Atreus and Thyestes (or, more correctly, the reversal of the heavens generally) in anything like a Velikovskian context. All other authors present the reversal more or less as a miracle, with no Velikovskian overtones attached. But as we have just seen, though Plato does associate catastrophes with the reversal of the Sun, Moon, and stars, he sees both as a part of a complete reversal of the universe, time included, with the catastrophes as the "shock" of the sudden change! Looked at in this way, Plato's account really isn't much like V's scenario at all. Even V acknowledged that the time reversal minimized the value of the extracts he quoted from Plato in *WiC* (p. 116 [I.5.1]), for the picture Plato paints is so fantastic that one hesitates to take any particular detail of it more seriously than the whole.

For myself, I do not think that the contents of *The Statesman* can be held to tell us anything about "real" reversals of the Sun in the past. I think they merely tell us about Plato's fertile imagination and his ability to take old myths (with whose reality he wasn't really concerned) and to turn them into something new — namely, a vehicle for conveying his philosophical ideas. Plato is not passing on information about past literal catastrophes and solar reversals, but building a fantastic conception of the origins of the present state of man and society. Hence the fact that this "catastrophism" appears, of all places, in a *political* dialogue.

Now, though no one is going to take a reversal of the universe literally, it is nevertheless an interesting example of philosophical speculation. It gives the lie to Velikovsky-style questioning, for if one asks why anyone should imagine the Sun reversing if it never actually did so, one can also ask why anyone should imagine time reversing if it never actually did so. I raised this point back in Chapter 10, of course, the point being that it is in the nature of philosophy to probe the state of things as they are by considering them to be otherwise. The Universe has a definite "polarity," so a natural question is: What of the opposite polarity? Of course, in *The Statesman* this is all subsidiary to the political content (Note 3), but the point is that one would be quite misguided to try to elicit any literal truths from Plato's reversals, either in whole or in part. Certainly, it would be rash, in view of the obvious signs of Plato's own invention here, to assume that Plato's account tells us anything about what really happened in the days of Atreus and Thyestes, either as regards solar reversals or anything else! But more than all this, since there is no mention of the planets Venus and Mars in Plato's account, it would be even more rash to assume that Plato tells us anything about catastrophes involving either of those two planets. If any planets are indicated at all, they are Jupiter (age of *Zeus*) and Saturn (age of *Cronus*), though in view of the synonymity argument raised in earlier chapters it must be seriously doubted whether there is really any reference here to even these planets.

The second notable piece of catastrophism in Plato comes in another dialogue, *Timaeus* (22-23). This time the tale is told to Timaeus by Critias, who got it from his grandfather (also called Critias), who in turn got it from his father, Dropides. Dropides himself got it from the wise old Solon, and Solon got it from some Egyptian priests whilst travelling in Egypt. Having sorted out the pedigree of the story, this is how Critias imagines Solon's conversation with the Egyptian priests:

> "'Oh Solon, Solon, you Greeks are all children, and there's no such thing as an old Greek.'
>
> 'What do you mean by that?' inquired Solon.
>
> 'You are all young in mind,' came the reply: 'you have no belief rooted in old tradition and no knowledge hoary with age. And the reason is this. There have been and will be many different calamities to destroy mankind, the greatest of them by fire and water, lesser ones by countless other means. Your own story of how Phaethon, child of the Sun, harnessed his father's chariot, but was unable to guide it along his father's course and so burnt up things on the earth and was himself destroyed by a thunderbolt, is a mythical version of the truth that there is at long intervals a variation in the course of the heavenly bodies and a consequent widespread destruction by fire of things on the earth."
>
> (Translated by H.D.P. Lee, 1979.)

Velikovsky claims that this hoary old tale supports him (*WiC* pp. 147-148 [I.7.2]). But does it? The Phaethon myth we have already looked at in Chapter 10, so the issue here is whether or not "a variation in the course of the heavenly bodies and a consequent widespread destruction by fire of things on the earth" is a reference to V's planetary catastrophes. It has to be said, of course, that it *could* be. But, as with many other sources which V uses, it must also be said that Plato's description is so vague that it *could*, just as easily, refer to something else entirely. To make an analogy, "an eccentric soldier with a moustache" *could* be a description of Hitler, but it *could* also be General Gordon, and without a bit more information to help us out, we are

rather guessing in the dark whomever we choose to apply it to.

The similarities between the catastrophes related to Solon by the Egyptian priests and V's scenario are at best superficial. To describe Venus's expulsion from Jupiter and subsequent "collision" with the earth as "a variation in the course of the heavenly bodies" seems every bit as unrealistic as describing Hitler as "an eccentric soldier with a moustache," and it seems to me that V must rely heavily on collective amnesia to explain the degree of vagueness involved here.

Having made the Hitler-General Gordon analogy and having likened V's scenario to Hitler, I had better put forward a General Gordon. First, though, some observations to set the scene.

In the first place, unlike V's scenario, in which the destruction by fire (burning naphtha) and water (tidal waves) are rolled into one grand catastrophe, Plato is talking in terms of distinct catastrophes of fire and water - that is, some destructions are by fire alone, and others by water alone. Fire and water are, of course, the two natural "opposites" from among the four elements (earth, water, air, and fire), an "oppositeness" that is emphasised by Plato's statement that **[Page 64]** those who live on *high* ground survive destructions by *water*, whilst those who live on *low* ground survive destructions by *fire*.

We are naturally led from this to the Great Year doctrine, with its alternating destructions by fire and water. But, as pointed out in Panel 6, it can hardly be the great year as defined by the line-up of the planets, since Plato deals with this elsewhere (*Timaeus* 39 d), without any mention of catastrophe. Indeed, what Plato says there about the Sun, Moon and Planets is rather at odds with any "variation in the course of the heavenly bodies," so we are faced with something of a contradiction. However, if we assume, say, that Plato was quoting a prevailing belief, perhaps not shared by himself, or that he was simply making up a belief for Solon's informant to convey, then we can still ask what the basis was for such a belief.

Getting back to the Great Year, it would appear that originally it was defined without reference to grand planetary conjunctions (Note 4), these being grafted onto the doctrine sometime after Plato's day. Aristotle, too, in *Meteorologica*, 352a, mentions the Great Winters, with their excesses of rains, which recur at long intervals of time, but he nowhere defines that interval in terms of the planets. (Nor, indeed, does he refer to any "variation in the course of the heavenly bodies.")

Now, I don't know what form the original Great Year doctrine took, or how the periods of its cycles were defined, but an early form of it — at least, the fiery half of it — seems to have been proposed by Heraclitus in the sixth century BC.

It is difficult to know exactly what Heraclitus believed, as his work survives only in fragments quoted by other authors, and in paraphrases by later authors who may well have mixed up Heraclitus's own views with later authors' developments of them. What seems clear enough is that Heraclitus believed that the world was periodically dissolved into fire, this being, for him, the primary element of the Universe. Thus Diogenes Laertius, in his *Lives of the Philosophers*, 9.7-9, wrote of Heraclitus's views thus:

> "All things are composed of fire, and into fire they are again resolved ... fire is the element, all things are exchange for fire and come into being by rarefaction and condensation; but of this he gives no clear explanation ... all that is is limited and forms one world. And it is alternately born from fire and again resolved into fire in fixed cycles to all eternity ... For fire by contracting turns into moisture, and this condensing turns into water; water again when congealed turns into earth. This process he calls the downward path. Then again earth is liquefied, and thus gives rise to water, and from water the rest of the series is derived. He reduces nearly everything to exhalations from the sea. This process is the upward path."
>
> (Translation by R.D. Hicks, 1970.)

The idea of cyclic interchanges of the elements, fire to air, air to water, water to earth, and the reverse, was one that persisted down into later classical times. We find it in Aristotle (*Of Generation and Corruption*, 337 a), and later still in Ovid (*Metamorphoses*, 15.237 f.) and Cicero (*Nature of the Gods*, 2.33.84 and 3.12.31). It is an interesting idea, for if the balance of elements were disturbed, the normal pattern of things would be severely affected, particularly if either fire or water were to gain the upper hand. Lucretius also used the idea of elemental cycles (1.782 f. and 5.247 f.) and in one interesting passage (5.380 f.) turns the cyclic interchange of elements into a struggle for supremacy ("the warring elements"). Lucretius clearly envisaged catastrophic states of imbalance, for he tells us that on one occasion fire got the upper hand (hence the myth of Phaethon) and on another occasion, water (hence the myth of Deucalion). For a similar passage, see Dio Chrysostom, *Discourses* 36.47-49, and on the imbalance of elemental proportions generally, Eusebius, *Preparation for the Gospel*, 86 C & D.

Heraclitus's cyclic dissolution into fire was supposed to take place every 10,800 years, a period which was apparently devised by taking 360 generations each of 30 years. It is tempting to see here a schematic "year" each "day" of which occupies a human generation (each containing the same number of years as a schematic month does days), though whether this is the origin of the 10,800 is debatable. Be that as it may, there is no evidence of a planetary basis for the length of Heraclitus's cycle, and indeed, no evidence for the involvement of "the heavenly bodies," planets or otherwise, in the dissolution into fire. Indeed, as Diogenes Laertius states, it isn't clear exactly how Heraclitus envisaged the fiery end of things to come about, but his ideas on elemental cycles perhaps imply a complete

drying-out of the world to tinderbox extremes, at which stage, the balance of the elements being so severely disturbed, the world simply burst into flames. If this is the case, then it seems likely that Plato's "variation in the course of the heavenly bodies" is a later addition to Heraclitus's original version, which itself suggests that the involvement of the heavenly bodies was not a fact of ancient observation but a matter of later speculation. But which "heavenly bodies" are meant, and how did they act so as to bring about catastrophe?

In answer to the first question, I think Plato is more likely to have had the Sun and Moon in mind than the planets (see below). In answer to the second, I would suggest that they somehow acted on the balance of the elements. But how?

There are many references in Aristotle to the effects of the motions of the Sun on earthly things. Thus, in *Meteorologica*, 346 b, we read:

> "The efficient and chief and first cause (of various natural phenomena) is the circle in which the Sun moves. For the Sun as it approaches or recedes, obviously causes dissipation and condensation and so gives rise to generation and destruction."
>
> (Translation by E.W. Webster, 1923.)

Again, in *Of Generation and Corruption*, 336 a and b, Aristotle describes how the motion of the Sun along the ecliptic, first north then south of the celestial equator, successively creates and destroys: "thus we see that coming-to-be occurs as the sun approaches and decay as it retreats." This, of course, refers to the coming and going of the seasons. Plato, in the *Republic*, 516 b, similarly stresses the importance of the Sun in providing the seasons and says that, in a way, it is a root cause of everything in the phenomenal world.

The Moon naturally has a lesser influence, but it is still an important one. Thus in *The Generation of Animals*, 777 b, Aristotle writes:

> **[Page 65]** "The Moon is a first principle (that is, one of the primary causes affecting life on earth) because of her connection with the Sun and her participation in his light, being as it were a second smaller Sun, and therefore she contributes to all generation and development. For heat and cold varying within certain limits make things to come into being and after this to perish, and it is the motions of the Sun and Moon that fix the limit both of the beginning and of the end of these processes."
>
> (Translation by A. Platt, 1910.)

I am not aware of any early Greek references to the effects of the planets on earthly things (Note 5), and this is one reason why I do not think that *Timaeus* 22 refers to them particularly.

Now, we had better get back to General Gordon — my alternative interpretation to Velikovsky's of Plato's "variation in the course of the heavenly bodies."

I think that in *Timaeus* 22 Plato was referring to the Great Year doctrine, and that, in accordance with the science of his day, he may have imagined the Great Summers (conflagrations) to be induced by the action of the Sun on the balance of the elements, resulting in an excess of fire. Possibly he thought — without necessarily being in earnest about it — that since the summer of the ordinary year was produced by the ordinary motions of the Sun, therefore the conflagration of the Great Year ought somehow to be produced by extraordinary motions of the same. At this point the Phaethon myth would almost inevitably have occurred to him, as indeed the solar reversal of Atreus and Thyestes occurred to him when he was penning *The Statesman*.

The drift of my General Gordon interpretation should now be clear: I think that in *Timaeus* 22 Plato (possibly inspired by someone before him, possibly under his own steam) had the bright idea of combining the Phaethon myth with the Great Year doctrine. No cosmic truths are involved in this, for the thing is fiction from start to finish. All that is involved is an author's ability to combine two "stories" to make a third - an ability that we know Plato had in abundance and that we have already seen demonstrated in *The Statesman*. If this was how *Timaeus* 22 came about, it might well imply that it was the Phaethon myth that inspired Plato to coin the phrase "a variation in the course of the heavenly bodies" (possibly to add a pseudo-scientific "flavour" to the priest's speech), rather than some real variation which inspired him to refer to Phaethon as a mythical version of it.

Of course, this *is* just as much speculation on my part as V's interpretation was on his. However, there are a few things that suggest to me that I am on the right track:

(i) The "variation" in *Timaeus* 22 is only specifically associated with destructions by fire, destructions by water being attributed to "the gods." This is not necessarily significant, for the "variation" may be there by implication. On the other hand, that the variation is associated only with fire is consistent with it being derived specifically from the Phaethon myth.

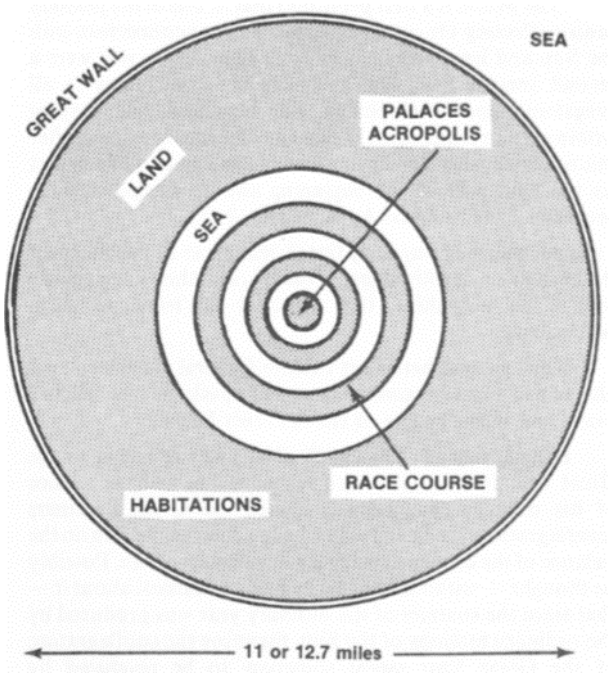
(ii) As mentioned earlier, no "variation" is mentioned by Aristotle in connection with the Great Winters (see (i) again), nor am I aware of any "variation" involved in the doctrine of Heraclitus. On the contrary, in one of the surviving fragments of Heraclitus we read that "the Sun will not transgress his measures. If he does, the Furies, ministers of Justice, will find him out." (Translated by C.H. Kahn, 1979.) This would seem to rule out any Phaethon-like variation as far as Heraclitus is concerned. As stated earlier, this suggests that any such "variation" was a later addition to the doctrine — perhaps Plato's own. Certainly I am not aware of any such "variation" in connection with the Great Year other than the one in Plato's account.

(iii) I am struck by the fact that the "variation" in *Timaeus* 22 and the reversals in *The Statesman* can be

seen as two variations on the same theme. In both, catastrophes occur at long intervals of time. In the first there is a *variation* in the course of the heavenly bodies, in the second a *reversal*. Interestingly, Plato uses the same word, *parallaxis*, to describe both. Looked at as "alternatives," I think that each may tell us something useful about the "reality" of the other, that is, that Plato intended neither as a serious explanation at all. They were speculative devices introduced to liven up the dialogues, and each was as fancifully conceived as the other though *The Statesman* myth, of course, was far and away the more elaborate.

Of course, we should acknowledge that in both *Timaeus* and *The Statesman*, as well as in laws 3.676-677 (where, incidentally, neither variation nor reversal is mentioned), Plato recognised the role of catastrophes in the progression of human society. Now, though I don't take seriously his "explanations" in terms of "variation" and "reversal," this is not to say that I deny the occurrence of any major catastrophes in history. On the contrary, catastrophes of fire (drought and bush-fire, volcanic eruption) and water (tidal waves, rain floods) have occurred to greater or lesser degrees throughout human history, often decimating whole communities. In addition, as Plato says in both *Timaeus* and *Laws* (without, however, going into much detail), man is affected by other catastrophic agents as well. He mentions pestilence, but we may suppose that famine, earthquake, or hurricane would come under the same heading. Personally I think that Plato is referring to such catastrophes generally, without having anything specific in mind at any stage. Though such catastrophes are essentially local in a modern sense, it is not difficult to see how a poet or a philosopher could blend them into a spectrum of catastrophe that extends to the world-wide conflagration and universal deluge of the Great Year or the "shock" of the reversal of the Universe. Indeed, Aristotle quite clearly envisaged a local basis for the floods of the Great Winters when he wrote that "this does not always happen in the same region of the earth...." (*Meteorologica* 352a).

Of course, V's planetary catastrophes *could* be fitted into such a spectrum, and as I said earlier, there is no way that I can *prove* that *Timaeus* 22 and *The Statesman* (269 f.) do not refer to V's scenario. All I claim is that on the basis of the information supplied by Plato we are not able to identify with any certainty any particular historical catastrophe as being that to which Plato was referring. The details given are simply too vague and, in the case of *The Statesman*, too fantastic to be relied upon with any certainty. But it is worth noting that if Plato was merely writing of earthly catastrophes generally, as I believe he was, then his "vagueness" is understandable. And if he was merely entertaining his readers by devising intriguing speculative "explanations" of catastrophe **[Page 66]** generally, again as I believe he was, then the elaboration of *The Statesman* account becomes likewise understandable.



ATLANTIS DRAWN FROM PLATO'S DESCRIPTION
(After J.W. Mavor)

The third notable catastrophic episode in Plato is, of course, Atlantis. Velikovsky devotes a section to it in *WiC* (pp. 148-150 [I.7.3]).

According to *Timaeus* 25, the kings of Atlantis ruled not only their own island, but also a large part of Europe and North Africa, which they held more or less in a state of slavery. Ultimately it was the Greeks — or the ancestors of the Greeks — who overthrew the tyranny of the Atlantean kings, some time after which Atlantis was swallowed up by the sea, and the Greeks themselves swallowed up by the earth. *Timaeus* 25 tells it thus:

> "At a later time there were earthquakes and floods of extraordinary violence, and in a single dreadful day and night all your fighting men were swallowed up by the earth, and the island of Atlantis was similarly swallowed up by the sea and vanished; this is why the sea in that area is to this day impassable to navigation, which is hindered by mud just below the surface, the remains of the sunken island."
>
> (Translation by H.D.P. Lee, 1979)

The date for all this is given as 9000 years before Solon.

Now, there is nothing in here to suggest that this catastrophe, if it ever really did happen at all, had anything to do with the close approach of a cosmic body that rained down burning naphtha and meteorites, plunged the world into prolonged darkness, and inverted and reversed the sky. The link between the legend and the scenario it is supposed to support are minimal. If one were to cross out the date on some of the eyewitness accounts of Krakatoa, for example, one would have material that lent just as much "support" to V's scenario as Plato's account of the destruction of Atlantis. In other words, what evidence have we that the destruction of

Atlantis — *if* it is based on some real event — was anything more than the Krakatoa of its day?

True, we can invoke that "variation in the course of the heavenly bodies" in *Timaeus* 22, but as we have already seen, this would still not necessarily bring us any closer to a cosmic catastrophe in V's sense. In any case, Plato (or Solon) does not actually mention such a "variation" directly in connection with Atlantis.

Not only that, there is the issue of date. In order to bring Atlantis under the umbrella of his Venus Comet scenario, V tampers (Note 6) with Plato's text, and reduces the 9000 years before Solon to a mere 900. "There is one zero too many here," he tells us, adding that "numbers we hear in childhood easily grow in our memory." This may be true, but even so, it seems to me that some very curious interpretations of history could be secured by the simple device of striking out the awkward digits in the dates of historical events!

Now, I had better put myself in the firing line and say just what truth *I* think there is in the story of Atlantis. My opinion can be expressed very briefly: I don't think there is much truth in the story at all.

For a start, though thousands of books and pamphlets have been written about Atlantis, they all, ultimately, relate back to Plato's account in *Timaeus* and *Critias*. No one before Plato so much as mentioned Atlantis. I think that, like the combining of the three myths discussed in the first part of this chapter, the Atlantis myth is largely an invention of Plato's. For my money, the 9000 years before Solon is a deliberately remote date which does *not* have one zero too many; and I think that the location of the island-city — beyond the Pillars of Hercules — is likewise deliberately remote geographically. The remoteness of date and location are both, I think, intended signals of the fictional nature of Atlantis. The extremely artificial layout of the city, too, as given in *Critias*, suggests that here is Plato's imagination at work. He is not describing a real city, but creating a setting for political and philosophical discussion.

What, then, of all those attempts to locate Atlantis? I have long since lost track of the number of "final solutions" to this conundrum that I have come across. They are more numerous than the "true" authors of Shakespeare's plays. As I see it, each "final solution" acts as a "control" for the others, and collectively they show little more than that given perseverance and ingenuity one can match up virtually any corner of the globe with Plato's Atlantis. Ignatius Donnelly's attempt was, in my opinion, the best and most sensible. He put Atlantis where Plato *said it was*. He also accepted the 9000 years before Solon, without crossing out any zeros. The fact that geology and archaeology let him down simply confirms, as I see it, that Plato's account rs fiction.

Though Thera-Crete as Atlantis offers a tempting solution for a rationalist like me, I think that even here one has to be careful. I believe that, in part, Plato could well have based his Atlantis on Thera-Crete, for there are indeed some striking parallels (see the works cited in Note 6). But I am not at all sure that when Plato wrote about Atlantis he was merely passing on a garbled and embellished version of the fall of **[Page 67]** Crete as a result of the eruption of Thera. As stated earlier, I think that when Plato placed Atlantis beyond the Pillars of Hercules, and assigned it a date in the remote past, he was telling us, in effect, that this was one of his stories. Consequently, I suspect that Atlantis may stand in much the same relation to Thera-Crete as Pooh Bear does to whichever bear (if any) inspired A. A. Milne.

My scepticism may come as a disappointment to readers of *Stonehenge Viewpoint*, who by now may be wondering if there's anything I *do* believe in. Well, I have an inkling that ghosts exist, and I have a sneaking suspicion that the ghost of Plato comes back every now and again for a good old spectral belly laugh at the ever-growing mound of literature on Atlantis …

A Postscript to Chapter l8

Some readers may think that I have had too much recourse to the "this-is-just-one-of-Plato's-stories" view. Perhaps so, but the reader should bear in mind that Plato is well known for his ingenious use and adaptation of myth, and that his usage does not necessarily imply any literal belief on his part. So, for example, can we take the "variation" of *Timaeus* and "reversal" of *The Statesman* any more literally than the Prometheus myth as given in *Protagoras* 320 d? Does the *Statesman* myth tell us any more about real catastrophes than the myth of *Er* (Republic 614 b) does about life after death? And what great truths can we glean from the myth of the origin of the sexes in *Symposium* 189 d? For a list of Plato's myths and a discussion of his use of them, see E. Zeller's *Plato and the Older Academy* (1888), pp. 160 f. Also, W.K.C. Guthrie, *A History of Greek Philosophy*, Vol. 4 (1975) and Vol. 5 (1978), under the various dialogues, particularly Vol. 5, pp. 192 f. (on *The Statesman* myth) and pp. 247-250 (on Atlantis).

NOTES ON CHAPTER 18.

Note l. On *WiC* p. 116 [I.5.1] V cites a fragment of Sophocles as saying that "Zeus ... changed the course of the Sun, causing it to rise in the east and not in the west." This supposedly comes from A.C. Pearson, *The Fragments of Sophocles* (1917), Vol. 3, p. 5, but actually this isn't a fragment of Sophocles at all. It is part of R.C. Jebb's general commentary on the Atreus-Thyestes myth and is based on *The Statesman*, 269 a. It is hardly surprising, therefore, that this statement "supports" Plato's use of the myth! The actual fragment of Sophocles — a quote in a work of Achilles Tatius — reads: "Everyone now does homage to the man who reversed the course of the sun's orb." This, of course, adds nothing to the debate over Plato's interpretation, since it does not mention rising in the west. My thanks are due to Colin Annis for his help in sorting this out.

Note 2. If the first men were believed to have sprung from the earth, then they would presumably have been the founders of the Golden Age, though I know of no direct statement in myth to this effect. (Perhaps *Aeneid* 8.314 f. is related to it?) However, in Ovid's *Metamorphoses*, 1.76 f., the Golden Age does follow on from the creation of man from clay by Prometheus, so that here perhaps we have a similar train of thought, the creation from clay being a variant on "earth-born."

It is interesting that in the Bible Adam is formed by God from "the dust of the ground" (Genesis 2:7) and that the biblical "Golden Age" terminated with the expulsion from the Garden of Eden (Genesis 3:23). Eusebius refers to Adam as earth-born in *Preparation for the Gospel* 307 d and 516 b.

Note 3. For example in *The Statesman*, 269 c, Plato says that "the tale is suited to throw light on the nature of the king." Likewise 275 b. Compare *Laws*, 713 b, where the Age of Cronus is described as "a blessed rule and life, of which the best-ordered of existing states is a copy."

Note 4. The catastrophic great year (that is, the alternation of catastrophes of fire and water) probably arose as a speculative extrapolation of the ordinary year, with fire corresponding to summer, and water to winter.

The planetary great year (that is, the grand conjunction of the planets) appears to have originated in attempts to reconcile the lunar month and solar year. The great year was the least number of solar years to contain an exact number of lunar months. Thus Philolaus the Pythagorean and Oenopides of Chios are said to have reckoned the great year as 59 years long (taking 59 solar years to equal 730 lunar months?), a cycle which is far too short to have all the planets "lining up" as well as the Sun and Moon. The addition of the planets to the scheme greatly extends the time scale involved — hence some of the estimates of the order of tens of thousands of years cited by Censorinus (*Liber de die natali*, 18).

I do not know when the fire and water great year was combined with the astronomical one, or by whom.

Note 5. ln *Velikovsky's Sources* I put forward another (planetary) interpretation of *Timaeus* 22 — I called it my Lord Kitchener to V's Hitler that is, that the "variation in the course of the heavenly bodies" denoted the occurrence of a rare configuration of the planets, and that the 'widespread destruction" by fire or water or whatever was the result of a quasi-astrological influence on the balance of the four elements. Though this is a possible interpretation, I doubt that it can be what Plato had in mind: astrology hadn't really "caught on" in Greece in Plato's day (though he could, of course, have been referring to a foreign viewpoint — astrology had been around in the Middle East certainly as early as the second millennium BC). In later times, though, the planets were believed to have astrological effects on the earth, and it is worth mentioning here the supposed effects on the earth\ atmosphere, as V misuses a couple of such references in support of his scenario.

Thus, Pliny's *Natural History* 2.18 ascribes thunderbolts to the influence of the three superior planets, especially Jupiter, on the atmosphere. These influences operate "more particularly when the air is in an unsettled state." Clearly this refers to ordinary "thunderbolts" or lightning strikes and not interplanetary discharges as V would have us believe on *WiC* p. 262 [II.4.4].

Similarly Pliny's *Natural History* 2.8l cites a Babylonian belief that earthquakes are induced by the three superior planets, either when they are in conjunction with the Sun, or in quartile aspect with it. Again, rather different from what V has in mind on *WiC* p. 267 [II.4.5).

Further examples of planetary meteorology: Ptolemy *Tetrabiblos* 2.8 tells us that Saturn brings snow and hail; Jupiter, gentle breezes and moisture; and Mars, hot winds, drought and lightning. See also *Tetrabiblos* 1.4 and Cicero *Nature of the Gods* 2.46.119.

Note 6, Velikovsky is not alone in this. See, for example, A.G. Galanopoulos and E. Bacon, *Atlantis — the Truth behind the Legend* (1969), p. 133; J.V. Luce, *The End of Atlantis* (1969), p. 140; and J.W. Mavor, *Voyage to Atlantis* (1973), p. 31.

CHAPTER 19. THE FLOOD

[Page 68] If there is one catastrophic legend that does carry an air of having "something to it," it is the legend of the Great Flood. We have all been brought up on the story of Noah and his Ark. Most of us know, too, that virtually the same legend is known from Babylonia, recorded on baked clay tablets as part of the so-called *Epic of Gilgamesh*. Not only that, but many people have a vague notion that Leonard Woolley actually excavated a layer of clay at Ur that seemed to confirm the reality of the biblical flood. Finally, it is known — albeit vaguely by most — that the legend of a great flood is found throughout the Americas, as well as in India, China and Polynesia. What more does one need to establish the reality of a past global catastrophe?

As regards Velikovsky (V), one thing that should be said at the outset is that he did not associate Noah's flood with his Venus/Mars scenario. He associated it instead with an earlier Saturnian catastrophe, not dealt with in *WiC* (see, for example, *Kronos* 5.1, pp. 3-11). He did, however, associate other flood stories with his Venus/Mars scenario (Note l), notably that of the *Epic of Gilgamesh*, to which he refers on *WiC* p. 72 [I.2.5].

Now though the flood episode in the *Epic of Gilgamesh* is catastrophic, it can hardly be said to lend strong support to V's scenario. There is no mention of such things as naphtha, vermin, meteorites, reversed suns, or inverted skies, for example, and no mention of anything like a Venus Comet hanging menacingly in the heavens. The Flood of the *Epic of Gilgamesh*, in fact, is just that — a flood that results from an enormous storm: "I looked out at the weather and it was terrible, so I too boarded the boat and battened her down." It is from the description of this storm, as related to Gilgamesh by Utnapishtim, that V extracts the various details quoted in *WiC* p. 72. I here quote N.K. Sandars' 1960 translation of it:

> "With the first light of dawn a black cloud came from the horizon; it thundered within where Adad, lord of the storm was riding. In front over hill and plain Shullat and Hanish, heralds of the storm, led on. Then the gods of the abyss rose up; Nergal pulled out the dams of the nether waters, Ninurta the war-lord threw down the dykes, and the seven judges of hell, the Anunaki, raised their torches, lighting the land with their livid flame (Note 2). A stupor of despair went up to heaven when the god of the storm turned daylight to darkness, when he smashed the land like a cup. One whole day the tempest raged gathering fury as it went, it poured over the people like the tides of battle; a man could not see his brother nor the people be seen from heaven. Even the gods were terrified at the flood, they fled to the highest heaven, the firmament of Anu; they crouched against the walls, cowering like curs. Then Ishtar the sweet-voiced Queen of Heaven cried out like a woman in travail: 'Alas the days of the old are turned to dust because I commanded evil; why did I command this evil in the council of all the gods? I commanded wars to destroy the people, but are they not my people, for I brought them forth? Now like the spawn of fish they float in the ocean.' The great gods of heaven and of hell wept, they covered their mouths.
>
> "For six days and six nights the winds blew, torrent and tempest and flood overwhelmed the world, tempest and flood raged together like warring hosts. When the seventh day dawned the storm from the south subsided, the sea grew calm, the flood was stilled; I looked at the face of the world and there was silence, all mankind was turned to clay" (pp. 107-108).

As mentioned earlier, there is no indication that the planet Venus (or Mars for that matter) was the cause of this disaster. True, we read that Nergal "pulled out the dams of the nether waters," and Nergal was a god associated with the planet Mars. But the reference to the nether waters makes it clear that Nergal here features in his role as a god of the underworld, rather than as a representation of the planet. Likewise, though Ishtar features in the story, it is not as a representation of the planet Venus bringing death and destruction, but as "the sweet voiced Queen of Heaven" who fears for the safety of mankind and who later (Sandars p. 109) reproaches Enlil (god of the atmosphere, Lord of the Air) for having brought the flood. The closest we get to having the flood blamed on Ishtar is when she confesses to having commanded "this evil" in the council of the gods, which presumably means that she originally "voted in its favour," but then regretted it later.

As we saw in Chapters 4 and 5, even when a god or goddess is known to have been associated with a planet, it does not follow that any and every reference to that deity necessarily symbolises something to do with the planet. As Geoffrey Grigson said of Aphrodite and her planet, Venus, the Greeks did not think "Oh, there goes Aphrodite!" every time they set eyes on the Evening Star! The planet merely "belonged" to the goddess. It was symbolically associated with her. Just so, when Ishtar and Nergal feature in the flood story it is as gods, on the same footing as other gods in the story, such as Ea, Enlil and Ninurta, and not as planets. Gods and their planets are not synonymous — a fact which is particularly noteworthy in the case of Ishtar who, elsewhere in the *Epic* (Sandars pp. 83 f.), tries to seduce Gilgamesh! Clearly this can have nothing to do with the planet Venus, and no more, I would suggest, does her presence in the flood story indicate Venusian catastrophism!

It is important to follow this line of argument, for it is the crux of the problem with much of V's approach to deciphering a new solar system history from the annals of world mythology. To a great extent (Note 3) this "new" history only emerges when one begins to interpret the activities of gods as those of their planets, a

method which might be tenable if it were supported by a few concrete references to planetary destruction, but which becomes highly suspect when one considers, for example, the classical tradition of heavenly stability and order, as outlined in **[Page 69]** Chapter 6. (Compare also the difference between what the *Talmud* and *Midrash Rabbah* actually say about the planets with what V deduces from the activities of the archangels Gabriel and Michael — see Chapter 7.)

So it is with the flood, and not just in the *Epic of Gilgamesh*, either. Sir James Frazer's *Folklore of the Old Testament* (1918) includes (in Vol. l) a long and fascinating essay on the numerous flood legends from around the world, giving the details of many of them. We shall refer to this essay a great deal in what follows. But not one of the many flood legends cited by Frazer mentions the planets as the root cause of the disaster, and the only floods I know of that are directly related to planetary activity are those involved in the Great Year doctrine, discussed in Panel 6. As stated there, these really have nothing in common with V's brand of planetary catastrophe. To my way of thinking, this simple fact has one obvious implication — that neither Saturn nor Venus has ever caused a Universal Deluge after the fashion proposed by V, and that there is something fundamentally wrong with V's tendency to equate gods and planets.

Now, even if we abandon the idea of floods caused by Velikovskian intervention of the planets, there still remains the issue of whether or not a truly global flood has ever really happened, for V might have been right about the flood but wrong about its planetary causes.

When considering whether or not the global distribution of flood legends implies the occurrence of a global flood, several factors need to be taken into account. Firstly, on reading through the wide variety of flood legends given in Frazer, it is by no means clear that they all refer to the same event or events (Note 4). For a start, the causes of the flood vary from legend to legend, though they do tend to fall into two main groups, floods caused by rain, and floods caused by rising sea levels or tidal waves. Thus, for example, the floods in the *Epic of Gilgamesh* and the story of Noah are primarily the result of rain (though the nether waters are unleashed as well: see also Genesis 7:11), whereas the flood legend of the Incas (Frazer pp. 271-272) has as its cause the sea breaking its bounds, this same mechanism being found in the flood story from Tahiti (Frazer p. 245). There are other mechanisms, though. For example, in one South American story from Cape Frio (Frazer p. 255) the flood is caused by a fountain of water bursting from the ground. This same mechanism recurs in a legend from New Guinea (Frazer p. 237). Compare, perhaps, the "fountains of the deep" in Genesis 7:1l. From North America we find one legend in which the flood results from the overflow of a lake (Frazer p. 296) and another in which it results from the melting of an early snowfall (Frazer p. 312.)

Now V proposes such a severe upheaval of nature, with such a wide diversity of side effects, that one could perhaps argue that rain-floods, tidal waves, disrupted underground springs, and even out-of-season snowfalls could all be the result of the one great event. This is a possible line of argument, but it *assumes* the reality of V's scenario, something I am reluctant to do in view of the notable absence of Venus and Mars from *all* of these flood legends. In the absence of any other scenario which might serve to unify the diversity of flood causes, a natural conclusion to draw is that there is — or was — more than one flood (Note 5).

So, let us break down the analysis further, and consider just those legends for which rain is the mechanism. If we take the *Epic of Gilgamesh* as one example (Note 6), a Maori flood legend (Frazer p. 250) as another, a Californian flood story (Frazer p. 289) as a third, and a Bolivian flood story as a fourth (Frazer pp. 272-273), then we have a quartet of rain-flood legends that between them girdle the world and span both hemispheres. Can we put these together and deduce a global rain-flood?

Clearly not — at least, not without some careful consideration. Most parts of the inhabited world are subject to serious flooding by rain at some time or another, so that we need some indication that the individual rain-flood legends relate to the same event, and not to similar but distinct and causally unrelated events of the same type. Since flood legends do not usually give any indication of the *date* of the flood, we do not even know that the floods in question occurred at the same time, let alone that they were causally related.

Unfortunately, we cannot quote this quartet of rain-flood legends here so that the reader can judge for himself the evidence for or against a possible causal connection between them. There is a common *theme:* that all but a small remnant of mankind was destroyed in a rain flood — but there is no evidence that all of these are part of the *same* rain flood. Severe rain floods *can* be seen as "attempts to destroy mankind," wherever and whenever they occur. True, these are local events to us, but to peoples whose geographical horizons are much more limited than ours their whole world is affected.

Whilst it is possible that the world's rain-flood legends are merely similar stories about similar events, I must confess that I do have the uneasy feeling that there is more to it than that. This is not to say that I believe in a Universal Deluge. I don't. A truly global rain-flood is hardly feasible, as Dorothy Vitaliano points out in her *Legends of the Earth* (p. 144). For a rain-flood to cover a substantial portion of the globe, the water would have had to come from the sea in the first place (Note 7). Consequently, the sea level would drop, and the falling rain would hurry off the land and back to the sea all the more quickly. Not only that, but archaeology has not so far yielded any evidence for such a universal deluge (the flood "evidence" from Ur turned out to be purely local). In view of all this, I do not think that we can take these

myths literally and postulate an actual globe flood. AII the same, it does seem somehow inadequate to explain the startling similarities of flood myths from around the world purely in terms of a similarity of events.

One source of suspicion that nags at me personally is this: if rain-flood legends tend to spring up naturally in any area which suffers from such floods, why is there such a scarcity of flood legends from Africa, parts of which suffer some of the heaviest rainfall in the world? Frazer writes of African flood legends (p. 329): "They are hardly to be found at all. Indeed, it may be doubted whether throughout that vast continent a single genuinely native tradition of a great flood has been recorded." (Note 8.)

Likewise, if sea-rise flood legends can originate in any area subject to tsunamis, why has no such flood legend arisen in Japan? (Note 9.)

[Page 70] If we are not to look for some actual universal deluge to explain these legends, and if we are not happy with the idea that similar stories are inspired simply by similar events, we must look elsewhere for an explanation of the recurrence of the Flood theme around the world.

Certainly we must consider the possibility that some flood stories are like others on account of cultural borrowing or cultural spread. Peoples take their myths with them as they migrate, and they also trade stories with neighbouring peoples, or peoples they encounter on their travels. We saw some examples of cultural borrowing in Panel 10. In particular, we saw how a flood story from the Orinoco region of Venezuela had borrowed one of its key details from the Greek story of Deucalion and Pyrrha. To recap, at the end of the Greek story Deucalion and Pyrrha are instructed to cast stones behind their backs in order to repopulate the earth. Each stone cast turns into a human being, those cast by Deucalion becoming men, those cast by Pyrrha women. In the South American version, the same technique of repopulation is used except that "the fruits of the Mauritia palm" are cast instead of stones (Frazer p. 266). The repetition of such a curious detail can hardly be attributable to anything other than cultural borrowing.

Another intriguing example is the following. In the flood story of the Caingangs, a South Brazilian tribe, it is said that those people who climbed up into trees to escape the flood were turned into monkeys (Frazer pp. 256-257). In a flood legend from the Lower Congo it is said that "there was a flood, and the ancient people put their porridge sticks to their backs and turned into monkeys" (Frazer p. 329). These two flood stories have nothing in common besides this one curious reference to monkeys, so is this detail a case of cultural borrowing, or is it just a curious accident, a case of like-reaction to the resemblances between man and monkey? But then why do both stories associate the men-to-monkeys transformation with a flood particularly? (Note 10.) And how many other such "accidents" are we to allow for in flood mythology?

FRAGMENT OF A TABLET TELLING THE BABYLONIAN STORY OF THE DELUGE

Again, it is a curious fact that in many flood legends from around the world, a chosen few (the number varies) are forewarned of the coming deluge and so have chance to prepare an escape. This happens in the story of Noah, of course (Genesis 6:l3 f.), but also in the Indian flood story as told in the *Satapatha Brahmana* (Note 11). Here Manu, the sole survivor, is forewarned by a fish and escapes in a boat (Frazer p. 183). Again, in the story of the Palau Islanders of Micronesia an old woman is forewarned by disguised gods (Note 12) and escapes on a raft (Frazer p. 253). In the flood story of the Huarochiri Indians of Peru, there is only one male survivor, and he is warned of the coming flood by a llama. He escapes by climbing to the top of a mountain (Frazer p. 270). In North America, the Cherokee Indians say that a single family survived the flood, having been forewarned by their dog. They escaped in a boat (Frazer p. 295).

The theme of forewarning, then, occurs in legends which between them span the globe. How are we to explain this? It doesn't seem very likely to me that this story line embodies a memory that man somehow "knew" of the impending disaster from, say, freakish animal behaviour (animals act strangely before earthquakes, for example). As I see it, a recurrent story line - particularly in extreme forms, such as the Deucalion and Pyrrha theme above, or the disguised gods theme of Note l2 - suggests that it is a *story* which has spread (or stories, plural!), rather than that the same *events* were witnessed globally (Note l3).

One form of cultural borrowing almost deserves a special name: the missionary influence. For the past two thousand years, but more particularly in the last two

or three hundred, Christian missionaries have wandered their various ways around the world, "converting the heathen" and replacing native superstitions with Christian ones. Myth makers, of course, will adopt any useful or novel story line that comes their way, and missionaries, in their eagerness to get across the message of their Holy Bible, have been only too pleased to supply a number of such story lines, among them Noah. Somewhere in the midst of this "conversion" process, I feel, lies the explanation of many (though obviously not all) of the striking similarities between the world's flood stories. For let us suppose that many peoples have developed their own flood story simply because floods do happen to them from time to time. Along comes a missionary, armed with the story of Noah, and he encounters a native who has his own flood legend. The missionary gives the native some nice new details to weave into his own flood story, and the native in return gives the missionary some possible "confirmation" of Noah's flood. Often the missionary is the first person to record the native flood legend and send it back to Europe. Generally we have no way of knowing how that story might have been distorted first by language barriers, and second by the missionaries own expectations of what the flood story "ought" to be like to fit in with the biblical flood story. Perhaps, eager for "proof" of the biblical narrative, some **[Page 71]** missionaries have asked leading questions. Perhaps, too, in their eagerness to please, their native informants have supplied some answers that the missionaries seemed to want to hear.

Of course, I am probably being unfair to a lot of missionaries here, since many will have reported legends just as they found them (Note l4). More often, I think, missionary influence has operated in a rather different way. For example, it may have happened that a flood story reached Europe through ethnographers who arrived on the scene some time after the missionaries had done their work. In that case, the story of Noah had already had time to percolate into native lore and influence some of the details of the original flood traditions of the natives. However it comes about — and the process is probably much more involved than we can imagine — we certainly find "native" legends that are like distorted echoes of the story of Noah, as well as those that are just blatant copies. The following is from the Michoacan province of Mexico (Frazer p. 275), for example:

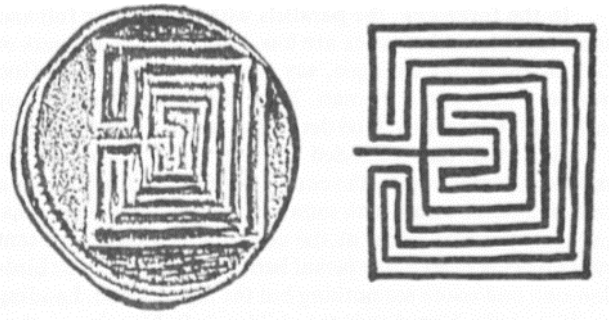
NOAH'S ARK (After Gustav Dore)

> "The natives said that when the flood began to rise, a man named Tezpi, with his wife and children, entered into a great vessel, taking with them animals and seeds of diverse kinds sufficient to restock the world after the deluge. When the waters abated, the man sent forth a vulture, and the bird flew away, but finding corpses to batten on, it did not return. Then the man let fly other birds, but they also came not back. At last he sent forth a hummingbird, and it returned with a green bough in its beak."

In the foregoing, the parallels with Genesis are full and unmistakable. Other cases are less clear cut. The Kamars of Central India, for example, say that in the beginning God created a man and a woman. They had two children, a boy and a girl. Apparently, God decided to send a deluge to drown a jackal that had offended him. Having heard of this impending catastrophe, the couple put their children inside a hollow piece of wood, with some provisions. The deluge came and lasted twelve years, at the end of which time God sent out two birds to see if the jackal had been drowned. The birds flew out, and could see nothing but the log of wood. Landing on the log, the birds heard the children's feeble cries, so they flew back to God and told him. Thereupon God caused the flood to subside, and the children were saved. From them are descended the present human race (Frazer p. 195). Now although this story is not very Noah-like in its entirety, it does have two motifs in common with the biblical story — namely, the forewarning of the flood and the exploratory birds (see Genesis 8.7-12 for the latter) both of which suggest some missionary influence. The flood story of the Macusis of British Guiana (Frazer pp. 265-266) is more confusing. It replaces the exploratory birds of Genesis with an exploratory rat and employs the Deucalion and Pyrrha repopulation motif as well!

Cultural borrowing has far-reaching implications when it comes to deciding whether or not the global distribution of flood legends implies the global witness of a Universal Deluge, for if some of the *details* of the flood story are "borrowed," how do we know what the *original* flood story was? And how do we know that the flood itself hasn't been "borrowed"?

Now I am not leading up to the suggestion that all flood legends are simply borrowed versions of one orig-



MAZE ON A CRETAN COIN HOPI SYMBOL OF MOTHER EARTH

inal story which was based on some local disaster. I do not believe that this can be the case, for there are simply too many *dissimilar* flood stories around, in addition to the similar ones. But what I think may have happened is that a number of different and originally independent local flood stories have developed almost eerie similarities, some to one, some to another (thus, overall, promoting the idea of global witness) via the numerous cultural exchanges of one form or another that must have taken place over the past hundreds if not thousands of years. Tribes have migrated, refugees have taken refuge, explorers have explored, traders have traded, and missionaries have converted the heathen. People have been on the move the whole time.

The type of process I envisage runs like this. A meets B, and they swap stories, either by way of entertainment or for some other reason. A tells his flood story, and B responds by saying "Ah yes, we've got a flood story too. It goes like this ..." A and B go their separate ways, and the process is repeated. Perhaps when A meets C and tells his story, he borrows some of the details from B's story, adding, for effect, that "Strange to say, I have heard this same legend told by the people of the distant X country (that is, B's people)." Perhaps when B meets D and tells his flood story, D, who doesn't have a flood story of his own, decides that it is a good story and adopts it. He may change a few details here and there to fit the story more convincingly to his own people and country. The possibilities are endless and more varied than we can imagine.

[Page 72] But one thing seems clear — such things *do* happen. There are simply too many "coincidences" for it to be otherwise. Perhaps we *can* dismiss as coincidence the fact that a maze design used by Hopi Indians to symbolise Mother Earth is identical to one used to represent the labyrinth of Daedalus on early Cretan coins (Note l5 a). One maze does look much like another, and sooner or later two virtually identical ones must crop up. Likewise, the fact that we find pyramids in both Egypt and the Americas could well be another coincidence. After all, the pyramid *is* a basic shape, and the functions of the pyramids in the two places were *not* the same. But can one really go on like this forever? How are we to explain the use of similar hunting stories to explain the origin of the constellation Orion among the Buriats of Mongolia and the Eskimos of Alaska (Note l5 b)? Or similar stories of the Celestial Bear among the Iroquois Indians and the Eskimos of north Greenland (Note l5 c)? Or the creation of men from clay in a Pima legend from Arizona and in Ovid's *Metamorphoses* (Note 15 d)? Or the almost identical techniques for "controlling the Sun" used by the Australian Blackfellows, the Golos of the Sudan, the Indians of Yucatan, and the natives of South Africa, as cited in Chapter l2? (But see also Note 13.)

Pulling the threads together thus far, we have what I call the paradox of flood-story interpretation. If we have two flood stories from opposite sides of the globe which are *too* similar, particularly as regards details like exploratory birds or repopulation by the casting of stones, then we must suspect some form of cultural borrowing, and bear in mind that it may be this which is promoting the impression of global witness. On the other hand, if two flood stories are nothing like each other — if their only point of contact is the idea of a disastrous rain flood — then we must beware of taking them to relate to the same event, because they may relate simply to quite distinct and unconnected local events of the same type. A rain-flood is a rain-flood whether it occurs in 20th century England or 10th century Polynesia or some more remote date in the Middle East.

Even granted these two points, have we satisfactorily accounted for the global distribution of similar legends of a Universal Deluge, or is there more? I think there is more, and I think that fossils constitute another piece of the jigsaw puzzle.

It is a fact that a number of peoples have regarded fossils as confirmation of their flood stories (Note l6). We now know that the presence of fossilised sea creatures many miles from the sea is simply the result of age-long geological processes. But to the ancients, who had no means of knowing about the faulting or folding of rocks, or about the millions of years involved in geological processes, the most logical way to explain the presence of fossils so far from the sea was through some extraordinary rise in sea level some time in the past. Thus, for example, Frazer (p. 222) says of the Toradjas of the Central Celebes that in proof of their flood story "they point to the sea-shells which are to be found on the tops of hills two thousand feet and more above the level of the sea." In the (Pacific) Leeward Islands, the natives "point triumphantly for confirmation of their story to the coral, shells, and other marine substances which are occasionally found near the surface of the ground on the tops of their highest mountains" (Frazer p. 245). In a legend from Alaska (Frazer p. 318), we read how the Raven saw fish left high and dry on the mountains as the flood waters receded and turned them into stone where they lay — a clear reference to fossils. Frazer cites other fossil-confirmed flood stories from Mongolia (p. 217), Dutch New Guinea (p. 238), Samoa (p. 249), Southern California (p. 289), Canada, and Greenland (pp. 327-328) — so that flood stories which

cite fossils as "evidence" themselves girdle the globe, inviting the suggestion that the global distribution of flood stories may in part be connected with the global distribution of fossils. By their nature, fossils are bound to puzzle the ancient mind. They invite the attention of the myth-making process. The question is whether fossils were regarded simply as *confirming* their respective traditions, or whether in fact they *started* them (Note l7). In other words, did fossils give rise to the idea of some past Great Deluge, and was it this "hypothesised" flood which became translated into stories of how the present human race has descended from a chosen few that survived a Universal Deluge?

Not that I think that *all* flood stories are to be explained away as a response to fossils. On the contrary, I do not think that any single explanation can account for the Flood enigma in its entirety. I believe we must look for a combination of factors, each of which interplays with the others to produce an end result which gives the appearance of one great Deluge experienced all over the world. I think that fossils explain part of the enigma, but that we must look to cultural borrowing and similar experiences of local flooding to account for the rest. Nor have we covered all the contributing factors. Another source of flood legends — or of details adorning flood legends — is what Dorothy Vitaliano calls the geomyth. That is, a story invented to explain particular configurations of the landscape.

A simple case of this is provided by a story of the Thompson Indians of British Columbia (Frazer p. 322), who say that "before the flood there were neither lakes nor streams in the mountains, and therefore there were no fish. When the waters of the deluge receded, they left lakes in the hollows of the mountains, and streams began to flow down from them towards the sea. That is why we now find lakes in the mountains and fish in the lakes."

Another geomyth comes from the Caribs of the Antilles, who claim that it was a great flood which "separated their islands from the mainland and formed the hills and pointed rocks or sugar-loaf mountains of their country" (Frazer p. 281). A glance at the map and the configuration of the islands **[Page 73]** strung out from Puerto Rico in the north to Grenada in the south is enough to give the impression that these are indeed the pinnacles remaining above water from a flood which formed the Caribbean Sea.

Frazer gives a number of other flood stories with geo-mythic elements. I shall refer to them more or less in note form so that any reader who wishes to do so can follow them up.

(i) Not really a flood legend of the Noah type, but nevertheless included by Frazer (pp. 204-205) — that the Vale of Kashmir was formerly a lake, inhabited by a demon, but that the brother of the god Vishnu pierced the surrounding mountains with his ploughshare and allowed the waters to drain away. Vishnu himself thereafter slew the dragon. Compare the Greek legend that Thessaly was formerly a lake but that Poseidon drained it by parting the mountains to form the Vale of Tempe (Herodotus 7.129; Frazer pp. 171-172).

(ii) A legend that the mountains, valleys and plains of Formosa were moulded by the waters of the flood (Frazer pp. 232-233). Compare the Tsimshian legend from British Columbia: "before the flood there were no mountains …" (Frazer p. 319); also the Carib legend above; also Sir John Mandeville's *Travels,* Chapter 33: "The hills and the valleys that are now on the earth are the result only of Noah's flood, by which soft earth was moved from its place leaving a valley, and the hard ground stayed still and became a hill."

(iii) A legend that the lake in the centre of the island of Gaua in the New Hebrides was formed at the time of the flood, and that its "overflow," the great waterfall of Gaua, was formed at the same time, carrying the canoe of the hero Qat out to sea (Frazer pp. 240-241). Compare the formation of the waterfall of Tequendama in the flood legend of the Muiscas of Colombia (Frazer p. 267).

(iv) A legend seeking to explain the curious form of Mangaia, one of the Cook Islands (Frazer pp. 246-249). See also Vitaliano, *op. cit.* pp. 167-169.

(v) The Greek flood legends associated with the names of Deucalion and Dardanus have geomythic elements, the former involving the formation of the Vale of Tempe (Frazer p. 174), and the latter, a Samothracian flood story, the formation of the straits of the Bosporus and the Dardanelles (Frazer p. 168). Vitaliano (*op. cit.* pp. 158-159) disagrees with Frazer's idea that Deucalion's flood may be purely geomythic in origin.

Now the point about all these legends is that they *are* just stories. They do not reflect geological fact insofar as they replace the age-long geological processes we now know to have formed the landscape features in question by sudden, and thus catastrophic, events — a tendency we have already seen in the ancients' attempts to account for fossils. Thus, for example, the Vale of Tempe is the end result of millions of years of erosion and not a sudden crack in the mountains produced by an earthquake. The story of the lake of Thessaly is, likewise, a product of the ancient imagination.

As with fossils, the question arises as to whether the geomyths were *grafted onto* some of these flood stories, or whether, in part, they *inspired* them. It is entirely possible, of course, that some flood legends were inspired by attempts to explain the landscape whereas others merely incorporated such attempts "by the way." I am quite prepared to believe, for example, that Deucalion's flood relates to the tsunamis caused by the eruption of Thera, as Vitaliano believes, and that the formation of the Vale of Tempe was grafted onto the story afterwards. On the other hand, it seems likely that the Mangaia story — item (iv) above — is pure geomyth.

So we now have four factors to take into account when assessing whether or not the global spread of

flood legends indicates the occurrence of a global flood. We have (a) similar experiences of similar (local) events; (b) cultural borrowing; (c) fossils; and (d) attempts to explain configurations of the landscape. Though no one explanation accounts for each and every flood legend, I do think that between them they go a long way towards explaining the enigma of "The Universal Deluge." Certainly when considered in the light of the fact that archaeology has not so far given us any real evidence of a global flood, they seem to defuse the necessity for hypothesising a Universal Deluge on the basis of the myths. And yet, at the same time as the rationalist part of me says all this, I must admit that Frazer's collection of flood legends *still* leaves me with that uneasy feeling that there is "something to it all." Factors (a), (b), (c) and (d) add up to quite a lot. But do they *equal* the Flood enigma? Each reader must decide that for himself.

NOTES ON CHAPTER 19.

Note l. For example, he associated the Chinese floods in the reign of Yao with the birth of the Venus Comet — see *WiC* pp. 80-81 [I.3.2] and p. 108 [I.4.4]. But as we saw in Panel 14 (Chapter 17) there is no evidence that these floods were anything other than catastrophic seasonal inundations in a time before a proper drainage system had been constructed. The involvement of Venus is pure supposition on V's part.

Velikovsky also associates the Greek flood legends of Deucalion and Ogyges with his scenario — see *WiC* pp. 151-154 [I.1.4]. But this rests on chronological grounds, and I know of no account of either flood which mentions the planet Venus.

Another flood legend used by V in *WiC* is that of the Wichita Indians, which is dealt with in the next chapter. It mentions the Morning Star all right, but as we shall see, it falls well short of telling us that the flood was caused by the planet Venus. (For V's version, see *WiC* pp. 186-187 [I.9.6.].)

Note 2. When V writes on *WiC* p. 72 [I.2.5] that "the land was shrivelled by the heat of the flames" he seems to be referring to the torches of the Anunaki that Sandars describes as "lighting the land with their livid flame." Now though "lighting the land" could conceivably mean "setting fire to the land," it could also mean "illuminating the land." Considering the stormy context in which the torches are mentioned, I would suggest that these "livid flames" are probably associated with the lightning of the storm.

Note 3. But not exclusively so. Astronomical texts such as the Ammizaduga Tablets (*WiC* pp. 195-197 [I.10.2]) or artefacts such as the shadow clock of Seti I (*WiC* pp. 307-309 [II.7.3]) are not, of course, open to the god-planet argument, though V's interpretation of them is open to objection on other grounds.

Note 4. Some Bible fundamentalists seem to believe that all flood legends relate back to Noah's flood, but this is hardly tenable. If one is to interpret "Universal Deluge" legends literally, then one is more or less forced to the conclusion that there has been more than one such Deluge. Velikovsky regards Noah's and Gilgamesh's floods as distinct, despite the fact that the former is clearly derived from the latter (Note 6), and apparently equates Gilgamesh's flood with those of Ogyges and Yao (*WiC* pp. 71-73 [I.2.5]). Likewise, he follows early church historians in relating the Greek flood stones of Deucalion and Ogyges to separate events, both occurring in the time of Moses, much later than Noah's flood (*WiC* pp. 151-154 [I.7.4].

[Page 74] Note 5. We do need to be careful, though. In the case of the flood legend from Cape Frio in South America, for example, Frazer (pp. 254-256) gives a version in which the cause is rain, as well as the version mentioned above, in which the cause is a fountain of water that bursts up from the ground. If these are treated as references to the same event, then we must bear it in mind that mythmakers can "remember" the flood, but somehow forget its cause (cf. V's collective amnesia!) and thus have to supply their own mechanism when composing their stories. If this does happen, it considerably complicates matters, for it means that a sea-rise legend might be a made-up mechanism for a rain-flood, and a rain legend a made-up mechanism for a sea-rise flood! Vitaliano (*op. cit*. p. 158) quotes Andree as saying that an early version of the Greek story of Deucalion had the flood coming from the sea but that later versions (for example Apollodorus 1.7.2) cited rain as the cause.

Of course, paradoxical blends of remembering and forgetting are not involved if "The Flood" was never actually observed, but deduced from fossils or landscape-features, in the manner discussed later in this chapter.

Note 6. The biblical flood story can be regarded as an off-shoot of the Babylonian story, for as Frazer writes (p. 140) "the points of resemblance between the two are far too numerous and detailed to be accidental." For example, in both stories the hero is forewarned of the flood. In both the hero builds an Ark and takes into it his family and animals of all sorts. And in both the hero sends out a raven and a dove to see whether or not the flood waters have abated. For a full account of the resemblances and their implications, see Frazer pp. 139-142.

Note 7. That the Flood represents the rising waters at the end of the last ice age seems unlikely. The rise in sea level as the ice melted was simply too gradual. All flood stories agree that the Flood was a sudden event. As to the Velikovskian idea that huge amounts of water were dumped on the earth by the planet Saturn, I will remind readers that not a single flood legend says anything of the kind. Our editor, Donald Cyr, will remind me that there ts the Vailian Canopy model, of course, an hypothesis I intend to take to task in later issues of *Stonehenge Viewpoint*.

Note 8. The lack of a flood tradition from Egypt is not difficult to explain, it seems to me, for Egypt *depends* on a flood (the annual inundation of the Nile) for its survival. Egypt does have a flood story of another sort, though. In it the god Ra orders the flooding of the land with vast quantities of mandrake beer, a concoction that looks like blood, so that when the goddess Sekhmet appears, intent on destroying mankind, she mistakes the beer for blood, gets drunk on it, and forgets her murderous intentions. The human race is thus saved from destruction. It seems to me that the blood-like drink that floods the land could represent the blood-like colour of the annual inundation of the Nile (see Chapter 1), a flood which does indeed avert the destructive power of the Sun (represented by Sekhmet see Chapter 8). For a good account of the Sekhmet myth, see W. Max Müller's "Egyptian Mythology," *Mythology of All Races*, Vol. 12, 1964 ed., pp. 73-76. Also *Ancient Near Eastern Texts*, ed. J.B. Pritchard (1969), p. l0.

Note 9. As with rain-flood legends, we can find sea-rise legends which span both hemispheres and girdle the globe. Thus, for example, we find sea-rise legends among the Tlingits of Alaska (Frazer p. 317), the Incas of Peru (Frazer pp. 271-272), the natives of Tahiti (Frazer p. 242), and the inhabitants of the island of Rotti in the Indian archipelago (Frazer p. 223). lf we count the loosing of the nether waters in the Babylonian account and the waters of the deep in Genesis 7:11 as equivalent to a rise in sea-level, then we have truly girdled the globe.

Note 10. Many flood legends involve an explanation of animal characteristics — for example, the flood legend of the Bhils of India explains why a particular type of fish has no tongue (Frazer p. 194). The flood legend of the Cora Indians of Mexico explains why vultures have white wing tips (Frazer p. 280). For other examples see Frazer p. 209 (crab: South Vietnamese legend); p. 235 (pelican: Australian legend); pp. 264-265 (monkey, birds, alligator: South American legend); p. 270 (fox: South American legend); p. 274 (apes: Mexican legend); p. 299 (kingfisher: North American legend); pp. 305-306 (kingfisher, raven: Canadian legend); p. 326 (bears: North American legend). Compare the mountain goat in the American Phaethon story (Chapter 11) and the transformation of Cygnus into a swan in Ovid's *Phaethon* story (Chapter 10).

Note 11. Frazer points out (p. 183) that whilst the *Satapatha Brahmana* (written not later than the 6th century BC) contains a flood story, the earlier Vedic Hymns (written between 1500 and l000 BC) do nor. If we can deduce any real flood from the Indian story, then this presumably means that the flood in question occurred between about 1000 and 600 BC — later than the floods of Deucalion and Ogyges and much later than the flood of Noah.

Note 12. The story of the Palau Islanders bears a curious resemblance to Ovid's flood-story of Philemon and Baucis, insofar as the gods "disguised themselves in the likeness o[ordinary men and begged for food and lodging from door to door" (Frazer p. 253). Compare Ovid *Metamorphoses* 8.6l8-724.

Note 13. Equally we must allow for independent invention of similar themes. I offer the following as a possible case for consideration. Frazer (p. 253) cites a Maori legend in which the flood is caused by a woman's tears, and in another story from North America (Frazer p. 325) the flood is caused by a beaver's tears. Apart from the tears, the stories are quite unlike each other. Compare the pool of tears in *Alice in Wonderland*, Chapter 2, also the lake formed from the tears of Adam and Eve in Mandeville's *Travels*, Chapter 21.

Note 14. Frazer (p. 214) tells us that the floods of Yao were "forcibly identified" by some with Noah's flood. On the other hand, du Pratz simply concluded that the natives had "forgotten almost all the history of the deluge" when the correspondences with the Bible story were not close (Frazer p. 292). The assumption was generally there, though, that native flood legends related back to Noah — see, for example, the quotes from Boscana ("without doubt this account has reference to the universal deluge") and Crantz ("almost all heathen nations know something of Noah's flood") on Frazer p. 288 and p. 328, respectively. See also F.H. Woods' article "Deluge" (Section IV.A.iii) in Hastings' *Encyclopaedia of Religion and Ethics* (Vo1. 4, p. 546).

Note 15. (a) F. Waters *Book of the Hopi* (1963), part 1, Chapter 5.

(b) Buriat legend — U. Holmberg "Finno-Ugric and Siberian Mythology," *Mythology of All Races*, Vol. 4, p. 429; Eskimo legend — H.B. Alexander, "North American Mythology," *Mythology of All Races*, Vol. 10, p. 9.

(c) H.B. Alexander, as Note 15(b), p.26.

(d) Pima legend — Frazer p. 27; Ovid *Metamorphoses*, 1.82 f.

Note 16. Frazer (p. 159) writes that the seventh century Isidore of Seville was the first of many writers to appeal to fossils as confirmation of Noah's flood, an argument still used by Bible fundamentalists as for example, L.D. Ikenberry's *Noah's Ark — Mystery of Ararat* (1976), pp. 21-33. See also Frazer pp. 338-339. It is interesting that Herodotus (2.12) believed that much of Egypt had once been sea on account of fossils, and Hippolytus (*Refutation of All Heresies*, Book 1, Chapter 12) noted that Xenophanes deduced from fossils that large parts of the earth had once been covered in sea. Neither Herodotus nor Xenophanes seems to have associated fossils with Greek flood legends, however. See also W.K.C. Guthrie's *History of Greek Philosophy* (1962) Vol. 1, pp. 387-388.

Note 17. I think that fossils may also have inspired legends of giants "before the flood" or "in the olden days" — and hence Genesis 6:4. F.H.A. von Humboldt (*Researches*, Vol. 2, p. 21) notes that "we cannot doubt but that in both Americas the enormous fossil skeletons

of animals spread over the surface of the Earth have had a great influence on mythological history." For example, such fossil bones are found near Guayaquil (Ecuador) where, Peruvian tradition has it, a colony of giants. "mutually destroyed each other." Likewise the Field of the Giants near Bogota in Colombia. ln classical literature, Caius Julius Solinus says that at Phlaegra are still to be found "bones like to mens carkasses, but farre bigger" which are supposed to be the remains from the battle that was fought "betweene the hoste of Heaven and the Gyants" (Chapter 13 in A. Golding's 1587 translation, *The Excellent and Pleasant Work*).

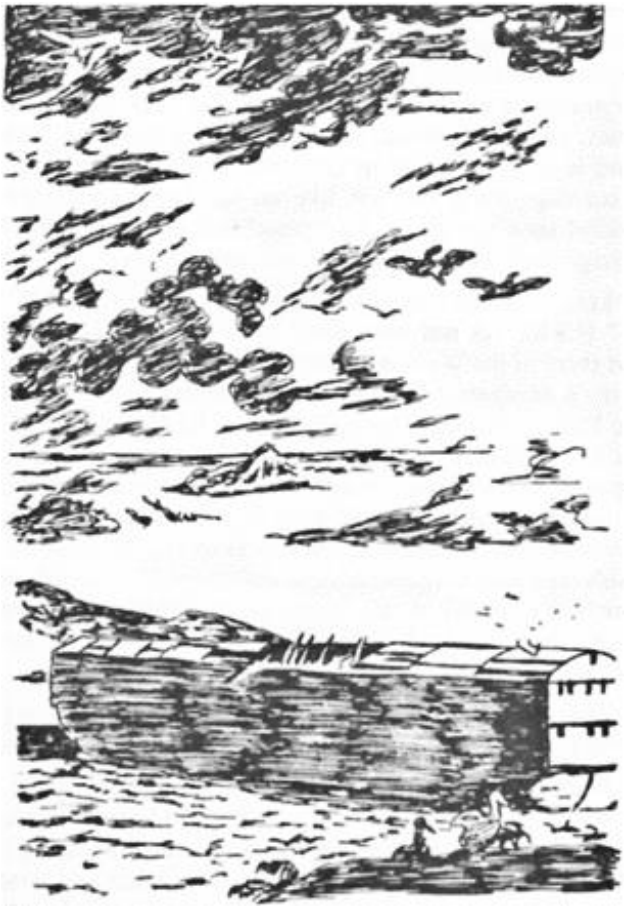
CHAPTER 20. MORE ON THE FLOOD

[Page 75] As I pointed out in Chapter 19, since we do not find repeated mentions of the planets in the world's flood legends, we really have no evidence for a planet-induced Universal Deluge of the type proposed by Velikovsky (V). However, some flood legends do contain some curious details which merit our attention, and it is to these that we now turn.

First we have a curiosity from Jewish folklore, namely that for seven days before the Deluge, God caused the Sun to rise in the west and set in the east. Velikovsky refers to this on *WiC* p. 119 [I.5.1], which is odd, since the Deluge referred to is Noah's, and Noah's flood doesn't really belong to the scenario of *WiC* at all. Despite this, the reference is of considerable interest, and once again we turn to Sir James Frazer's essay (*Folklore in the Old Testament*, Vol. 1, p. 143) for some background information.

The solar reversal is curious, certainly, but can we take it literally? Jewish legend also assures us that before the flood the gestation period for human beings was only a matter of days, and that the children could walk and talk as soon as they were born! As regards the flood itself, legend has it that to start the rain God removed two stars from the Pleiades, and that to stop it again he replaced the two stars with two others from the Great Bear. That is why the Bear chases the Pleiades round the sky to this day (that is, in the daily rotation of the heavens) — to get her missing stars back, something she will apparently accomplish on the Last Day! Seen against this sort of background, the reversed Sun is indeed what Frazer calls "a grotesque addition" to the simple tale of Genesis, an "extravagant detail" designed to "tickle the fancy" of the curious. (Compare the literary disruptions of the Sun in Chapter 15.) Furthermore, no other flood legend in Frazer refers to such a reversal of the Sun at the time of the flood Noah's or any other. If such an event had really happened, then we would expect to hear about it in many flood legends from around the world. As it is, we find it only in this relatively late embellishment of the original Genesis story. Genesis itself contains no such reversal, of course.

On the subject of odd details to be found in flood stories, I cannot resist including one which greatly intrigues me precisely because I can think of no good explanation for it (unless it originated as an attempt to explain hot springs). It comes from the flood story of the Ipurinas, a tribe of the Purus region of northwest Brazil. According to Frazer (pp. 259-260), they say that "formerly there was a great kettle of boiling water in the Sun." When the level of water in the kettle became low, Mayuruberu, the chief of the storks and creator of all birds, cast a round stone into it. The kettle was overturned and the world suffered "a destructive deluge of hot water" which "burned everything up." The account



NOAH'S ARK

adds that at this time "it was very dark, for the Sun and Moon were hidden," and concludes that "the kettle still stands in the Sun, but it is empty." Incidentally, V does not use this legend, nor am I aware of any of his followers putting it to good use.

Turning to a legend that V does use, now, on *WiC* p. 119 [I.5.1] he writes:

> "The Eskimos of Greenland told missionaries that in an ancient time the earth turned over and the people who lived then became antipodes."

Again, on *WiC* p. 125 [I.5.3] V writes that "in Greenland also the Eskimos fear that the earth will turn over." In both of these passages V refers to Axel Olrik's *Ragnarok* (German edition, 1922, pp. 406-407), the relevant paragraph of which reads thus:

> "'Die Erde kentert.' Ferner trifft man die Vorstellung, dass die Erde in alten Tagen umgeschlagen ist, so dass die damals lebenden Menschen zu Unterirdischen wurden, und dass sie wieder einmal in der Zukunft umschlagen wird."

A translation of this by P. Hyde reads thus

> "'The earth is capsizing.' In addition you meet the idea that the earth overturned in olden days so that the people who were living then became underground dwellers and that it would overturn again in the future."

Clearly this is not an axial flip of the earth in the sense envisaged by V, but a fantasy explaining the origins of "underground dwellers." (I take this expression to relate to the old and widespread idea of a race of beings dwelling **[Page 76]** beneath the earth's surface. It finds modern expression in the Hollow Earth theory, Shaver's Deros and Wells's Morlocks.) I mention this curious item here because Frazer (p. 328) refers to a tradition of the Greenlanders that "the world once overset, and all mankind, except one, were drowned." This legend is clearly related to Olrik's and envisages the earth overturning like a raft (or like an ice floe?) and tipping mankind into the sea — an "event" just as fanciful as the "underground dwellers" version just mentioned.

Let us turn now to a flood legend cited by V on *WiC* pp. 186-187 [I.9.6], but not mentioned in Frazer's essay. It is the flood story of the Wichita Indians of Kansas, as given in G.A. Dorsey's *Mythology of the Wichita* (1904) under the title "The Deluge and the Repeopling of the Earth." As stated in Note 1 in Chapter 19, it is a legend which does at least mention the planet Venus (in its role as Morning Star), but it is not just for this reason that we shall look at it in some detail. It is interesting also as a flood legend that is totally different from Noah's (and thus Gilgamesh's), so that the reader can take the opportunity to look at this legend and at Noah's, and to ask himself: How can I tell if these two stories refer to the same flood, or to different ones?

The story is obscure, and in parts almost incoherent (as indeed V notes on *WiC* p. 187), but the gist of it is as follows:

Once upon a time the wife of a tribal chief gave birth to four monsters whose form was "like that of a horse." The text tells us that "the monsters, who were called Standing-in-Water (*Hoskakakadiki*), faced north, east, south and west." In time the monsters grew to be enormous, and started to turn on the people of the tribe, trampling them underfoot and eating them. Eventually the chief of the tribe sent an emissary to a certain wise man to get some advice, and it was revealed to him that something would be done to destroy these troublesome monsters in due course. There would be a sign to show when the time for this had arrived:

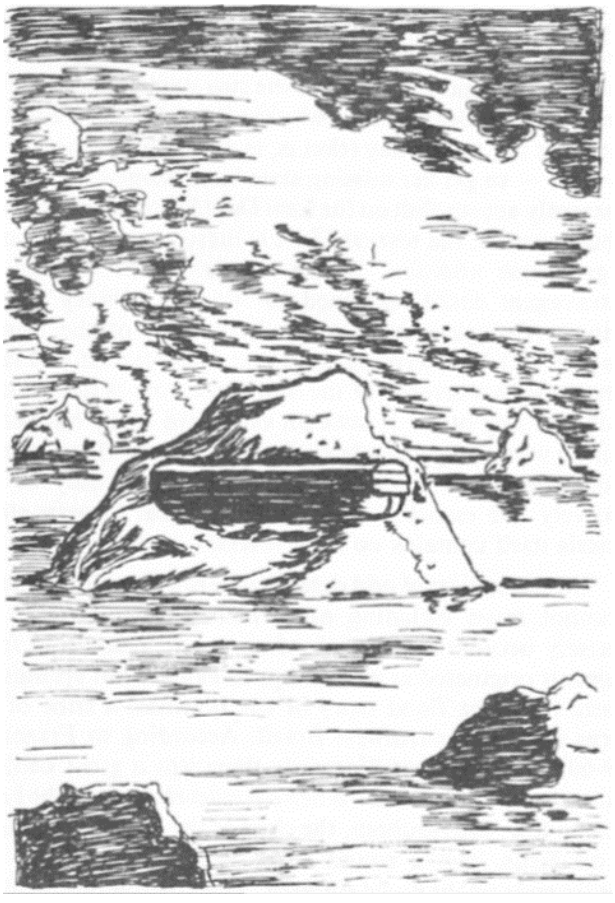
> "...the time would come when there would be some sign given so that the people would know that something was about to happen; that when the time should come it would begin from the north; that the flocks of fowls of the air, and the animals from the plains and woods, would appear as clouds; and that a big water-monster (Turtle) would be sent to destroy the four monsters. Some were afraid, but others were glad that it was going to happen. After a while there came to the people some signs, which showed that there was something in the north that looked like clouds; and the fowls of the air came, and the animals of the plains and woods were seen. All of this indicated that something was to happen. The clouds that were seen in the north were a deluge."

This "sign" is presumably what V has in mind for the representation of the Venus Comet, though there is nothing about the text so far to warrant such a bold conclusion.

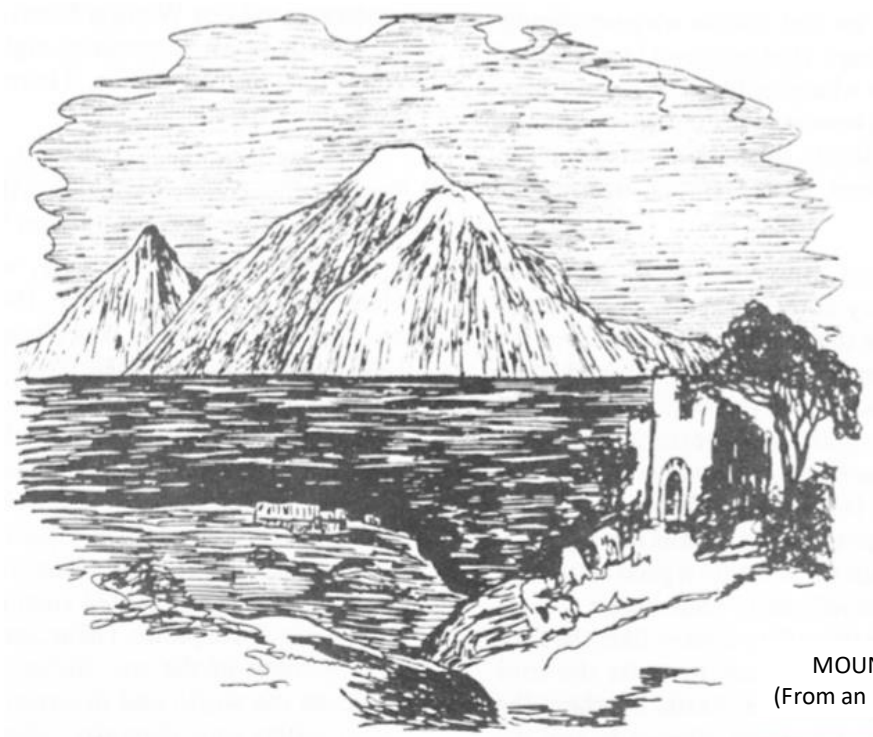
The story goes on to tell how with the coming of the deluge the Turtle flattened all the ground beneath the water. The result of this was that everything was so smooth and slippery that the four monsters found it difficult to stand up. The text goes on:

> "The one in the south said to his brothers that he was getting tired and would have to fall; and so he fell, and as he was falling he said that the direction he fell in should be called South (*Idikuts* — Changing Weather). Then the one facing the west said that he was like the one who had been in the south, that he was getting tired and would have to fall: and as he fell he said that the direction in which he was falling should be called West (*Nesakisudi* — Where-the-Sun-goes). The one facing north got tired and said that he would have to fall; and so when he fell he said that the direction in which he fell should be called North (*Itarakadara* — North-Room). There was only one more of these monsters. This one, of course, could not talk to anyone else, so he said aloud to himself that he was tired and would have to fall; and while he was falling he said the direction in which he fell should be called East (*Naasakaskidi* — Where-the-Sun-rises)."

That, it seems, was the end of the monsters, and their



NOAH'S ARK ON MOUNT ARARAT



MOUNT ARARAT
(From an old engraving)

relevance to V's scenario is something of a mystery. Velikovsky presumably refers back to them when he writes on *WiC* p. 187 of "the determination of the new four quarters of the horizon," but of course the myth does not actually tell us that they were ever displaced. All we seem to have is a rather mysterious bestowing of special names on the four cardinal points. I note, too, that the east is associated with sunrise and the west with sunset, exactly as today. There is no indication of any change as regards this arrangement!

Though that is the end of the monsters, it is not the end of the myth. The text goes on to say how the land was again divided from the water of the deluge, and how this was accomplished by the Wind. The land reappeared in the form **[Page 77]** of a woman (the Earth Mother), and by some mysterious parthenogenetic process she produced a child (the Dream-girl).

The Dream-girl grew up, and despite our being led to believe that everyone had been drowned in the flood (except the Medicine Man) she somehow found someone to marry, and had a son. The text continues:

> "The boy grew, and after a while he went off from the place where they were living, and, of course, being the first boy born, he had wonderful powers to create other things that were now on the face of the earth. He went around every day doing all of this, and he commanded things to exist. At one time, on his return, he brought back with him four sticks, that his father might make arrows, and he brought another stick for a bow for his own use. Now, the boy told his father and mother to move out of the place that they were living in; so the woman went out and fixed up another place to live in, and the boy still continued his work every day. He told his father and mother not to do him wrong until he had completed all the things that he wanted to do. In going out every day he would always have something with him. Once, on his return, his father and mother noticed that he had a pipe, and that he had a big bundle, in which he carried everything for his own use. He now came to be a young man, and he still told his father and mother not to do him wrong until he had finished all the things he wanted to do. Once upon a time, on his return, before reaching home, he spoke to his father and mother, saying: 'You have done me wrong; so that you both have caused my work to cease, and I will not come to live with you.' He told his people that he would go in the direction of the east, and he was to become the Morning-Star (*Harseiryarsenarar*). "

Again, what relevance any of this can have to V's scenario is something of a mystery. It does *mention* the Morning Star, it is true, but that is all it does, and as an account of the fate of V's Venus Comet (that vague "something in the north that looked like clouds," remember!) it is hardly convincing. Of course, there *is* a deluge here, so that this *is* a genuinely catastrophic myth that warrants some explanation, but my point is that to see it as an example of a Venus-induced catastrophe requires a rather fertile imagination.

After the Morning Star had left his parents, they had two other children, a boy and a girl. These two married, and from them the world was repeopled. The myth ends, obscurely, thus:

> "The father of the Morning Star in having a great many people, said to his wife that he would do like his son, and go off. This man's name was Clearness-after-Rain (*Iakadakiwitse*). So he went on his way toward the northwest, becoming Clearness-after-Rain. Before leaving, he commanded the people that they should say after the rain that Never-stop-to-see-what-is-in-

the-Way (*Kidiahosaihiristas*) was coming. The wife of this man never knew what became of him."

Clearly, then, this is a creation myth, or rather, a recreation myth, since the present world is produced following the destruction of an earlier one. We shall see further examples of such myths in the next chapter.

As indicated above, we do have here a deluge myth, even though there is no evidence of a planetary basis for it, and all the usual questions arise: Is it an embellished memory of an actual historical disaster or is it just a fantasy? If the former, is it based on a local flood or is it based on a global event that inspired the multitude of other flood legends to be found around the world?

One thing at least seems certain; this deluge, in its mythological presentation, has nothing in common with Babylonian or Hebrew flood legends. Cultural "borrowing," pre- or post-Columbian, thus seems highly unlikely in this instance.

[Page 78] Equally, though, there is no real reason why we should tie in this deluge with the deluge that inspired the story of Noah, or that of Deucalion, or whatever (assuming that these floods really did take place). These legends could all refer to quite separate floods, since floods do happen all over the world for varying reasons and with varying degrees of severity.

However, we have already discussed these issues in Chapter 19, so I propose to say nothing further about them here. But there is another point that arises in connection with this Wichita legend that has not yet been discussed, and to be honest at the outset, I am not sure of its full significance. I can perhaps best illustrate it by comparing my personal reactions to a reading of the biblical Flood story with my reactions to a reading of the Wichita legend. In the case of Noah, I can read the story and I can *understand* it. All the details are logically related and they make sense. But the Wichita legend leaves me with the uneasy feeling that I don't really understand what is going on in it at all. The whole thing is so dream-like: the four monsters that look like horses, and face towards the four points of the compass; the Turtle; the Earth Mother; the Dream-girl; the Morning Star; Clearness-after-rain; and the enigmatic Never-stop-to-see-what-is-in-the-Way. They are all so like the contents of *Alice in Wonderland* that I cannot help but wonder if the deluge part of the myth can be taken any more literally than the flood of tears in Alice! Certainly I feel that before I can commit myself to postulating a real flood as the basis for this legend, I need to know more about the precise significance of all the fairy-tale characters associated with it, for I do not think that the flood can be divorced from them. To date, though, I haven't really fathomed out that significance, nor have I come across any book of folklore and mythology that satisfactorily accounts for the garbled and dreamlike quality of this and similar Amerindian tales. (Compare, for example, the Cottontail myth in Chapter l3')

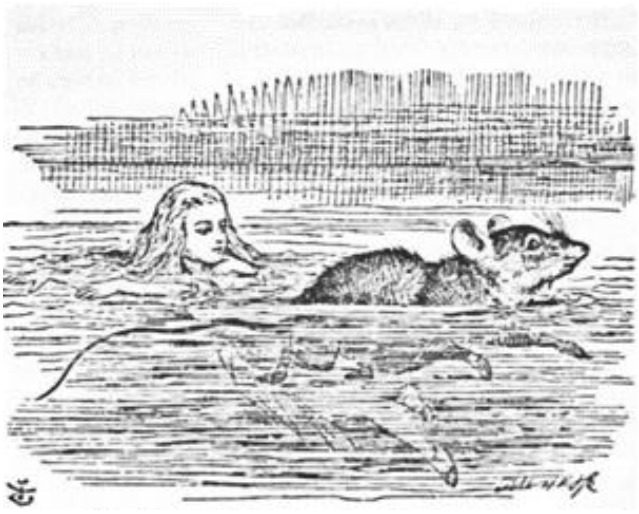
Finally, I should point out that there are actually two legends entitled "The Deluge and the Repeopling of the Earth" in Dorsey's book. The second of these, on Dorsey pp. 294-297, is the one referred to in this section and in WIC. The first of them (Dorsey pp. 290-294) makes a little more conventional sense than the second, and has Noachian overtones suggestive of Christian influence. Briefly the story is as follows:

The birth of the four monsters is described in much the same way as before. As the monsters begin to terrorise the tribe, a prophet is told by a voice "to get a tall cane, and place in between the joints all kinds of seeds, grass, corn, etc., using joint after joint of the cane." He is also told "to select in pairs those animals he thought best should be saved." A wise man also warns the prophet of the approaching deluge and the signs of its coming — as before, birds and animals are to appear from the north, and as they pass to the south the deluge is to follow them. When the flood does come, of course, the prophet clambers inside his cane with his wife, his animals and his plants.

The coming of the Turtle, the overthrow of the four monsters, and their naming of the four points of the compass are as before. The tale does differ again though with the fall of the fourth monster, for at this point the flood waters start to go down, and our Wichita Noah and his wife find themselves grounded on an "especially high point" of land poking up above the receding waters. Thereafter the world progresses to its present state.

There is no mention of the Dream-girl, the Morning Star, or Clearness-after-rain—the second of these omissions being the most significant from V's point of view, of course.

Finally for this Chapter, we consider a flood legend which, as Frazer points out (p. 180), is not really of the type we have been considering, since it does not involve people. It is told in the *Bundahis* (Ch. 7), a Persian cosmogonical work that we referred to in Chapter 8.



THE POOL OF TEARS (Alice In Wonderland)

We saw there that the *Bundahis* seeks to explain how the world came to consist of a mixture of good and evil characteristics. The explanation given is one in terms of a battle between the Good Spirit and his followers and the Evil Spirit and his followers. Creation was originally good, but was disfigured by evil forces. The Evil Spirit having created such noxious creatures as snakes, lizards, and scorpions, Tistar, an agent of the Good Spirit and embodiment of the star Sirius, caused a heavy rain to fall, flooding the world and drowning the noxious creatures. The flood waters were thereafter blown by the winds to the ends of the earth to become the seas and oceans we know today, the saltiness of their waters being the result of the noxious creatures once drowned in them. This flood legend is thus of the geomythic type discussed in Chapter 19. The involvement of Tistar-(= Tistrya) is clearly a cosmic-scale version of the annual rains "brought" by Sirius (see Chapter 8). There is one curious feature of the story that deserves mention, though. West's translation of 7.1 says that "the star Tistar was in Cancer" at the time of the rains. Clearly this cannot mean that Sirius was in Cancer, and West says in a footnote that this "probably means that it (Sirius) rises about the same time as the stars of Cancer, as is actually the case,"

B.T. Anklesaria's 1956 translation of this same portion of text reads thus: "Since the star Sirius was in the Ascendant in the watery Cancer, in the asterism which they call 'Azara'..."

CHAPTER 21. FIRE AND FLOOD

[Page 79] Sir James Frazer (*Folklore in the Old Testament*, Vol. I p. 265) says that the Arawaks of British Guiana believe "that since its creation the world has begn twice destroyed, once by fire and once by flood," both destructions being brought on by Aiomun Kondi, the great "Dweller on High." Both catastrophes were announced beforehand. Men were able to escape the great fire by burrowing underground and staying there "till the roaring torrent of flame, which swept across the earth's surface, had passed over them." When the deluge came, on the other hand, it was a pious and wise chief named Mererewana who, heeding the warning, "saved himself and his family in a large canoe."

A number of questions arise in connection with this story. There is something curiously familiar about it all. Could it be that the flood is based on Noah's, "the pious and wise chief'' of the biblical narrative being Noah himself, who, being forewarned of the coming deluge, escaped with his family in his large canoe, the Ark? More than this, is it possible that the destruction, first by fire and then by water, is actually derived from the Old World tradition that over long intervals of time the world is destroyed by fire and water alternately, a tradition that we have seen in Plato (*Timaeus* 22; see Chapter 18) and the Great Year doctrine (Panel 6), and which features also in the writings of Philo (Note l). Or did the Arawaks really experience two such disasters, and record them in their mythology? If so, were these disasters planet induced, or were they merely, say, a disastrous forest fire on one occasion, and a disastrous rain-flood on the other? Is Aiomun Kondi, "the Dweller on High," a planet, or is he merely the Arawaks' equivalent of Noah's God - a god without a planet?

Before attempting to answer any of these questions, we turn to Frazer pp. 272-273 for another fire and flood story, that of the Chiriguanos of southeast Bolivia. According to them a malignant deity "set fire to all the prairies" and destroyed the vegetation and animals on which the Indians subsisted in those days. These fires forced the Indians to flee to the banks of the rivers, where they took to living on fish. Not satisfied with this, the malignant spirit then caused torrential rain to fall in an attempt to drown them, but acting on a warning from a benevolent deity, the Indians placed two children, a boy and a girl, on a large leaf. Though everyone else was drowned, the children survived, and from them is descended the present human race. Here again, then, we have a typical flood legend preceded by a fire, but whereas the time between the fire and flood in the Arawak story is unspecified, and so could be anything, the corresponding time interval in the Chiriguano story seems to be relatively short. Is it possible that the Chiriguano story is of the same type as the Arawak (fire and flood alternation) but that the mythmakers have compressed the (usually lengthy) time interval between them to virtually zero, so that alternating events have become consecutive ones?

Just as the Arawak version seems to parallel the Great Year, there is a classical parallel for the Chiriguano version too. It occurs in *Fabulae*, l52A, where Hyginus says that the fires caused by Phaethon's fall were put out by the Flood of Deucalion. But as Mary Grant (following H.J. Rose) points out in her translation of Hyginus (p. 125), "no-one except a scholiast (who may go back to Hyginus) joins the flood story with the story of Phaethon." More usually the two stories were regarded as quite separate — or, to put it another way, most major accounts of Phaethon don't connect him with the flood of Deucalion, and vice versa. Thus Ovid tells of Deucalion's flood in *Metamorphoses* 1.260-437 and of Phaethon's conflagration separately in *ibid*. 1.750 ff. Apollodorus (1.7.2) and Lucian (*Syrian Goddess* 12) refer to Deucalion's flood without any reference to Phaethon, and Diodorus Siculus (5.23) refers to Phaethon without any reference to Deucalion (or any other flood). It would seem, then, that the two myths are to be regarded as distinct, and that their connection by Hyginus represents nothing more significant than the fact that a flood legend offers a tempting way for a mythographer to resolve the effects of a conflagration legend! Interestingly Nonnus does something similar in *Dionysiaca* 6.206 ff., where Zeus, having set the Earth on fire and imprisoned the Titans in Tartarus (on account of their slaying of Dionysos), sends a flood to put out the flames, this being the flood of Deucalion (6.367). But Nonnus, like Ovid, does *not* connect Phaethon with Deucalion (or indeed with any of the other floods in Greek myth). He deals with Deucalion's flood, and the others, in *Dionysioca* 3.205 ff. (where the Titans are not mentioned!) and with Phaethon in 38.108 f. In respect of the latter, I should add that Nonnus does have the fires of Phaethon put out by rains, though there is no flood as such. All he says is that "rain from life-breeding Zeus cleared all the fields, and with moist showers quenched the wandering fires..." (*Dionysiaca* 38.416 f.) Other authors — like Ovid — seem just to let Phaethon's fires "die out," in the sense that they don't say anything about how the fires were put out or went out (Note 2).

Another myth which tells of a conflagration extinguished by a flood is the Olelbis myth of the Wintun, a tribe of the Upper Sacramento Valley in California. Velikovsky refers to it thus on *WiC* p. 186 [I.9.6]:

> "According to the Indians of the Pacific coast of North America the 'shooting star' and the 'fire drill' set the world aflame. In the burning world one could see nothing but waves of flames; rocks were burning, the ground was burning, everything was burning. Great rolls and piles of smoke were rising; fire blew up toward the sky in flames, in great sparks and brands.... The great fire was blazing, roaring all over the earth,

> burning rocks, earth, trees, people, burning everything. ... Water rushed in. ... it rushed in like a crowd of rivers, covering the earth, and put out the fire as it rolled on toward the south ... Water rose mountain high. A celestial monster flew with 'a whistle in his mouth; as he moved forward he blew it with all his might, and made a terrible noise. ... He came flowing and blowing; he looked like an enormous bat with wings spread ... (his) feathers waved up and down, (and) grew till they could touch the sky on both sides.'"

Velikovsky here refers to H.B. Alexander's *North American Mythology*, and though this does indeed describe a **[Page 80]** cataclysm of fire and water, it occurs in such a curious and fanciful context that one is left wondering what it is all about. (Compare the Cottontail myth in Chapter l3 and the Wichita legend in Chapter20.) Furthermore, despite V's inclusion of it in the section "Venus in the Folklore of the Indians," the planet Venus nowhere appears in it!

For a full account of this cataclysm it is necessary to consult Alexander's own source, viz. Jeremiah Curtin's *Creation Myths of Primitive America* (1899). This account of the myth — the cataclysm is only part of it — runs to some 50 pages of Curtin's book, so we can do little more than sketch its outline here. First, though, note that the myth is one of *creation*, or rather recreation, since the present world is created following the destruction of an old world. But though a cataclysm ends this previous world, and though its survivors do go on to inhabit the next (that is, present) world, there are elements which suggest that this has nothing to do with V's scenario. Notably, the people (or beings) who survive the cataclysm become the *animals* of the present world (compare Chapter 19, Note l0). The question naturally arises — Can we take the cataclysm any more seriously than these transformations into animals? Similar story elements suggestive of an overall interpretation very different from V's will emerge as we proceed.

The story opens with the theft of a piece of flint from a being called Katkatchila by another called Hau. Failing to retrieve his stolen flint, Katkatchila told his sister (Yonot), her husband (Tilikus) and her husband's brother (Poharamas) of the theft, and between them they resolved to set fire to the world in revenge. They gathered a pile of pine sticks, and placed Yonot's son, Pohila ("the fire child") beside it. The sticks burst spontaneously into flame. The story continues:

> "When the fire had caught well Poharamas took a large burning brand of pitch-pine and rushed off to the southeast; Tilikus took another and ran to the southwest. Poharamas, when he reached the southeast where the sky comes to the earth, ran around northward close to the sky; he held the point of his burning brand on the ground, and set fire to everything as he ran. When Tilikus reached the southwest, at the place where the sky touches the earth, he ran northward near the sky. The two brothers went swiftly, leaving a line of flame behind them..."
>
> (Curtin p. 12).

This, then, was the start of the world fire, and as the flames began to take hold, Olelbis (the supreme deity of the Wintun) looked down and saw everything burning: "rocks were burning, the ground was burning, everything was burning." Sparks from the fires drifted up to the sky and stuck there, thus forming the stars we know today. We are also told (Curtin p. 15) that "quartz rocks and fire in the rocks are from that time." Presumably the sparks created when these stones are struck against each other are seen as fire "trapped" in the stone at the time of the world fire.

Distressed by the ongoing destruction, Olelbis called Lutchi and Sutunut to him, and told them to go to the north, pry up the sky, and prop it up with a pole. Then he enlisted the help of Kahit (= Wind) and Mem Loimis (= Water), who between them brought a deluge of water from the north to put out the flames:

> "Mem Loimis started, and with her Kahit. Water rushed in through the open place made by Lutchi when he raised the sky. It rushed in like a crowd of rivers, covered the earth, and put out the fire as it rolled on toward the south."
>
> (Curtin p. 22.)

The "celestial monster" in the passage quoted from *WiC* above is Kahit, and the whistle in his mouth almost certainly the sound of the howling wind.

With the world fire extinguished, Olelbis asked Mem Loimis and Kahit to desist, which they did. But this was not the end of the story. The flood had washed away almost everything, and only pools of water and bare rock remained. So Olelbis got two beings called Klabus and Yilahl to procure some soil and sprinkle it all over the world. Then they moulded some mountains and valleys and plains in it. (Compare Chapter 19 — mountains a result of the Flood, etc.) Next, since the flood had quenched every bit of fire in the world, Olelbis had to find some. As it turned out, the only source of fire left was the fire child Pohila (recall his role in spontaneously igniting the bonfire of pine sticks earlier), but he was jealously guarded by his mother Yonot. Consequently, it was necessary for a certain Tede Wiu to steal a spark of fire from Pohila's basket and give it to Olelbis (Note 3). It was at this time, too, that the survivors of the flood were transformed by Olelbis into birds and animals. Thus, for example, Hau became the Red Fox, Lutchi the Humming Bird, Sutunut the Black Eagle, Klabus the Mole, Yilahl the Gopher and Tede Wiu a small bird.

It remains only for us to see what some of the other characters in this curious story represent. As regards the Deluge, we have already seen that Kahit and Mem Loimis are personifications of Wind and Water respectively. As regards the World Fire, Katkatchila is the Swift; Yonot the Buckeye Bush (American horse-chestnut shrub); Tilikus the Fire-Drill (that is, the im-

plement for making fire by friction), and Poharamas the Shooting-Star.

Now I must confess that the precise significance of this quartet and their connection with a world-fire eludes me, though I will make one or two suggestions shortly. But I rather doubt that it has anything to do with V's scenario. The following points occur to me.

(i) The world-fire starts with a large pile of sticks cut from a pine "full of pitch," and is spontaneously ignited by Pohila, the fire child. This sounds more like the start of a forest fire than a bombardment with burning naphtha from the planet Venus!

(ii) The Sacramento Valley runs roughly north-south for most of its length, the river flowing from north to south. A river flood would thus come from the north. Not only that, the further north one goes up the valley, the heavier the average rainfall, so that the north would also be associated with heavier rains. Finally, the prevailing winds in the valley are generally from the northwest or north. This explains, I think, why Mem Loimis and Kahit come from the north.

(iii) Neither the formation of the stars nor the fire in the rocks can be taken literally. They may be just fanciful additions to a story of real catastrophe. On the other hand, it may be that the rest of the story can be taken no more literally than these two details. Compare my comments on the origin of the animals earlier. See also the episode of the Cloud People in Curtin pp. 36 f.

(iv) The fact that Fire is quenched by Wind and Water seems to me to be more a symbolic expression of the fundamental opposition of these elements in nature than an attempt to portray some particular historical catastrophe experienced by the Wintun. In a sense, of course, every forest fire, every flood and every storm can be said to have contributed to the basis for the catastrophic parts of the myth. At the same time, though, the myth does not necessarily represent any *particular* catastrophe. It is interesting that the deluge comes from the *north* (compare the Wichita deluge in Chapter 20) and that in contrast the fires start in the south (no fires in the Wichita legend, though!), again, perhaps, emphasising the opposition of the forces involved, and reinforcing the idea of a symbolic basis for the whole.

(v) The only hint of a cosmic aspect to the world fire is the fact that Poharamas is the Shooting Star, and this on its own can hardly be taken as strong support for V's scenario! My own interpretation of the role of Poharamas is that he is one half of a symbolic pair, the other half being Tilikus, the Fire-Drill. I would suggest that Poharamas represents fire from heaven (natural fire) on the one hand, and that Tilikus represents man-made or artificial fire on the other. The two appear as "brothers" — the two aspects of fire, who symbolically set out to burn the world before wind and water put a stop to their activities.

By way of attempting some comment on the other characters associated with the world fire, it occurs to me that Yonot, the Buckeye-Bush, may be the "mother" of the fire child because her wood makes good kindling. My friend Eugene Vonderembse suggests that the association with fire may be based on the long clusters of reddish flowers characteristic of the California Buckeye. As for Pohila, I am not at all clear why he is a fire-*child*. Nor am I sure of the significance of Katkatchila as the Swift, unless it is connected with the swift and darting nature of flames. His stolen flint has one obvious fire association, though in the context of the theft, the flint represents a *weapon*, propelled by a blowpipe, and used to kill game (Curtin p. 4). But whatever the relevance of all these things might be, they seem to have precious little to do with a cometary Venus circa 1500 BC!

To show that myth-makers can set fire to the world for quizzical reasons far removed from the representation of past planetary catastrophe, we need only turn to a myth from the Polynesian Maui cycle (Note 4). The story goes that Maui went to Maifuike. "an old woman who was the owner and guardian of fire," to get some fire for his mother. Maifuike gave him one of her fingers "in which fire was concealed," but Maui quenched it in a stream, and went back for more. She gave him another finger but Maui quenched that too. This process was repeated until the old woman had given away all her fingers, and toes, and had but one toe left. Angry that Maui should want that too, she used it to set fire to the world. As the fire spread, threatening to consume everything, Maui fled, praying for the rain, snow and hail to rescue him. They did, and the world fire was duly extinguished. It hardly seems likely that his story represents any real disaster at all, and I would suggest that it is intended merely to portray the twin messages that if one plays with fire it can have disastrous consequences, but that fire can be controlled by water.

Thus far, then, we have seen the idea of alternating catastrophes of fire and water in both the Americas and in Europe. Likewise, we have seen, on both sides of the Atlantic, examples that can be interpreted as alternating catastrophes which have become consecutive ones. On occasion the flood even puts out the fire! Is this coincidence, or what is it? The answer to this question seems to lie in a broader study of World Ages, to which we turn in Chapter 22.

NOTES ON CHAPTER 21.

Note 1. Philo *On the Eternity of the World*, paragraphs 146-149, talks of "onslaughts of fire and water" which "descend in turns after very long cycles of years." He writes:

> "When the agent is conflagration, a stream of heaven-sent fire pours out from above and spreads over many places and over-runs great regions of the inhabited earth. When it is the deluge, it sweeps along in every form which water takes."
>
> (Translated by F.H. Colson, 1941.)

It is from this section of Philo that V quotes on *WiC* p. 68 [I.2.4], and the description of heaven-sent fire is

indeed much like what V proposes in his section "Naphtha." But what did Philo himself have in mind? ln his work *Of Abraham*, paragraph l, Philo says that the Book of Genesis describes how fire and water wrought great destruction on the earth. His *Life of Moses*, 2.53-58, makes it clear that he thought Noah's Flood was the destruction by water, and the downfall of Sodom and Gomorrah the destruction by fire.

Velikovsky refers to Philo's *Life of Moses*, 2.53, on *WiC* p. 44 [P.2.5]. Since it is not certain that Philo referred *only* to Noah's Flood and the destruction of Sodom and Gomorrah, V's use of this quote is not unreasonable. However, readers of *WiC* should bear in mind that beyond the examples from Genesis, we do not *know* what other examples Philo had in mind, if any. There is certainly no indication that Philo knew anything about rains of burning naphtha from the planet Venus in the days of the Exodus, as indeed V admits on *WiC* pp. 287-288 [II.6.l].

So what *was* the "stream of heaven-sent fire" that destroyed Sodom and Gomorrah? According to Werner Keller, "their destruction came about through a great earthquake which was probably accompanied by explosions, lightning, issue of natural gas and general conflagration." (*The Bible as History*, p. 95.) We shall return to the destruction of Sodom and Gomorrah again in Chapter 23.

Meanwhile, though I would not go so far as to claim that the Arawaks' flood and conflagration stories are derived directly from a Philo-like interpretation of Noah's Flood and the destruction of Sodom and Gomorrah, it is nevertheless interesting that the Arawaks were forewarned of the disasters about to afflict them, just as Noah (Genesis 6:13) and Lot (Genesis 19:13) were forewarned of their respective disasters. Compare Chapter l9 on flood legends which involve forewarning.

Note 2. Velikovsky's scenario requires a close association of Phaethon and Deucalion, with each other and with the events of the Exodus (*WiC* p. 151 [I.7.4]). Though V doesn't cite Hyginus as a source, he does cite various chronologers, notably Eusebius, who in his *Chronicle* (Schoene ed., Vol. 2, p. 26) dates both disasters to the 52nd year of Moses's life. Frankly I don't know how much faith one can put in the attempts of Eusebius and others to relate mythical events to a framework of real history. It is true that Eusebius dates both the disasters of Phaethon and Deucalion to the 52nd year of Moses' life, but does this tell us any more about real history than, for example, his dating of Zeus's union with Io, and her subsequent transformation into a cow, to the 54th year of Moses' life?

Note 3. A number of flood stories say that the Flood put out all the fires in the world, so that after the waters had abated it was necessary for the survivor(s) to rediscover or otherwise obtain fire. See Frazer, *op. cit*. p. 221 (Dyaks, Borneo); p. 230 (Tsuwo, Formosa); p. 233 (Andaman Islands Indian Archipelago); p. 273 (Chiriguanos, South America); p. 289 (Smith River Tribe, North America).

Note 4. See Roland B. Dixon's "Oceanic Mythology," *Mythology of All Races*, Vol. 9, p. 47.

CHAPTER 22. WORLD AGES

[Page 82] Let us take the study begun in Chapter 2l a stage further. Starting in Europe, it would appear that the Great Year was originally conceived as bringing with it just alternating catastrophes of fire and water, the conflagration being the Summer of the Great Year, and the deluge its Winter. Later, however, this simple scheme seems to have been extended. By analogy with the ordinary year, the Great Year was conceived as having *four* seasons, each of these being associated with one of the *four* so-called Ages of Man (Gold, Silver, Bronze, and Iron — see Note l), and each governed by one of the *four* elements; fire, air, water, and earth. According to K.F. Smith, writing in Hastings' *Encyclopaedia of Religion and Ethics* (article "Ages of the World," Vol. 1, p. 200), in this later development of the Great Year doctrine the two other 'Seasons" brought with them catastrophes of Air (Wind) and Earth (Earthquake), just as the Summer and Winter brought with them catastrophes of Fire and Water. Personally I am not aware of any late classical or early Christian source which actually describes a Great Year fully equipped in this way, and Smith doesn't give any either. Nor, so far as I can see, does Smith's source, Gruppe, who seems merely to hypothesize that this was done. Gruppe does cite the second century AD *Syrian Apology* of Melito (para. 12) as referring to "a threefold destruction of the World by wind, water and fire," but of course this is only three of the four elements. Even so, this reference is interesting for its parallel with Chapter 13 of the Buddhist text the *Visuddhi Magga* (fifth century AD), to which we referred briefly in Chapter 17. This reference, too, talks of the destruction of the world by water (rains of salt water), fire (multiple suns), and wind (hurricane), the destructions following each other cyclically over immense periods of time.

Turning to the Americas now, H.B. Alexander (*Latin American Mythology*, p. 91) has this to say about the so-called Suns or World Ages of the Aztecs, his account being based on that of the native historian Ixtlilxochitl. Velikovsky (V) refers to this on *WiC* p. 45 [P.2.6]:

> "Ixtlilxochitl names four ages, following the creation of the world and man by a supreme god, 'Creator of All Things, Lord of Heaven and Earth,' Atonatiuh, 'the Sun of Waters,' was the first age terminated by a deluge in which all creatures perished. Next came Tlalchitonatiuh, 'the Sun of Earth'; this was the age of giants, and it ended with a terrific earthquake and the fall of mountains. 'The Sun of Air,' Ehcatonatiuh, closed with a furious wind, which destroyed edifices, uprooted trees, and even moved the rocks. It was during this period that a great number of monkeys appeared 'brought by the wind,' and these were regarded as men changed into animals. Quetzalcoatl appeared in this third Sun, teaching the way of virtue and the arts of life; but his doctrines failed to take root, so he departed toward the east, promising to return another day. With his departure 'the Sun of Air' came to its end, and Tlatonatiuh, 'the Sun of Fire,' began, so called because it was expected that the next destruction would be by fire."

Having failed to find a European or Middle Eastern example of the Great Year doctrine which mentions destructions by earth and air as well as those by fire and water, it is ironic that just such a scheme should turn up from Mexico! But there is more than irony here. Natural disasters are not in general neatly compartmentalised things. Hurricanes (air) are often accompanied by heavy rain (water). Rains (water) at their most destructive, are often accompanied by lightning (fire) and winds (air). Volcanoes (fire) can bring with them hot winds (air), earthquakes (earth) and tidal waves (water). Nature simply does not, in practice, restrict itself to one 'element' at a time, so that to see it as doing so involves a degree of stylisation on the part of man. This being the case, it is rather surprising to find the same stylising process operating on both sides of the Atlantic. This coincidence would seem to imply cultural borrowing — or sharing — of an *idea* rather than the global witness of *events*, the more so when we realise that the concept of the four elements is itself rather an artificial one in the sense that it does not correspond to a natural division of nature. (The closest it gets is as an extension of the solid-liquid-gas sequence.) The four elements are an artificial concept, and for that reason to see the Aztecs reproduce the four elements of the Greeks in the characterisation of their Suns is itself a noteworthy coincidence. But more than this, when one considers Gruppe's hypothesised extension of the Great Year, one realises that if he is right, and such a conception did indeed develop (and Smith says it did), then it has an uncanny parallel in the Aztec scheme!

However, the parallel is not complete. So far as I am aware there is no reference to grand planetary conjunctions in the Aztec scheme, and certainly no reference to the planets in a Velikovskian sense. True, Quetzalcoatl appears in the third Sun and he was symbolically related to the Morning Star (Note 2), but this is a far cry from being told that the planet Venus brought about the End of the World with a cosmic hurricane! Quetzalcoatl is here a Great Teacher, rather than a rampant super-comet!

Back-tracking slightly to the point made earlier about natural disasters not being, in general, neatly packaged according to one or other of the four "elements", it is worth pointing out that V's scenario itself is a veritable cocktail of disasters. Earthquake (earth), tidal waves (water), hurricanes (air), volcanic eruptions, and rains of burning naphtha (fire) all come hand-in-hand. It seems unlikely, then, that V's scenario can be represented by any one of the Aztec Suns, and, conversely, it seems unlikely that V's scenario became distilled into four separate "ends of the world." Velikov-

THE FOUR "SUNS" OF AZTEC MYTHOLOGY AS DEPICTEO IN A MEXICAN PAINTING

sky does attempt to cover this point on *WiC* p.45, writing as follows:

> "Every one of the four elements participated in each of the catastrophes; deluge, hurricane, earthquake, and fire gave their names to the catastrophes because of the predominance of one of them in the upheavals...

I am not convinced by this myself. I see here the hand of man, not nature. I think that the very artificiality of the **[Page 83]** categorisation of four "Ends of the World" under the headings Earth, Water, Air, and Fire is but one indication of the purely fictional — or perhaps I should say philosophical — nature of the whole scheme. This feeling of artificiality is reinforced by the reference to men being transformed into monkeys at the time of the Hurricane, and to the activities of the Giants in the Second Sun. (Compare my comments on the Great Year in Panel 6, and on the *Visuddhi Maggo* in Chapter 17.) This feeling is also backed up by the fact that the Ixtlilxochitl scheme, summarised in the paragraph from Alexander above, is only one amongst several variants. Thus on p. 94 of the same work, Alexander quotes a five-age sequence from the Annals of Quauhtitlan (*Codex Chimolpopoca*):

> "Atonatiuh, the first Sun, ended with a flood and the transformation of living creatures into fish. Ocelotonatiuh, 'the Jaguar Sun,' was the epoch of giants and of solar eclipse. Third came 'the Sun of Rains,' Quiyauhtonatiuh, ending with a rain of fire and red hot rocks; only birds, or those transformed into them, and a human pair who found subterranean refuge, escaped the conflagration. The fourth, Ecatonatiuh, is the Sun of destruction by winds; while the fifth is the Sun of Earthquakes, Famines, Wars and Confusions, which will bring our present world to destruction."

As can be seen, this scheme has much in common with the other, and yet it *is* a different scheme. H.H. Bancroft writes of these and other variant schemes:

> "With regard to the number of these destructions it is hard to speak positively, as on no single point in the wide range of early American religion, does there exist so much difference of opinion. All the way from twice to five times, following different accounts, has the world been desolated by tremendous convulsions of nature."
>
> (*Native Races*, Vol. 3, p. 64.)

If these Suns represent real history, why these different versions, and why all the attendant artificiality?

Actually the existence of so many variants may be a key to understanding how the Suns described by Ixtlilxochitl came to match *exactly* the four elements of the Greeks. It could be that when Europeans came to Mexico in the sixteenth century, they brought with them the idea of the four elements, and this was adopted by the natives as a *basis* for a new scheme of Suns (possibly because it echoed a scheme they already had?) Even if this is true, it remains a fact that all variants involve destructions by wind, water, and fire, the same three agents we find in both the *Visuddhi Magga* and the Syrian *Apology of Melito*. This in itself is a noteworthy coincidence. European influence may account for the Suns of the Ixtlilxochitl scheme, but does it account for everything?

Now it is quite possible to argue that "artificial" stories can come to surround factual events of history, and that the existence of variant stories does not necessarily preclude the possibility that one version may contain a kernel of truth. So let us ask if, by putting together Aztec Suns, Greek and Roman Great Years, and Buddhist World Ages, we can find any common ground, and glean any real history from it.

Starting with destructions by fire, I know of no Greek or Roman account of the Great Year which actually gives much detail of the mechanism by which the world is set on fire. Neither Seneca nor Censorinus mentions any mechanism. Philo (Ch. 21 Note 1) gives Sodom and Gomorrah as an example of destruction by fire. Plato regards the conflagration of Phaethon as based on a Great Year type destruction by fire, and this would seem to implicate the Sun (see Chapters 10 and 18). The *Visuddhi Magga*, however, is very specific. The world is destroyed by multiplying suns (see Chapter 17). Finally, in the Mexican *Codex Chimalpopoca* the world is destroyed by a rain of fire and red hot rocks. We shall discuss what phenomenon this might represent in Chapter 23. For now, it is enough to note that where details are given of the mechanism behind the destruc-

tion by fire, there is little or no agreement. We have merely the common *idea* of "destruction by fire."

As regards destruction by water, Seneca (*Natural Questions* 3.29.4) thinks that the floods associated with the Great Year might come about by the sea rising above its usual levels, possibly accompanied by rain. Philo cites Noah's flood, and Plato talks of deluges in which people are "swept into the sea by the rivers" (*Timaeus* 22E). If Atlantis is taken as Plato's complement to Phaethon, then we have a swallowing up by the sea as another example of destruction by water. The *Visuddhi Magga* is again specific and proposes rains of *salty* water. However, neither the *Codex Chimalpopoca* nor lxtlilxochitl gives any details of the mechanism behind the Mexican deluge (at least not in Alexander's summaries of them). Clearly the problems of deciding whether or not we can put together Greek (or Roman), Indian, and Mexican destructions by water are **[Page 84]** precisely those associated with putting together flood legends generally. Having discussed these in Chapter 19, we need not discuss them again here.

The same arguments apply to destructions by winds. The hurricanes of both the Mexican account and the *Visuddhi Mogga* are indeed strikingly similar. But then hurricanes are similar to each other wherever and whenever they occur. (Incidentally, as regards a Great Year type destruction by wind, Gruppe proposes the destruction of the Tower of Babel as described in the Ethiopian *Book of Adam*.)

As regards the Mexican Sun of Earth, this has no parallel in the *Visuddhi Magga*, and as stated earlier I know of no account of the Great Year which involves anything like it.

Thus there is no overall agreement between the Greek Great Year, the Buddhist World Ages, and the Aztec Suns. There are points of agreement, notably in the cases of the floods and the hurricanes in the Buddhist and Mexican schemes, but this may simply be because they are inspired by similar experiences of similar, but unconnected, local events. We do not know that they represent separate eyewitness accounts of the same global event. But the most striking agreement between the various legends from different cultures lies not in the events themselves but in the elemental agencies involved. All agree that "fire" destroys mankind, for example, but differ in the mechanism they assign to that destruction. This rather leads us away from "gleaning real history," for, as we saw earlier, this type of agreement seems to imply the cultural sharing of an *idea*, rather than the global witness of an *event*. Once we admit that it is an *idea* which is being shared, the existence of variant mechanisms is immediately explicable. They represent different attempts to *imagine* how the world might be destroyed on an elemental basis. Sometimes, as in the case of the seven suns of the *Visuddhi Magga*, the attempt has no basis in fact. Other attempts, like the Great Winds in the same work, are just as imaginary in their extremes, but are at least based on ordinary experience — namely, on hurricanes, if one can call such experiences "ordinary!"

THE GREAT YEAR

According to Berosus a world conflagration would occur when all the planets were in conjunction in Cancer, as shown here. A grand conjunction on the opposite side of the zodiac, in Capricorn, would result in a deluge. (See Panel 6.)

If we abandon the idea of gleaning any real history from all these World Age schemes, the next question which calls for an answer is this: why should anyone devise a scheme of World Ages and cataclysms if nothing like it has ever happened?

Louis H. Gray, writing in the Hastings "Ages of the World" article already referred to, sees such doctrines as a late phase of religious development. He points out (p. 183) that myths explaining the Creation of the World are found almost everywhere, among primitive and sophisticated societies alike. At a later, but still relatively primitive stage of development, the idea of a future End of the World arises. Gray goes on:

> "Still later, it would seem, comes the doctrine that after this cosmic annihilation there is to be a new world, a belief which is found, for instance, in systems so divergent as the Iranian and the Norse."

As indicated in Panel 6, the idea of the regeneration of the World following its end may well derive much of its inspiration from the regeneration of the New Year (Spring) following the "destruction" of the Old Year (Winter), or from other cyclic phenomena of nature, for example the phases of the Moon. Be that as it may, once the idea of regeneration following the end is arrived at, the next step is to see the present world itself as a regeneration following the end of some previous world.

In all this man is merely speculating and not attempting to portray real history. This explains, I think, why his efforts in this direction are both fanciful and

stylised. One thing which the Greek Great Year, the Buddhist *Visuddhi Magga*, and the Aztec Suns have in common is that they don't sound real. The "speculation" theory also explains, as we have seen, the existence of different World Age schemes side by side in the same country. The variant schemes of Aztec Suns are one example here. Likewise in India, where the World Age scheme of the *Visuddhi Magga* has an equally fanciful alternative in that of the Hindus (Note 3).

As to the inspiration of the cataclysms that attend the ends of the World Ages, man naturally tends to work from those natural disasters familiar to him — earthquakes, floods, hurricanes, and fires (volcanoes, bush fires) — hence earth, water, air, and fire — plus others, such as cold, drought, and famine. Gray thinks that the basis of the Aztec belief "was due, at least in part, to the tremendous natural phenomena of a tropical country," these being "mythopoetically magnified." I have already indicated that I think the same could be true of the *Visuddhi Magga*. We should at this stage ask if it is possible that the earth-water-air-fire sequence could have arisen *independently* on both sides of the Atlantic simply because man was in both places hypothesising along the same lines about the history of the world and basing his supposed cataclysms on similar experiences of similar events.

[Page 85] Personally I think this is stretching coincidence too far, and since we have already seen numerous examples of like ideas that seem to imply cultural borrowing of one sort or another, I don't see why we shouldn't admit some cultural borrowing here. This is not to say that I think the Aztec World Ages are a direct copy of those found in India, the Middle East, and Europe. I don't think they are. Rather I think that both continents developed their own World Age legends independently, possibly with some coincidental similarities (e.g. disasters of flood and wind — the result of similar experiences), but that cultural borrowing worked on the common ground so as to enhance the similarities, at least in some instances. We saw the same kind of effect at work in connection with flood legends. When one culture with a flood legend meets another with a flood legend, each may draw from the other, and the two may nudge each other closer to describing the "same" event.

As to the simple alternation of fire and water with which we opened Chapter 21, I wouldn't like to say whether the Arawak legend owes its origins to European influence. Certainly, if the Deucalion and Pyrrha stone-casting motif can turn up in Venezuela, then the basic fire and water alternation of the Great Year *could* likewise turn up in British Guiana. Again, though it is an interesting possibility that the Chiriguano story is of this same type, but with the "gap" between the fire and flood removed, after the fashion of Hyginus (without necessarily being a copy of Hyginus), it is also possible that the story is merely of the Maui type we saw earlier — an expression of the fundamental opposition of fire and water. Likewise with the Olelbis myth, which, however, is closer to a World Age pattern, with its mention of "a world before this one in which we are now" (Curtin p.4) and its animal origins, comparable to the monkey, fish and bird metamorphoses associated with the Aztec Suns.

This and the previous Chapter have been rather a ramble, I'm afraid. A lot of questions and too few real answers. As with the pure flood legends discussed in Chapters 19 and 20, I cannot claim to have definitely debunked V's interpretation of some of these fire and flood or World Age legends, though I would remind the reader of the notable absence of Velikovskian references to the planets in the tales we have studied. Nor would I claim to have dispensed with the possibility that some major global catastrophe (perhaps not as spectacular as V's, but spectacular enough all the same) is encoded, half hidden among the speculation and fantasy of these World Age schemes. Rather I have tried to show that there are other interpretations open to us besides V's and other catastrophists', and that, in the absence of archaeological evidence, I personally believe are more plausible. I think that Great Years, World Ages, and Suns tell us more about the history of philosophy than they do about the history of the world.

But we are not finished with fire and flood just yet, for we have still to consider the most curious flood of all — the fire flood.

NOTES ON CHAPTER 22.

NOTE l. The most famous account of these four ages is probably that in Hesiod's *Works and Days* (109-201). In summary, Hesiod's account runs as follows. First came the men of the Golden Age, ruled over by Cronus. It was an age "untouched by work or sorrow" and "all good things were theirs." This race was "hidden in the ground," becoming the "spirits of the earth." The gods of Olympus next created the men of the Silver Age. Less perfect than the men of the Golden Age, they became foolish and reckless, and dishonoured the gods. "The earth then hid this second race," Hesiod continues, "and they are called the spirits of the Underworld." Zeus next made the men of the Bronze Age, but they were warlike, strange, and full of power. "They died by their own hands, and nameless went to Hades …" Zeus then made the godlike race of heroes, the fighters of the Trojan War and doers of famous deeds. These went eventually to live a carefree life at the Earth's edge. Finally, Zeus made the men of the fifth age, the Age of Iron. This is the age in which we live today — a world of imperfections.

On *WiC* p. 42 [P.2.5] V writes how "Hesiod … wrote about four ages … that were destroyed by the wrath of the planetary gods." Though it is true that Hesiod did write about the ages of man in his poem *Works and Days*, he nowhere says in that poem that the wrath of the planetary gods ended one age and ushered in the next! Here V is simply putting words into Hesiod's mouth. True, Hesiod mentions the gods Cronus and

Zeus, but there is no evidence that the *planets* Saturn and Jupiter are meant (see Chapter 5). It is true, too, that Zeus got angry with the disrespect of the Silver race towards the gods, but he merely "hid this race away," which is a far cry from a Velikovskian planetary upheaval! Hesiod himself doesn't mention any natural convulsion in connection with the succession of the World Ages. The catastrophic details quoted by V, remember — "the life-giving earth crashed around in burning … etc" — come not from *Works and Days* but from *Theogony*, and refer not to the end of one of the Ages but to Zeus's battle with the Titans and their ultimate banishment to Tartarus. *Theogony* doesn't link this battle with the Ages of Works and Days, and nor does *Works and Days* link the Ages with the battle of the Titans. It would seem to be *Velikovsky* who has forged this link, rather than Hesiod himself.

Hesiod's theme in *Works and Days* is not one of successive planetary disasters, but one of the moral and social development of mankind. Hence his concern with the descent of man from the perfections of the Golden Age to the imperfections of the present Iron Age. Hesiod's sequence of *five* ages is actually an awkward blend of two different schemes. The descent of man originally took place in four stages — the ages characterised by the metals gold, silver, bronze, and iron — but since this scheme left out any reference to the historically important Heroic Age, Hesiod felt obliged to squeeze it in between the Bronze and Iron Ages. (See K.F. Smith, *op.cit.*, p. 193.)

It was the four age system of ethical development which *later* (that is, some time after Hesiod) became bound up with the four elements and the four seasons of the Great Year (Smith p. 199). Presumably it is through this later phase of development that we eventually find Apollodorus (1.7.2) associating Deucalion's flood with the end of the Bronze Age, and Ovid (*Metamorphoses* 1.127 f.) associating it with the end of the Iron Age. The important point to note, though, is that catastrophes only seem to be associated with the ends of the Ages in later literature. They are not to be found in the original Hesiod.

NOTE 2. Quetzalcoatl (Q) was a complex deity. He seems originally to have been a god of rain and winds, but later his name was adopted by a tenth century priest-king of the Toltecs whose reign ushered in the greatest period of Toltec history. Nevertheless, Q was for some reason forced into exile. This historical Q naturally developed his own mythology, and there are two mythical versions of his flight from his enemies. The first version says that Q built a pyre on a mountain and threw himself into it, from whence his heart rose to become the Morning Star. The other version says that Q bade farewell to his followers and sailed out to sea on a raft of serpents, prophesying that one day he would return. The first of these is the version V cites on *WiC* p. 158 **[Page 86]** [I.8.3] as describing "The Birth of Venus." It does, of course, but hardly in the way readers of *WiC* might suppose, for the myth is purely symbolic and certainly is *not* meant to imply that the planet Venus did not exist prior to Q's immolation in the tenth century AD! (For similarly impossible but symbolically neat myths of origin, compare the origin of the rose in Mandeville's *Travels*, Chapter 9, and the origin of the owl as told at the end of the story of Math, son of Mathonwy, in *The Mabinogion*.) It is interesting that in Ixtlilxochitl's account of the Suns, the god of winds and the priest-king seem to feature together, for Q appears in the Sun of Air, "teaching the way of virtue and the arts of life," and with his departure the Age comes to an end "with a furious wind."

There is an interesting classical parallel for Q's catasterism-by-fire, for Hercules is supposed to have immolated himself on a pyre on Mount Oeta in order to gain his place among the stars. See Seneca's *Hercules Oetaeus*, lines 1482 f.

The foregoing sketch of Quetzalcoatl is based on B.C. Brundage, *The Fifth Sun* (1979), pp. 102 f., but on the historical Quetzalcoatl see also W. Krickeberg *et al*, *Pre-Columbian American Religions* (1968), p.31.

Scholarly opinion on Q does vary a lot, however, and I am very aware of the fact that my "sketch" could be substantially in error in the way it stitches together the various aspects of Q. Compare, for example, Krickeberg on the historical Q with Sejourne on the same (L. Sejourne, *Burning Water*, p. 54). But however the various aspects of Q really slot together, the final picture seems to be well removed from V's scenario, and that is the main point here.

NOTE 3. In the Hastings "Ages of the World (Indian)" article, H. Jacobi writes of the Hindu conception of world ages.

> "Orthodox Hindus recognize four Ages of the World (yugas), roughly corresponding to the Gold, Silver, Brass, and Iron Ages of the ancients. They are called krta, treta, dvapara, and kali after the sides of a die; krta, the lucky one, being the side marked with four dots; treta that with three; dvapara with two; kali, the losing one, with one dot" (p.200).

These four yugas together constitute one mahayuga. Each yuga is preceded by a "dawn" period and followed by a 'twilight" period, the chronological proportions of the whole scheme being summarised as follows. Note that I Divine Year = 360 of our years, so that a mahayuga takes up 4,320,000 ordinary years in all. (See accompanying table.)

The scheme is obviously very fanciful and stylised, and the succession of the four yugas corresponds to a general decrease in human virtue. Needless to say, we are currently in a Kali-yuga or Iron Age, which began, incidentally, on February l7th, 3102 BC. (There is thus no tie-in with V's chronology.)

Jacobi goes on:

> "It seems natural to presume that originally the mahayuga comprised the whole existence of the world;

indications, indeed, of such a belief are not wanting, as will be noticed later. Still, the common doctrine is that one mahayuga followed one another, one thousand of them forming a single kalpa. The kalpa, then, is the length of time from a creation to a destruction of the world." (P. 201)

The destruction is similar to the destruction by fire in *Visuddhi Magga*, Chapter l3:

"At the end of the last kaliyuga of a kalpa, the heat of the sun becomes fierce and dries up the whole earth; and by it the three worlds are set on fire and consumed. At last enormous clouds appear and rain for hundreds of years, and deluge the whole world till the waters inundate heaven." (P. 201)

Jacobi goes on to say that the destruction of the world and the creation of a new one were probably originally associated with the mahayuga rather than the kalpa. In fact, this seems to be the situation described in A. Berriedale Keith's "Indian Mythology" (*Mythology of All Races*, 1917 and 1964: Vol.6, p, 105) where the destruction is painted in terms close to those of *Yisuddhi Magga*:

"Seven suns appear in the heaven, and what they do not burn is consumed by Visnu in the form of a great fire, the destruction being made complete by a flood."

Unlike the ages of the *Visuddhi Magga*, however, the Hindu yugas have planetary connotations of the Great Year type. Jacobi writes:

"The astronomical aspect of the yuga is that, in its commencement, sun, moon, and planets stood in conjunction in the initial point of the ecliptic, and returned to the same point at the end of the age."

Clearly, then, the Hindu Ages have much in common with the Greek, not only as regards the associated concept of a grand conjunction of the planets, but also as regards the age by age progression of decreasing virtue and failing perfection. Such common ground is clearly indicative of cultural contact or common heritage rather than independent witness of the same global events.

According to the *Surya Siddhanta* (1.29-33), the Hindu astronomical text we referred to back in Chapter 8, the various planets complete the following numbers of circuits in the 4,320,000 years of a Mahayuga:

Mercury	17,937,060
Venus	7,022,376
Mars	2,296,832
Jupiter	364,220
Saturn	146,568

TABLE OF HINDU AGES OF THE WORLD

Name	Number			Length in Divine Years			Metal
Krta-yuga	krta	=	4	Dawn	=	400	Gold
				Yuga Proper	=	4000	
				Twilight	=	400	
Treta-yuga	treat	=	3	Dawn	=	300	Silver
				Yuga Proper	=	3000	
				Twilight	=	300	
Dvapara-yuga	dvapara	=	2	Dawn	=	200	Bronze
				Yuga Proper	=	2000	
				Twilight	=	200	
Kali-yuga	kali	=	1	Dawn	=	100	Iron
				Yuga Proper	=	1000	
				Twilight	=	100	
				(1 Mahayuga)	=	12000	Divine Years Total

CHAPTER 23. FIRE-RAINS AND FIRE-FLOODS

[Page 87] The most puzzling types of flood myth are those that involve a "fire-rain" or "rain of fire." Such myths are clearly consistent with Velikovsky's (V) rains of burning naphtha, though it must be added that none of the myths mentions the planet Venus or indeed any other planet. So let us look at these myths and see if there is any other possible explanation besides V's.

Frazer (Note 1) cites one of these curious legends, that of the Mundaris or Mundas, a tribe of the Chota Nagpur region of North East India. Velikovsky refers to this same legend on *WiC* p. 66 [I.2.4]:

> "According to the Mundas, God created mankind out of the dust of the ground. But soon mankind grew wicked; they would not wash themselves, or work, or do anything but dance and sing perpetually. So it repented Sing Bonga that he had made them, and he resolved to destroy them by a great flood. For that purpose he sent down a stream of fire-water (Sengle-Daa) from heaven, and all men died. Only two, a brother and a sister, were saved by hiding under a tiril tree; hence the wood of a tiril tree is black and charred with fire to this day. But God thought better of it, and to stop the fiery rain he created the snake Lurbing, which puffed its soul up into the shape of a rainbow, thereby holding up the showers. So when the Mundaris see a rainbow, they say, 'It will rain no more. Lurbing has destroyed the rain."

Now my first reaction to this is that despite the fire the "phenomenon" described is too much like an ordinary flood story for comfort, and though V's naphtha fits it to some extent, the mention of "a great flood" and the presence of the rainbow to "stop the rain" do not sound at all Velikovskian. To my mind this is a flood legend to which a fiery element has been added for some reason. Two ideas occur to me at this point.

(i) Could this be a case of fire and flood alternation in which the events have not merely been reduced to *consecutive* ones (compare the examples in Chapter 21) — they have been *combined*, and somewhat clumsily at that? It is as if someone has taken the fires of Sodom and Gomorrah and the floods of Noah and simply rolled them into one.

(ii) Could it be that fire-rain is ordinary rain, specifically attended by lightning? (Compare the fire-mingled-with-the hail, in Exodus 9:24, perhaps?) The term fire-water could then be seen as a rain of "water which has fire in its midst," possibly the lightning being seen, incorrectly, as caused by some special property of the rain (just as the rainbow is seen, incorrectly, as *causing* the storm to end). The reference to the tiril tree might also fit in with an explanation in terms of lightning, since trees are favourite targets for strokes of lightning.

The obvious question is: How could a rain-flood legend become distorted in such a curious fashion? One possibility that springs to mind is that it has come about through a mistranslation or misinterpretation. (Compare the torches of the Anunaki in Chapter 19, Note 2: Do they illuminate the land or do they set fire to it?) This doesn't seem likely here as the same story is found elsewhere, as we shall see shortly. Another possibility is that the story has become distorted in its re-telling. But again, though this might explain one particular fire-flood story, it can hardly explain a version from India and a similar version from Siberia, unless the versions are not independent, and the same garbled story has been passed from tribe to tribe.

Finally, though the "rain-with-lightning" explanation fits the Mundas story, after a fashion, it cannot explain references to "burning liquid" which we find in other similar legends (see below), *unless* we hypothesise that such references were added to the story *after* "fire rain" was misinterpreted as a literally burning fluid. Such an hypothesis is possible, but since there is no real evidence for it, the "rain-with-lightning" idea should definitely be regarded as no more than a possibility at this stage.

Uno Holmberg (2) gives another fire-flood legend, this time as told by the Tungus from behind the Baikal:

> "In the beginning was the earth, but then a great fire raged for seven years and the earth was burned up. Everything became sea. All the Tungus were consumed except a boy and a girl who rose up with an eagle into the sky. Having wandered for a time in the air, they descended to a place where the water had dried up. With them the eagle also descended to the earth."

Here again we have "a great fire" and, paradoxically, instead of a burnt out world we have everything becoming sea! Holmberg doesn't mention any "fire-rain" here, and I have been unable to check Holmberg's source (E. Pekarskiy), so that this legend may be of the type mentioned in Note 3 of Chapter 22, where the world is consumed by fire and the destruction is "made complete" by a flood. More likely, though, it is like the Vogul legend below. Can we take the seven years literally? I doubt it. The "seven" is probably only a numerological device on a par with the sevens in the following Vogul legends, also from Holmberg's book (pp. 368-369):

> "Of an all-devouring conflagration the Voguls also speak, telling how God sent a sea of fire upon the earth in order to destroy the devil. The cause of the fire they call 'the fire-water.' In the destruction of all creation, only the god and a few mortals succeeded in saving themselves. The former placed themselves on an 'iron ship,' the latter on a 'seven-bottomed beech-raft,' which was provided in addition with a fireproof, sevenfold cover of sturgeon-skin. The tale gives thus the same means of escape as the ordinary flood tales,

which the conflagration tales of the Voguls otherwise resemble.

> "The tales of the Voguls also tell of a recurring conflagration, the fearful thunder of which the 'Earthwatching man' hears from afar. This hero decides to ride through the fire, 'one side of which glows in the heights of the **[Page 88]** sky. the other burning at both corners of the sky.' With the help of his magic horse he succeeds also in his attempt. Munkacsi believes the aurora borealis to have been the original source of these ideas. This he assumes is meant by the 'sea of fire' through which the hero rides for seven days. Obviously, this great phenomenon of North Siberia has played a great part in awakening the imagination of the people...."

Velikovsky refers to this section of Holmberg on *WiC* p. 66 and p.67 [I.2.4]. Note that the Vogul tale, like that of the Tungus, has the conflagration lasting for seven years, a period of time which V takes literally (*WiC* p. 67).

So, are these tales of the Tungus and the Voguls simply ordinary flood stories whose "fire-water" was once "rain with lightning bolts?" It doesn't seem likely. Are they combined fire and flood stories, as in (i) above? This seems more likely. Or do they, as Munkacsi suggests, owe their inspiration to the northern lights? There is much to commend Munkacsi's idea.

Hartwig (Note 3) describes one type of auroral display as consisting of streams of light which "shoot forth simultaneously from many opposite points of the horizon and form a vast *sea of fire*, whose brilliant waves are continually changing their position" (emphasis added). This "sea of fire;' is clearly what Munkacsi has in mind. Again, Young (Note 4) describes how in folklore the auroral display was commonly believed to result when "gods carrying flaming torches were duelling in the dark heavens," so that the aurora certainly has the power to inspire vivid stories.

Of course, one might argue that since aurorae have never yet been known to burn up the earth and kill people, still less to continue thus for seven whole years, therefore these conflagration stories must refer to something else. On the other hand, it might be argued that such an approach misses the point entirely: the northern lights are merely the source of inspiration for a fanciful *story*, like the duelling gods mentioned by Young, or the revelling spirits in the following passage from Hartwig (p. 358):

> "In the northern islands, the rustic sages who observe the blood-red flames of the aurora shooting through the skies become prophetic, and terrify the spectators with awful menaces of war, pestilence, and famine. Their excited fancy sees hosts of spirits flitting along upon its flashing beams, and holding their revels in the skies."

It is not what aurorae actually *do* which inspires the tales, but what the imagination fears they might do. Aurorae may not actually harm people, but nevertheless, as Hartwig notes, they have "terrified the ignorant and superstitious of all ages" (compare the reactions to parhelia, quoted from Hartwig in Chapter 17). Thus Young (p. 203) describes how in the autumn of 1585 French peasants were thrown into a state of panic by an auroral display (unusual this far south):

> "The sky was on fire! Curtains of flame rolled in over the northern horizon and beams of white and red light shot high as from a gigantic explosion just over the edge of the world. Shortly after midnight it seemed as though the prayers of the people had been answered. The firelight in the sky slowly subsided and soon the peaceful dome of heaven was once more studded with stars."

Likewise, the *Anglo-Saxon Chronicle* records that on the 11th of January 1131 "all the northern sky appeared like a blazing fire, so that all who saw it were more terrified than ever before …" Further back in time, Pliny in his *Natural History*, 2.27, notes:

> "There is a flame of a bloody appearance (and nothing is more dreaded by mortals) which falls down upon the earth, such as was seen in the third year of the 103rd Olympiad, when King Philip was disturbing Greece."

No further details are given, but it would seem likely that this, like the *Anglo-Saxon Chronicle*, refers to an auroral display.

Now though the Siberian "sea-of-fire" legends may relate to the aurora, the Mundas legend from India, quoted at the beginning of this Chapter, can hardly do so, except via cultural borrowing. Aurorae are not generally visible so far south (Note 5). Nor, for the same reason, can the aurora account for the curious fire-flood legends of the Santals of north-east India, as detailed by Frazer (*op. cit.* pp. 196-198).

Frazer cites three versions of the Santal legend, differing slightly in detail. The first version says that when the first man and the first woman had reached adolescence, "it rained fire-rain for seven days and seven nights. They sought refuge from the burning liquid in a cave in a rock, from which, when the flood was over, they came forth unscathed." Notice that here again is fiat paradoxical combination of fire and flood, and that the seven summers and seven winters of the Voguls are here reduced to seven days and seven nights.

The second version of the Santal story mentions simply "fire from heaven," without, apparently, any reference to rain and flood. The third version mentions only "fire-rain."

Inevitably the phrase "fire from heaven" recalls the disaster which struck Sodom and Gomorrah. Genesis 19:24 describes it thus: "the Lord rained upon Sodom and Gomorrah brimstone and fire from the Lord out of heaven." As we saw in Chapter 21, the cause of this particular disaster is said by Keller and others to have been "a great earthquake which was probably accompanied by explosions, lightning, issue of natural gas and

general conflagration." Likewise, George Adam Smith (Note 6) writes that "in this bituminous soil took place one of those terrible explosions and conflagrations which have broken out in the similar geology of the oil districts of North America. In such soil, reservoirs of oil and gas are formed, and suddenly discharged by their own pressure or by earthquake. The gas explodes, carrying high into the air masses of oil which fall back in-*fiery rain*" (emphasis added).

Could such a "fiery rain" be at the root of the Santal legends and their like? In Burma there are certainly a number of mud-volcanoes (Note 7) whose past explosions might have given rise to Sodom and Gomorrah type of stories. Thus Levorsen (Note 8a) quotes an eyewitness account of an eruption on the island of Cheduba as follows:

> "I saw what at first I took for a black cloud, but which was no doubt mud, shot far above the trees, followed a moment afterward by very dark red flames and dense black smoke, which looked to me to shoot right up to the clouds."

[Page 89] Likewise Mallet (Note 8b) refers to the "paroxysmal eruptions" of the mud volcanoes of Ramri and Cheduba:

> "... mud and stones are shot out with great force and noise, accompanied by large quantities of inflammable gas, which in many cases catches fire and gives rise to a volume of flame that lights up the country for miles around ... From one of the Kyauk Phyu volcanoes, Dr McClelland states that 'vapour and flame were seen by the inhabitants of Kyauk Phyu to issue to the height of several hundred feet above the summit during the principal shock of the earthquake of 26th August 1833' ... On the 23rd of March 1839 a very severe earthquake was felt throughout the whole of Burma during which 'fires, mingled with smoke and ashes, rose to a fearful height' ..."

Now, such an event *might* produce a "rain of fire," though I haven't actually come across an account of an eruption of this kind which specifically mentions it. But even granted it is *possible*, none of our legends says that fire shot out of the ground and then rained back down again. But then neither does the Biblical story of Sodom and Gomorrah give an earth-bound account of that destruction, so the omission is perhaps not significant (Note 9). However, an event of this nature surely does not account for the *flood* element of some of our conflagration stories, unless one counts the "flood" of oil that can come to the surface with released pressure (Note l0). Velikovsky's "deluge" of burning naphtha from the planet Venus *does* explain both the "rain" of fire, quite literally "from heaven" (as opposed to up-out-of-the-ground, then down again), and, in some areas at least, literal floods of crude petroleum, forming some of the oil fields we know today. (This, according to V: geologists have other ideas!) Unfortunately, as we have seen already, *none* of the fire-flood legends mentions the planet Venus, or any other cosmic body, as the source of this petroleum. So where did it come from, if it "came" from anywhere?

One possibility that occurs to me is that petroleum deposits were *imagined* by ancient man to be the remains of a liquid which had at some time fallen from the sky like rain. In much the same way, the ancients imagined that dew was deposited during the night by the moon or the stars (Note 11). No one need have witnessed such an event for it to be imagined: it would be a "deduction by analogy" — puddles are there because they are the left-overs from a fall of rain, therefore petroleum deposits must be something similar. Since this form of liquid is inflammable, it doesn't take much for the imagination to latch on to the idea of a fiery rain, particularly if the imagination is assisted by actual witness of a fiery mud-volcano in action such as that of Cheduba mentioned above. I must stress, however, that all this is purely hypothetical. I know of no actual references to the supposed origins of oil comparable to those for dew in Note 11.

What of the Siberian Tungus and Vogul stories, which are obviously very similar to the Indian Mundas and Santal stories, respectively? Could *they* be related to explosions of gas or crude petroleum deposits, released and ignited by earthquake activity? Well, the earthquake factor seems unlikely (though not impossible) since the regions inhabited by the Tungus and Voguls are well-removed from the tectonic plate boundaries which gave rise to the earthquake activity that sparked off the destruction of Sodom and Gomorrah, and that occasionally sparks off the mud-volcanoes on the Arakan coast of Burma. The Voguls are supposed to have originated from the South Ural steppes. The nearest plate boundary petroleum deposits would seem to be those at Baku on the Caspian Sea, somewhat out of their territory, though there are petroleum deposits in the Uralsk province. But being well away from the plate boundary, how likely is it that some great explosion could take place there? I must confess that my knowledge of the geology of petroleum really isn't up to answering this question one way or the other. Likewise, much of Siberia does have petroleum deposits (Note 12), all well away from plate-boundaries, and the Tungus territory stretches far and wide. So could the Tungus have witnessed some such explosion somewhere? Actually, Holmberg specifies the Tungus of the Lake Baikal region (I take his "behind the Baikal" to mean Trans-Baikalia), so presumably we should be looking to the deposits in the UIan-Ude area. All of which raises the question, if petroleum explosion is the explanation of the Vogul and Tungus stories, then oughtn't we to find more spectacular fire-rain type stories from other areas situated nearer plate-boundaries and with more abundant petroleum deposits? Again, even though we have possible "fire-rain" phenomena in Burma, this still isn't northeast India, where the Mundas and Santals live. Why is there no fire-rain legend from Burma (there may be, but I've just not heard of it), and has a Sodom and Gomorrah type explosion ever happened in

north-east India (if so, I've never heard of that either)? There are a lot of questions to be answered before we can accept or reject the petroleum theory.

As previously stated, though the aurora might be held to account for the Vogul tale, it cannot account for the similar tale of the Santals, who inhabit a region too far south (latitude 25° north) for aurorae. Nor, incidentally, do aurorae account for that paradoxical blend of fire and *flood* that we find in some of our conflagration stories.

Which brings us back to the rain-with-lightning interpretation. The Mundas and Santals inhabit tropical regions, where fierce storms and their floods can and do happen. But the Voguls (whose story mentions a "sea of fire" rather than an actual flood, remember, at least in Holmberg's precis) and the Tungus inhabit more northerly latitudes with a completely different type of climate. They *do* suffer storms, but then many other areas of the globe also suffer storms without talking of "fire-rain" — for example, Sumatra or Madagascar. On the other hand, as stated earlier, though thunderstorm "fire-rain" seems a reasonable explanation of the Mundas legend, it involves such a curious mythological "warping" of natural phenomena that perhaps one wouldn't expect to find the same "warping" anywhere else. And yet we do seem to find it in the Tungus legend. How could this happen, unless via cultural borrowing? If cultural borrowing did have a hand in things, then might not the fire-flood legends of India be "borrowed" versions of myths based on aurorae from Siberia? Or might not the fire-flood legends of Siberia be "borrowed" versions of myths based on gas and oil explosions on the Burma to northern India plate boundary?

Personally I don't think that any one of the thunderstorm, aurora, and petroleum theories really fits all the facts, with or without cultural borrowing. Whichever way we turn, **[Page 90]** something doesn't seem quite right. My mind keeps going back to those paradoxical blends of fire and flood, and to the question of why conflagration stories "otherwise resemble" flood stories (as Holmberg puts it). Adding to what we've said already, Frazer (*op. cit.* p. 195) says that the Hos of southwest Bengal believe that in the past men grew incestuous and forgot God, and that God resolved to destroy them "some say by water, others by fire." This brings us back to the fire and flood stories of Chapters 21 and 22, and particularly to Philo's observation that the Book of Genesis tells how God resolved to destroy a wicked mankind, on one occasion by water (Noah's flood) and on another by fire (Sodom and Gomorrah). Now in some ways the stories of Noah and of Sodom and Gomorrah are similar, insofar as they entail similar plots (that is, the wickedness of man; the forewarning and escape of a chosen survivor and his family; the destruction of mankind), but with the agent of destruction in one being water, and in the other fire. Could this explain the "resemblance" between flood and conflagration legends generally, as noted by Holmberg and others? More than this, is it possible that these twin traditions of destruction by fire and water found their way from the Middle East to Asia, becoming separated in some instances (hence the reference to the Hos above) and combined in others (as proposed in (i) at the outset of this chapter). If so, we may be wasting our time looking for the events on which the likes of the Tungus and Mundas stories are based, for they are borrowed stories and their basis lies outside the regions in which these peoples live. Moreover, the artificial fusion of originally separate fire and flood stories seems, to me at least, to be the only hypothesis which convincingly explains the paradoxical blends of fire and flood that we find in some of these stories.

As we saw in Chapter 22, there is a "rain of fire" in one of the accounts of the Mexican "Suns." To recap, this account says that the third age of the world was called Quiauhtonatiuh, the Sun of Rains, and that it ended "with a rain of fire and red hot rocks." Only birds, or those transformed into birds, and a human pair who found refuge in a cave, escaped the conflagration. (Compare V's reference to this on *WiC* p. 66.)

We need not debate again here the issue of whether or not this rain of fire can be taken any more literally than the transformations into birds. Our purpose here is simply to ask what phenomenon might have inspired this particular cataclysm.

Now there is no mention of burning liquid in the Mexican account (though Sun of *Rains* does seem a curious epithet for a destruction by fire), and no flood seems to be associated with the rain. Instead we have a rain of fire and *red hot rocks*. So, despite the coincidence of the phrase "rain of fire," there may actually be no connection between the Mexican "rain" and the "fire-rain" of the legends we have discussed earlier in this Chapter.

One possible interpretation of the Mexican account is volcanic. Volcanoes do shoot hot rocks and burning cinders high up into the air, and these could certainly be described as "a rain of fire and red hot rocks" as they fell back to earth. But there is no more mention of a volcano here than there is of V's Venus comet, and this is a serious drawback for the volcanic theory.

A fall of meteorites is another "rain of fire and red hot rocks," and this interpretation seems to me to be much better than the volcanic one. It is also consistent with V's scenario, though since there is no mention of either Venus or Mars as the source of the rain of fire, we certainly do not have unequivocal backing for that scenario.

So, did meteorites once really wipe out a large proportion of the population of Mexico? So far as I know, the historical and archaeological record does not evidence such an event, nor is this mode of destruction specifically featured in other versions of the Aztec Suns. My own view is that this rain of fire is simply one of a series of fanciful disasters (details given in Chapter 22) grafted onto history for religious or philosophical pur-

poses. The source of inspiration for such a story might be the observation of ordinary falls of meteorites, multiplied in the imagination to an all-destructive "rain."

According to Lane (Note 13) meteorites *do* fall in showers as well as individually. Probably the greatest shower in modern times was that which occurred on January 30th, 1868 at Pultusk, near Warsaw, in Poland. According to Lane (p. 113) "it is estimated that 100,000 stones fell, of which the heaviest weighed 440 pounds." Lane mentions no loss of life as a result of this shower, and indicates that except for extreme cases like the massive Tunguska meteorite, death-by-meteorite seems to be very rare. I wonder myself if the "rain of fire" part of the cataclysm owes its inspiration to a spectacular meteor shower rather than a fall of meteorites (Note 14). Richard Sanderson (Note 15) describes the spectacular Leonid meteor shower of November 12th to 13th 1833 thus:

> "Many people were awakened by flashes of light cast into their bedrooms by the fireballs. Thinking that their houses were on fire, some ran into the streets only to discover that the fire was not on the ground but in the heavens. Others were alerted by excited neighbours with news of a phenomenon that few could comprehend: a rain of fire.
>
> "Those who were outside during the hours before dawn saw hundreds of thousands of meteors. Most of the meteors appeared as faint, fast-moving points of light. They seemed to come in waves, and they were too numerous to count. But the most terrifying aspect of the shower was the many brilliant fireballs. Some were as bright as the full moon. Their smoke trails lingered for up to twenty minutes and were slowly distorted by the wind. Ten to fifteen trails were often visible at one time."

Just as interesting as the description of the shower itself are the descriptions of the effects it had on the populace. The following is from a letter written by a South Carolina planter:

> "I was suddenly awakened by the most distressing cries that ever fell on my ears. Shrieks of horror and cries for mercy could be heard from most of the negroes ... I heard (a) voice saying 'O, my God, the world is on fire!' I then opened the door, and it is difficult to say which excited me most — the awfulness of the scene, or the distressed cries of the negroes ... The scene was truly awful, for never did rain fall much thicker than the meteors fell towards the earth ..."

Lane (p. 105) quotes an account of the same shower which says that it was as though the Day of Judgement had come.

[Page 91] Now, could such fears — unfounded as we know now, but very real to those who suffer them — have played a part in moulding the Mexican "rain of fire?" I think so, for as we have already seen with parhelia (Chapter 17) and aurorae (above), it is not always what a thing *does* that inspires a legend, as what people think it *might* do. Clearly if some meteors do reach the ground as meteorites, then we do indeed have a "rain of fire and red hot rocks" that the imagination can quite readily turn into a "Day of Judgement" or the end of a Sun.

NOTES ON CHAPTER 23

Note 1. Sir J.G. Frazer, *Folklore in the Old Testament* (1918), Vol. 1, p. 196.

Note 2. U. Holmberg, "Finno-Ugric and Siberian Mythology" (*Mythology of All Races*, 1964, Vol.4), p. 368.

Note 3. C. Hartwig, *The Aerial World* (1891), p. 354.

Note 4. L.B. Young, *Earth's Aura* (1917), pp. 202-203.

Note 5. Hartwig (p. 358) says that aurorae have been seen as far south as Alexandria (31.5° N.), but that this is very rare.

Note 6. G.A. Smith, *The Historical Geography of the Holy Land* (1931), p. 508.

Note 7. "A mud-volcano is a high pressure gas seepage that carries with it water, mud, sand, fragments of rock and occasionally oil." A.I. Levorsen, *The Geology of Petroleum* (1954), p. 19.

Note 8. (a) Levorsen, *op. cit*., p.22.

(b) F.R Mallet, "Mud Volcanoes of Ramri and Cheduba," in *Records of the Geological Survey of India*, (1878), Vol. xi, pp. 197-201.

Note 9. Philo's *Life of Moses* 2.56 says that the cities were destroyed when "lightnings poured from heaven," but does contain one geologically suggestive detail — *viz*., that "the dusky flame still arises as though fire were smouldering within." Compare Josephus *Wars of the Jews*, 4.8.4: "there are still the remainders of that divine fire."

Note 10. In October 1895, a well sunk in the Mamakai oilfield (between the Caspian and Black Seas) resulted in such a prolific flow of oil that "in a month it had formed the neighbouring valley into a vast lake, in which steamers could easily float" (Sir Boverton Redwood, *A Treatise on Petroleum*, 1926, Vol. 1, p. 12). Another well at Kudako resulted in an uncontrollable flow of oil which formed a large lake and reached the Kuban river 9 or 10 miles away (*ibid*. p. 14). These "floods" are the result of drilling for oil, of course, but it is conceivable that similar things could have happened in the past, with the release being by earthquake activity.

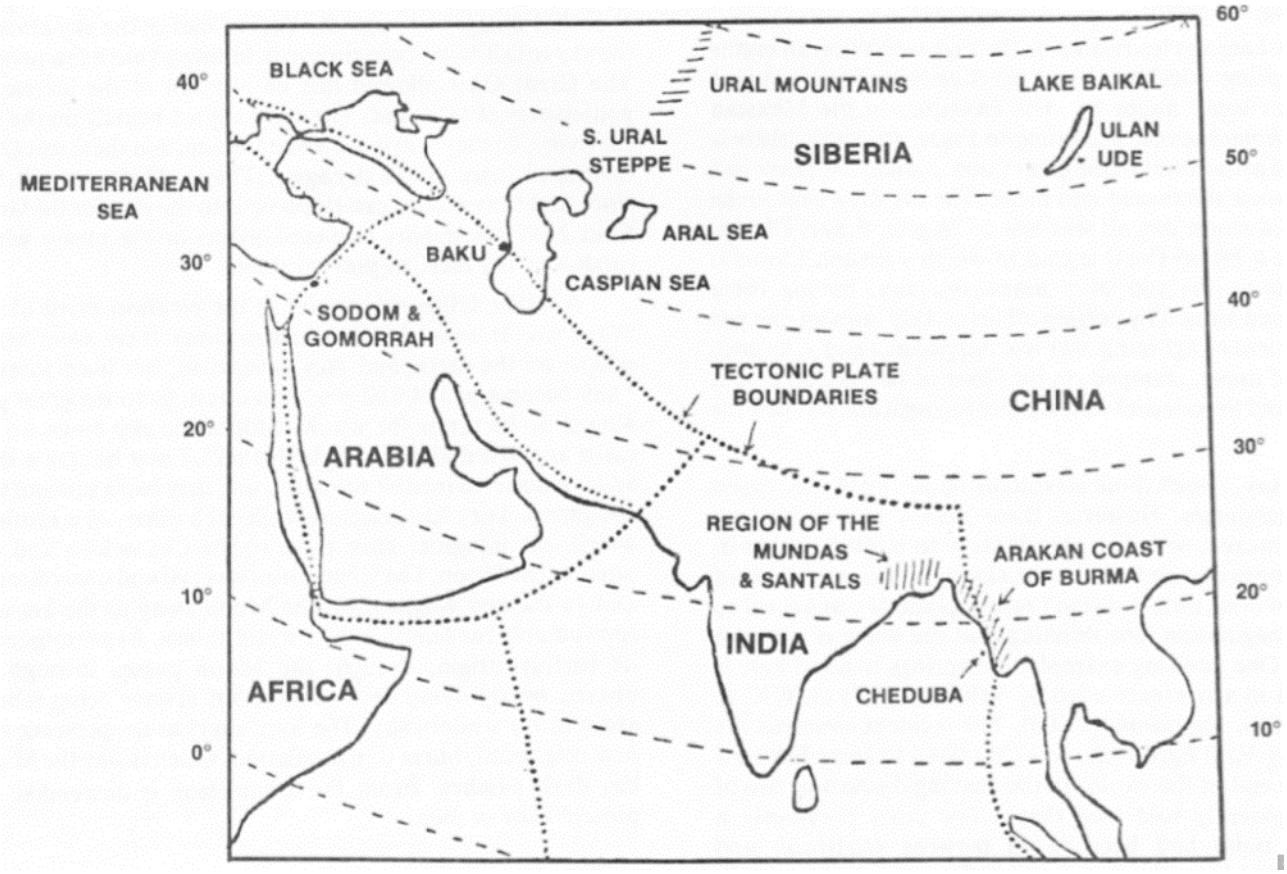
Note 11. See, for example. the quotes from Virgil at the beginning of Panel 5, and Pliny's reference to the "genial dew" of Venus at the beginning of Chapter 6. Likewise, *Pervigilium Veneris* 5 ("the moisture that the stars distil on cloudless nights"). Curiously, Aristotle (*Meteorologica*, 347a) realised the true explanation of dew long before any of these sources.

Note 12. See the map in the article on "Petroleum" in *Encyclopedia Britannica* (1984 ed.) Vol. 14, p. 171. Most of these deposits are presumably deep down, with little chance of earthquake release.

Note 13. F.W. Lane, *The Elements Rage* (1948), p. 98 (France, 1790); p. 99 (France, 1801); p. 103 (Sweden, 1869); p. 109 (USA, 1875); p. 113 (Poland, 1868).

Note 14. There is some dispute over the precise usage of the words meteor and meteorite. I adopt the convention that a meteor is a meteorite which burns up before it reaches the ground. Consequently, I am happy enough to talk about a "rain of meteorites," a usage which some would consider incorrect.

Note 15. Article "The Night it Rained Fire," in *Griffith Observer*, Vol. 48, No. 11.



CHAPTER 24. COLLAPSING SKIES

[Page 92] Lucretius (6.285-286), in describing an ear-splitting clap of thunder, said that it sounded "as though the celestial vault had burst asunder and were crashing down upon our heads." Virgil (*Aeneid* 8.524-525) describes how lightning flickered in the heavens, the thunder crashed, and "the whole sky appeared suddenly to fall." Elsewhere (*Georgics* 1.324-326) the same author writes:

> Clouds roll and roll together an ugly storm
> Of murky rain. Down headlong falls the sky
> In sheets; the glad fruits of the oxen's labours
> Are washed away...."
> (Translated by L.P. Wilkinson, 1982).

Lucan (2.57-58) writes: "let the mighty firmament gather itself in flame and fall down on earth in the shape of thunderbolts;" and in 5.632-634 "the dome of the gods quaked, the lofty sky thundered, and the heavens, with all their structure jarred, were troubled." Seneca (*Agamemnon* 400-403) writes of "the god of thunder, by whose mere nod the farthest poles do tremble." Elsewhere in the same play (485-487) comes the following vivid storm sequence: "The whole sky he tears from its foundations, and you might think the very gods falling from the shattered heavens, and black chaos enveloping the world."

Now I am not leading up to the suggestion that all myths of "collapsing skies" are based on thunderstorms, though I think that some might be. For example, in the Mexican *Codex Chimalpopoca*, according to Frazer (Note 1), "there is contained an account of the great flood … when men were lost and drowned and turned into fishes. The sky drew near to the water; in a single day all was lost …" Again, Frazer (*ibid*., p. 252) cites a Maori flood legend in which a certain Tawhaki "went up to the top of a mountain, and, having there transfigured himself by putting off his earthly raiment and put on a garment of lightning, was worshipped as a god … he once in a fit of anger, stamped on the floor of heaven, so that it cracked and the celestial waters burst through and flooded the earth."

As I say, I don't think all collapsing sky myths are based on thunderstorms. However, these stormy references to a shaken, cracked, or falling sky *do* serve to remind us that if, like the ancients, one believes the sky to be a dome-like roof over the world, then it doesn't take a planetary upheaval to stir the imagination into thinking that the dome is about to collapse. One amusing example that springs to mind here is contained in a reference cited by Velikovsky (V) on *WiC* pp. 97-98 (Olrik's *Ragnarok*, p. 406). The incident concerns the missionary Paul Egede who in 1736 talked to some Eskimos about the end of the world. In the ensuing discussion two of them apparently told him that a few years previously a cracking noise had been heard between Godthaab and Christianshaab on the west coast of Greenland (presumably the sound of cracking ice). It seems that the local witchdoctors put this down to a crack in a nearly rotten support of the sky, but that one of their number was able to successfully repair the support and make it secure again!

But let us move onto some of the collapsing skies cited by V. On *WiC* p. 97 (I.3.6) V writes that "the Chinese refer to the collapse of the sky which took place when the mountains fell," referring to Alfred Forke's *World Conception of the Chinese* (1925), p. 43. The relevant paragraph of Forke reads thus:

> "Kung Kung, a legendary person of prehistoric time, in his anger ran against Mount Pu-chou the 'Pillar of Heaven,' so that heaven collapsed. Nu Wa, the putative sister of Fu Hsi, melted multicoloured stones and therewith repaired the vault of heaven, and she cut off the legs of a sea-turtle and placed them as columns at the four extremities of the world. But heaven was not quite complete in the northwest, wherefore the sun and the moon moved in this direction, and the earth was short of a piece in the southeast, whence all the rivers flowed toward this point."

Does this story describe V's planetary catastrophes? Each reader must decide that for himself, but it seems to me not unlike looking for a landscape in the clouds — whether or not you see it depends very much on how vivid your imagination is. There is no mention of the planets, for a start, and the tale seems merely to be one devised to explain the setting of the sun and moon (seen as a "falling" towards the northwest) and the "opposite" south-easterly flow of the rivers. See also E.C. Krupp's *Echoes of the Ancient Skies* (1983), p. 334.

On *WiC* p. 98 V cites some African traditions of a fallen sky, citing Frobenius as his source. The Ovaherero legend says that many years ago the Great Ones in the sky allowed the sky to fall down onto the earth, killing all but a few people. The Great Ones allowed this on account of the increasing godlessness of mankind. The sky weighed heavily on the few survivors, so they sacrificed a black sheep, and the Great Ones thereupon lifted up the sky again. They hold it there still, but since that time no one can climb up into the sky, for the Great Ones have set mighty one-eyed giants at the places where earth and sky meet to prevent them.

Another fallen sky occurs in the creation myth of the Wanyoro. It runs thus: In olden times there were many people on the earth, and they never died, but lived forever. They became proud and made no offerings to the great god Kagra, so he threw the whole vault of the sky down on the earth and killed all the people (Note 2). Later he sent a man and a woman to inhabit the earth, and they had a son and two daughters. They had relations with each other, as a result of which one daughter

gave birth to the Chameleon and the other to the Moon. The Chameleon was evil and quarrelsome, and in the end Kagra took the Moon away to the heavens (presumably for safety), where it still shines. As a reminder ol its earthly origin, though, the Moon passes through its phases, nearly dying each month, but always being reborn again in the western sky. The Sun, angry at the presence of a new neighbour, burnt it in retaliation, which is why the Moon has dark patches. From the Chameleon is descended the present race of men.

[Page 93] Now, I don't pretend to know what the fallen skies of either the Ovaherero or the Wanyoro myths are all about, but what evidence have we that they have anything at all to do with V's scenario? Neither Venus nor Mars merits a mention, and the vast majority of the phenomena associated with that scenario — earthquakes, burning naphtha, reversals in the movement of the Sun, and proliferating vermin — are likewise absent. Instead, in the Ovaherero myth we have a complaint that following the collapse one can no longer climb up to the (new) sky; and in the Wanyoro myth a curious emphasis on the Chameleon and the phases of the Moon, none of which sounds at all like the picture painted in WIC.

On *WiC* p. 97 V writes:

> "The tribes of Samoa in their legends refer to a catastrophe when 'in days of old the heavens fell down.' The heavens or the clouds were so low that the people could not stand erect without touching them."

Velikovsky here refers to R.W. Williamson's *Religious and Cosmic Beliefs of Central Polynesia* (1933), Vol. 1, p. 41. The relevant paragraph of this reads as follows:

> "There was a Samoan legend that in days of old the heavens fell down, and people had to crawl about like the lower animals. After a time the arrowroot and another similar plant pushed up the heavens; but they were not raised high enough, so the heads of the people continued to knock against the skies, and it was very hot. One day a woman who had been drawing water was approached by a man who offered to push up the heavens if she would give him a drink. 'Push them up first,' she replied. He pushed them up, and said, 'Will that do?' 'No,' she said, 'a little further.' So he sent them up higher still and got his drink."

Williamson quotes a number of variations on this sky-raising theme, but none of them seems to bear much relation to the events of V's devastating planetary scenario. Rather they seem to be quizzical stories which are derived from the idea that since the sky is a solid dome over the earth, then, like the roof of a house, it must have been raised up somehow, and might even, from time to time, fall back down again.

Quizzical is the key word here, I think, for each of these stories has an artificial and quirky side to it, and I doubt whether any of them has any basis in fact. It *is* conceivable that a rain of meteorites, for example, could

THE SKY-DOME IN A 16TH CENTURY ENGRAVING

be seen as fragments of a collapsing sky, and numerous descriptions of meteor showers talk of the stars "falling like rain." But none of our legends refers specifically to falling rocks, and all seem to see the sky as a "roof" which collapses *in toto*, either trapping folk underneath it or causing them to bang their heads. If we take these stories at face value, they seem to be nothing more than crude fantasies based on the mistaken (but understandable) conception of the sky as a dome or "roof" over the world.

One final point. It is interesting that we find similar stories of a collapse of the sky in Africa, China, and Polynesia. As I see it, this is yet another example of the quite remarkable tendency for similar stories to crop up in far distant corners of the world. We have seen numerous examples of this already. Though some recurrences may indicate the global witness of the same or similar natural phenomena, others surely indicate that cultural contacts or connections extend much further afield than most of us are apt to imagine. I would place the recurrence of the sky-collapse theme in this latter category, for I cannot see how the sky can ever have fallen down in the way these myths say! Of course, supporters of Isaac Vail may disagree with me, but I will take issue with them later. Here I am merely concerned with V's interpretation, which I do not think matches what the myths actually say at all well.

NOTES AND REFERENCES FOR CHAPTER 24.

Note 1. J.G. Frazer, *Folklore in the Old Testament* (1918), Vol. 1, pp. 274-275.

Note 2. The Pimas of North America tell a similar story: after God had created mankind, the population soon outstripped the means of subsistence. Sickness and death being then unknown. there was a state of ever growing famine. As Frazer puts it (*ibid*., p. 284), "the Creator saw nothing for it but to destroy the creatures he had made, and this he did by pulling down the sky on the earth and crushing to death the people and all other living things." God then created a second race of men,

of mortal life span, and it was upon these, at a later date, that the Great Flood was sent. See Frazer for details.

THE SKY-DOME IN SEMITIC COSMOLOGY

CHAPTER 25. DISPLACED POLES

[Page 94] In Chapter 15 we saw a classical example of a collapse of the sky, namely that in Seneca's drama *Thyestes*. Here we discuss another type of sky-collapse, likewise associated with the end of the world, one example of which features in Lapp mythology. Uno Holmberg (Note l) refers to it in the following passage:

> "In looking at the night sky, the attention of people was drawn to a certain fixed point, round which the heavens, as seen from the earth, seemed to revolve. This regular motion of the sky, which we know to be due to the movement of the earth round its axis in the opposite direction, awakened among primitive peoples the idea that the sky at this point, that is, at the North Star, is affixed to some object bearing or supporting the heavens. For this reason, the Samoyeds (Turuhansk District) call the North Star the 'nail of the sky,' 'round which the heavens revolve.' The ancient Finns had also a corresponding but now forgotten term, as proved by the name of the North Star, borrowed by the Lapps from the Finns, Bohinavlle ('the nail of the north'): its counterpart among the Esthonians being the Pohjanael ... Turi relates that the Lapps believe the Boahje-naste ('north nail,' 'north star') to support the sky, and that when Arcturus, supposed to be an archer, shoots down the Boahje-naste with his arrow on the last day, the heavens will fall, crushing the earth and setting fire to everything."

Velikovsky (V) refers to Lapp beliefs respecting a collapsing sky on *WiC* p. 97 [I.3.6] and to the displacement of the pole on *WiC* p. 302 [II.7.l]. But has all this really anything to do with V's scenario? I doubt it. For a start, as with the collapsing sky myths of Chapter 24, the planets Venus and Mars, plus most of the side-effects of V's scenario, are conspicuously absent. Also, this end of the world is in the future, not the past (Note 2).

As I see it, the association of the removal or displacement of the pole star with the end of the world is based not so much on the past experience of such displacements, as on a kind of primitive logic. This logic (Note 3) sees the pole star as the point of support of the whole sky and the visible pivot about which it turns. It reasons that just as disaster strikes when the hub of a wheel gives way, so too would an unprecedented disaster take place if the pole star was ever to be dislodged from its position: the sky would collapse. In any speculative account of the end of the world, therefore, such a collapse would form a fitting component. It is in this sort of context, I think, that we should see this Lapp myth, and others like it, which associate with the End a displacement of the pole star.

Another interesting myth of this type is that of the Pawnee Indians. Velikovsky refers to this on *WiC* pp. 189-190 [I.9.6] and *WiC* p. 302 [II.7.l], citing Dorsey (Note 4) as his source. The relevant section of Dorsey's book is entitled "How the World is to come to an End," so that as with the Lapp story, this is really a speculation about the future rather than an account of the past.

The story is an interesting one, told to Dorsey by a Pawnee medicine man, as it was told to him by his grandmother, and it is a pity that we cannot quote it in full here. However, the key points of it are as follows. The gods in heaven, who were appointed by Tirawa, the supreme deity of the Pawnee (Note 5), will one day sit in council and appoint the Last Day. The account goes on:

> "We are told by the old people that the Morning Star ruled over all the minor gods in the heavens; that the Morning Star and the Evening Star gave life to people on this earth. The Sun and the Moon also helped to give life to the people."

The fact that the Morning and Evening Stars "gave life" to the people is hardly consistent with V's scenario! Later in the account we also read that "the Morning Star is still good to us, for we continue to live." Such references are more akin to the life-giving Venus of Pliny's *Natural History* 2.6 (quoted in Chapter 6) than to V's destructive Venus (Note 6).

When the End is approaching, the account goes on, the Moon will turn red, meteors will fall from the sky, rivers will rise, animals will cry out like babies, and the Sun will flare up then die out suddenly. But the aspect of the End which interests us here concerns the North Star and its counterpart the South Star. Dorsey's account goes on:

> "The Morning Star said further that in the beginning of all things they placed the North Star in the north, so that it should not move; it was to watch over the other stars and over the people. The North Star is the one which is to end all things. The Morning Star told the people that the North Star stood in the north and to its left was a pathway which led from north to south; and when a person died they were taken by the North Star and they were placed upon the pathway which led to the Star of Death — the land of the spirits — the South Star.
>
> "The Morning Star also said that in the beginning of all things they gave power to the South Star for it to move up close, once in a while, to look at the North Star to see if it were still standing in the north. If it were still standing there it was to move back to its place. The Morning Star spoke to the people and said that in the first great councils when it was decided where each god should stand in the heavens, two of the people became sick. One was an old person and one a young person. They were placed upon stretchers, were carried by certain stars, and these two stretchers are tied on to the North Star. These two stretchers go around the North Star all the time. The North Star continued to tell the people that whenever the South Star came up from the south it would come

> up higher; that when the time approached for the world to end the South Star would come higher, until at last it would capture the people who were carrying the two people upon the stretchers, as soon as the South Star captured these two people upon the stretchers they were to die. The North Star would then disappear and move away and the South Star would take possession of the earth and of the people."

A little later we read (the story is told by a medicine man as recounted by his grandmother, remember):

> "My grandchild, we are told by the old people that the Morning Star and the Evening Star placed people upon this earth. The North Star and the South Star will end all things. All commands were given in the west and these commands were carried out in the east. The command for the ending of all things will be given by the North Star, and the South Star will carry out the commands. Our people were made by the **[Page 95]** stars. When the time comes for all things to end our people will turn into small stars and will fly to the South Star, where they belong."

The two stretchers that go around the North Star all the time are Ursa Major and Ursa Minor, according to a footnote of Dorsey's. The idea that they are tied to the North Star is similar to a legend of the Kirghis which imagines two of the stars of Ursa Minor (*beta* and *gamma*, I take it) to be a pair of horses tethered by a rope (stars *delta*, *epsilon*, and *zeta*) to the pole star. The seven stars of Ursa Major are seven wolves who pursue these horses, and when they catch them the world will end (see Holmberg, *op. cit*. p. 425). Clearly they never will catch them, and I would suggest that the Lapp legend of the shooting down of the Boahje-naste by Arcturus, and the overthrow of the North Star by the South Star in the Pawnee legend, are likewise intended to convey a similar element of "impossibility." That is, these things are put forward not as memories of past events turned into promises for the future, but as fanciful impossibilities designed to appeal to the imagination. (Compare the Pleiades and the Bear in the Jewish flood legend cited at the beginning of Chapter 20.)

I do not think that the power of the South Star to move up close to the North Star signifies a polar inversion. After all, there is no mention of anything like an inversion of the constellations or a reversal of diurnal movement. Rather, as I understand it, the South Star is imagined to approach the North Star whilst the North Star stays in place. This interpretation seems to be confirmed by the statement that as the End approaches the South Star will "capture … the two people upon the stretchers," after which the North Star will "disappear and move away." Such an astronomical feat is clearly as impossible as the catching-up of Ursa Minor by Ursa Major, mentioned above, and is the product of pure imagination. But on what might this notion be based?

My own first reaction is that the South Star is some bright star whose diurnal circuit brings it only briefly over the southern horizon. That is, a star which rises only a few degrees east of south, climbs only a little before reaching its southerly culmination, then sets again a few degrees west of south. Such a star would perhaps give rise to the legend that it was climbing over the horizon to check on the North Star, but seeing it still in place, was bound to set again, disappointed. Such a star, in spending only a brief period above the horizon, and the bulk of its existence below the horizon, in the Underworld, would also be a suitable candidate for the Star of Death, in contrast to the circumpolar stars, governed by the North Star itself, symbolising life. As I see it' the legend would then *imagine* this "peep" over the horizon to become more pronounced as time went on. Ultimately the South Star would climb so high that it could take over the role of the North Star, the latter then moving away in much the same way as the South Star had approached. But as stated earlier, such a movement of the stars could never occur in reality, and is pure fantasy on a par with the Great Bear catching up with the Little Bear.

As for possible candidates for the South Star, if we adopt an average Nebraskan latitude of 42 degrees north for the Pawnee, then there is no bright star that just peeps over the horizon in the way just described (that is, with a declination between about -45° and -48°). Fomalhaut rises to a maximum altitude of 18° and Antares, with its blood-red colour perhaps suggestive of death, a maximum altitude of 21½°. Both do more than "peep." Perhaps, then, my idea is not such a good one, and perhaps the South Star is just an invented counterpart of the North Star whose "peeping" was inspired by the rising and setting behaviour of ordinary stars.

Having looked at Dorsey's text and my comments on it, the reader should reflect again on V's version of the same, as given in *WiC* pp. 189-190:

> "In this narrative of the Pawnee Indians, elements are brought together which, as we know now, actually belong together. The planet Venus established the present order on the earth and placed the north and south polar stars in their places. The Pawnee believe that the future destruction of the world depends on the planet Venus. When the end of the world will come, the North and South poles will change places. In the past the South Star left its place a few times and came up higher, bringing about a shifting of the poles. but on these occasions the polar stars did not reverse their positions."

I leave the reader to draw his own conclusions.

NOTES ON CHAPTER 25

Note 1. U. Holmberg, "Finno-Ugric and Siberian Mythology", *Mythology of All Races*, Vol. 4 (1964), p. 221.

Note 2. An argument is sometimes put forward that such visions of the future may be based on experiences of the past. Though this may sometimes be true, visions can also be pure fancy, bearing little or no relation to *any* experience.

Note 3. This "logic" seems to imply unfamiliarity with precession. It also seems to imply a relatively recent date for the composition of the myth. According to uniformitarian retro-calculations, there was no bright star at or close to the pole (say within 2 or 3 degrees) more than a few hundred years ago, except, of course, if one goes into the very distant past. But then Dorsey's medicine man does seem to be talking about our present pole star, and that certainly hasn't been close to the pole for more than a few hundred years.

Note 4. G.A. Dorsey, *The Pawnee — Mythology*, Part I, (1906), pp. 134-137.

Note 5. Tirawa is not the planet Jupiter as V has it on *WiC* p. 190, for as R. Linton says in *The Thunder Ceremony of the Pawnee* (1922), p. 5, "he was conceived of as a purely spiritual being, and was not identified with any object or natural phenomenon."

Note 6. Linton's *Thunder Ceremony* (as in Note 5), p. 5, says:

> "Next in rank to Tirawa and his wife, the Vault of Heaven, stood the Evening Star, Tcuperikata. She maintained a garden in the west in which there were fields of ripening corn and many buffalo, and from which sprang all streams of life. Even the Sun renewed his fire nightly at her lodge. Through her four assistants, Wind, Cloud, Lightning, and Thunder, she transmitted the mandates of Tirawa to the people upon earth. From her union with the god of next rank, the Morning Star, Opirikata, sprang the first being upon earth.
>
> "The Morning Star seems to have been a personification of the Male, as the Evening Star was of the female principle. He was conceived of as a warrior who drove the other stars before him from the sky. It was to him that the Skidi band offered a human sacrifice."

On the "warlike" Morning Star, see Panel 2 (Chapter 3). Velikovsky sees the sacrifice to the Morning Star as a throwback to "the act of appeasing Venus when a Comet." But this is not the case, for the sacrifice was aimed at "insuring universal fertility and increase" (R. Linton, *The Sacrifice to the Morning Star by the Skidi Pawnee*, 1922, p. 17.) As V notes on *WiC* p. 190, the ceremony associated with the sacrifice was a "dramatization of the acts performed by the Morning Star." But these "acts" did not involve the destruction of the world. Far from it. They were the acts performed by the Morning Star in his efforts to claim the Evening Star in marriage! According to Pawnee myth, the Morning Star married the Evening Star, and the Sun married the Moon. A child was born to each couple, and from the union of these two children is descended the human race.

CHAPTER 26. SOME CALENDAR PROBLEMS

[Page 96] When God created heaven and earth he played a cruel trick on mankind, for he made the terrestrial day, the lunar month and the solar year incommensurable. By that is meant that there isn't an exact number of days in either the lunar month or the solar year, nor is there an exact number of lunar months to a solar year. Thus the synodic lunar month (that is, the time from one new moon to the next) is on average 29.53 days. The solar year (the time taken for the Sun to do a complete circuit of the zodiac) is 365.242 days. Finally, if we ask how many lunar months make up a solar year, the answer is a cumbersome 12.37. Because of these incommensurabilities, man has had a great struggle to construct a calendar which reconciles day, month, and year, the three naturally defined units of time.

The incommensurability of day and month poses the first problem, though it is one fairly easily solved. The phases of the moon can be accommodated by months containing whole numbers of days by defining calendar months to be alternately 29 and 30 days. Twelve such months amount to 6 x 29 + 6 x 30 = 354 days, whereas 12 actual lunar months amount to 12 x 29.53 = 354.36 days — a discrepancy of about 1/3 day. In the course of time these discrepancies will accumulate, of course, but they can be absorbed by making a 29-day month into a 30-day one at the appropriate time.

A more awkward problem is posed by the incommensurability of the lunar month and solar year. Twelve lunar months make 354.36 days, just under a year, whereas thirteen lunar months make 383.89 days, just over a year. So, if one wants to reconcile a lunar calendar and a solar one, something has to give. What one has to do is to take a "year" to be 12 lunar months, let the discrepancies accumulate, then use them up in appropriately placed "extra" (intercalary) months. That is, some years will contain 13 months instead of 12. A calendar which attempts to reconcile lunar months and solar years in this way is called luni-solar, but how best to employ intercalary months so as to make the fit as good as possible? That is the key question. It is easy for us, with our modern knowledge of the precise lengths of day, month, and year to say how it should be done. But of course, the ancients had no such advantage. They had to devise their methods by practical means—not an easy task, for the first visible crescent of the moon (marking the beginning of the month) may be hidden by cloud, or if the time of new moon occurs at the wrong time of day, the first crescent may not actually be visible until an evening well removed from the time of conjunction, so that the month would start a bit late. As regards the length of the year, it would be possible to measure this with reasonable accuracy by recording the length of the shadow cast by a stick at noon on successive days. The time between one minimum noon-shadow length and the next would give the length of the solar year. Or close attention to the heliacal rising of a bright star such as Sirius, or a prominent cluster like the Pleiades, would have served to determine the year length with reasonable accuracy. But even assuming that one had formulated in this way the problem to be solved, the question remains of how accurately one could accomplish the feat, and, having done so, how accurately one could use that knowledge to help solve the problem of intercalation. All that can be said is that more precise formulations of a system of intercalation seem to have been made relatively late in history. For example, a luni-solar calendar seems to have been in use in Babylonia as early as the second millennium B.C. — there is a decree of Hammurabi which refers to a "deficiency" in the year, and which orders the insertion of an intercalary month into the calendar (O'Neil, Ref. l, p. 41). But such early attempts to reconcile lunar months and solar years may well have been fairly haphazard, an intercalary month being introduced, for example, when the crops began to ripen "too soon" in the calendar year on account of the failure to intercalate. So far as I know, there is no real evidence of any well-organised system of intercalation so far back in history. But by the early first millennium BC, some rules for intercalation may well have been formulated. One system, known as the octaeteris, was certainly used in Greece in the first half of the first millennium BC, and may have been used in Babylonia as well (O'Neil, p. 42 and p. 90). It was an 8-year cycle, 5 of whose years were made to contain 12 months, and 3 years to contain 13 months. Intercalations were made in the 3rd, 5th or 6th, and 8th years of the cycle. But such a rule doesn't quite get things right. The 8 year cycle of lunar months would contain (5 x 12 + 3 x 13) x 29.53 = 2923.47 days, whereas 8 solar years contain 8 x 365.242 = 2921.94 days, a discrepancy of about l½ days. By the 7th century BC the Babylonians had developed a more refined system of intercalation (O'Neil p. 91), and by the 5th century BC the Greek astronomer Meton had devised the cycle that now bears his name, the Metonic Cycle, a system of 7 intercalations in 19 years. This is remarkably accurate, since in one cycle the lunar months amount to (12 x 12 + 7 x 13) x 29.53 = 6939.55 days and the solar years to 19 x 365.242 = 6939.598 days, a discrepancy of a mere fraction of a day. Incidentally, on this system intercalary months were inserted into years 3, 6, 9, 11, 14, 17 and 19 of the cycle.

Now there is another way of coping with this complex reconciliation of lunar and solar calendars, and that is not to bother reconciling them at all. One simply forgets about having months which keep pace with the phases of the moon — as in fact we do in our calendar, for we are quite happy to have new moon take place on any day in the month. The Egyptian civil calendar outlined in Panel 13 was a calendar of this type. It used schematic months of 30 days apiece, 12 of these making up a schematic year of 360 days. To complete the year, the Egyptians added 5 epagomenal days to the end (or

the beginning) of the year, a sort of "dead" period whose purpose was simply to fill up the year. The trouble was, of course, that the 5 days didn't quite fill the gap (actually 5¼ days), so that the Egyptians suffered from calendar drift, as explained in Chapter 16 and Panel 13, until the equivalent of our leap year was introduced every fourth year to correct it.

Another possibility, having adopted a 360 day "year," consisting of 12 "months" of 30 days apiece, is to let the 5¼- **[Page 97]** day discrepancies accumulate, year by year, until they amount to a month, at which time an intercalary month can be inserted into the calendar. The Hindus appear to have used such a system (O'Neil p. 99).

Now, thus far I have presented what might be called a uniformitarian view of calendar history. It sees the day, month, and year as essentially fixed quantities, and man's various calendars as successive attempts to come to terms with the incommensurabilities of nature. Velikovsky (V), of course, claims that the day, month, and year have all been altered repeatedly, and sometimes quite drastically, in the historical past. Two questions must therefore be asked: (a) can we *prove* the uniformitarian assumption that the day, month, and year have remained fixed at their present day values throughout the historical past, and (b) what evidence is there for V's alleged changes in these quantities?

As regards (a), we cannot expect to find ancient statements to the effect that the synodic lunar month is 29.53 days and the solar year 365.242 days. This is not because Velikovsky is right, but because ancient man simply could not measure these quantities with such accuracy. However, as we saw in Panel 13, we do have good evidence that the 365-day civil year was in use throughout Pharaonic Egypt, and though some of this evidence consists merely of references to the 5 epagomenae, there are at least two references specifically to the 365 days of the year. This seems to me to be strong enough evidence that the year length has not altered as V claims. As regards the length of the lunar month, it is known that a lunar calendar was used in Egypt as well as the civil calendar, and a 12th dynasty (about 20th-l8th centuries BC) temple account from Illahun implies that 11 consecutive months at that time spanned a total of 325 or 326 days, depending on interpretation (Parker, Ref. 2, p. 64). Dividing 325 (or 326) by 11 gives 29.55 days (or 29.64 days), remarkably close to the current synodic month, and again, to me, proof enough that the lunar month has not changed its length as V claims. (My thanks are due to Sean Mewhinney for drawing my attention to the Illahun text.)

As regards (b), I have already said in Panel l3 that the 30-day "month" and 360-day "year" of the Egyptians were schematic only. They were not, as V claims, actual months and years different from their present day values. It is sometimes argued that 360 days represents an inaccurate estimate of the length of the year, but personally I do not think this is the case. If the ancient Egyptians had set about measuring the length of the year (either by shadow lengths or heliacal risings, as outlined above), they could probably have done it more accurately than this, just as they must have been aware that 30 days was not the exact length of a synodic lunar month. I think that the numbers 30 and 360 were adopted purely for ease of reckoning, in the knowledge that they corresponded roughly, but not exactly, with the lunar month and solar year. In other words, astronomical exactitude was knowingly sacrificed to simple practicalities. The tiresome business of keeping in step with the phases of the moon was simply abandoned (and why shouldn't it be in a calendar catering for the practical affairs of everyday life), and the 5 epagomenae were simply a means of "completing the year" (or very nearly so).

But there may have been more to it than just "keeping in step" with the phases of the moon. The business of predicting the moon's *future* behaviour may have had a hand in promoting the adoption of a schematic calendar. As Neugebauer points out (Ref. 3), private and public economy demand the fixing of *future* dates, and this cannot be done properly if one is unable to predict which of a coming series of months will be of 29 days duration and which of 30 days. This is not as simple a task as it sounds, and as Neugebauer says, "the actual behaviour of the moon is so complicated that not before the very last centuries of Babylonian history was a satisfactory treatment of the sun and moon developed sufficiently accurate to predict the length of the lunar months for an appreciable time in the future." Neugebauer adds:

> "A simplified calendar is equally useful also for the past because it eliminates the necessity of keeping exact records of the actual length of each month. A few well-known examples are sufficient to prove this statement: contracts for future delivery were dated in this schematic calendar, regardless of the actual outcome in the particular year, past expenses and rents are calculated according to a 360-day business year and to 30-day months ..."

Thus the practicalities of business seem to have had more to do with the 360-day "year" than cosmic catastrophes!

Before moving on, perhaps we should pause to consider two other examples of 360-day "years." First, the Aztecs. They divided the natural, solar year into 18 periods of 20 days each (thus making the 360), with 5 supplementary days to complete the year. (The spare ¼-day seems to have been absorbed by some form of intercalation.) Since this calendar was in use only a few hundred years ago, and fully 2000 years after the end of V's scenario, it seems unlikely that this 360 has anything to do with any actual year length different from our own (though compare *WiC* pp. 324-325 [II.8.l]). Still less likely is it that the 20-day period has anything to do with a drastically altered synodic period of the moon. The 20 is a vigesimal abstraction having nothing to do with the phases of the moon, and the 360 is an

easily workable multiple of it which is close to the length of a solar year. Now, if a 360-day "year" was in use by the Aztecs at a time when everyone agrees that the solar system was just as it is today, then it seems to me that the same could also be true of a 360-day "year" in more ancient Babylonia, Egypt, or China.

If we turn to the Hindus, and in particular to the Hindu astronomical work *Surya Siddhanta* (SS), part of which we discussed in Chapter 8, we again find a 360-day year (SS.i.12-13). Nowhere is it explicitly stated that a solar year is 365¼ days long or that the lunar month is 29½ days long, and yet since this work dates from about the fifth century AD we know that they did have this length at the time the work was written. So why the insistence on a 360-day year? Is it a throwback to a catastrophic change in the world order that took place more than a thousand years before the SS was written? I doubt it. The 360-day year of the Hindus was one unit in the following scale of times:

[Page 98]

HINDU TIME SCALE		
60 Vinadis	=	1 nadi (a period of about 24 minutes)
60 nadis	=	1 day
30 days	=	1 month
12 months	=	1 year (that is, 360 days)
360 years	=	1 divine year
12,000 divine years	=	1 mahayuga (see Chapter 22, Note 3)

Actually the time scale extends back to hopelessly small units of time that could not possibly have been measured, and forward to units of time that can only be described as incredible. Burgess refers to all this as "a fantastic imaginativeness, which delights itself with arbitrary theorisings, and is unrestrained by, and careless of, actual realities" (p. 150).

The 360-day year, then, is here one component of a numerically elegant and schematised time scale, and I would suggest that astronomical exactitude has been sacrificed to this numerical elegance. That the 360-day year is not a real year, despite the lack of a direct statement in the text to the effect that the year was really 365¼ days long, is shown by SS i.36-37. This tells us that in an Age (= Mahayuga) of 4,320,000 years there are 1,577,917,828 solar days. Dividing the former figure into the latter yields a year of 365.259 solar days which is the present day value to within a whisker. Again, we are told that an Age consists of 1,603,000,080 lunar days. Thirty lunar days make up a lunar month (Note 4), so that putting these figures together yields:

$$1 \text{ lunar month} = \frac{1{,}577{,}917{,}828}{1{,}603{,}000{,}080} \times 30 = 29.531 \text{ solar days}$$

This, of course, is the present day length of the synodic lunar month.

Here again, then, we see a 360-day "year" in use at a time when the actual year was 365¼ days long, just as it is today. The point should again be made that if this is true of the Hindus, then the same could be true of the more ancient Babylonians. Put another way, the 360-day "year" of the Babylonians no more implies an actual year length of 360 days than does that of the Hindus in the *Surya Siddhanta*. It might have been possible to argue that the 360-day years of both the Hindus and the Aztecs were throwbacks to the time when the year was that length but for the fact that Egyptian texts tell us that the year never really was 360 days long anyway.

Let us move on now to another Velikovskian bone of contention, "Years of Ten Months." On *WiC* pp. 330-331 [II.8.3] V cites a number of these curious calendars. The Yurak Samoyeds reckon 11 months to the year; the Kamchadales 10 months, "one of which is said to be as long as three"; and the Kingsmill Islanders "use a 10 month period for their year." Velikovsky takes such calendars as relics of a previous world order, but are they?

For some societies living near the equator, the cycle of the seasons is of relatively little importance, since one season is very much like another. Now suppose such a society has a lunar calendar, but doesn't attempt to regulate the sequence of its months, by intercalation, so as to keep in step with the solar year, what happens? The seasons drift with respect to the lunar calendar, in much the same way as they drifted with respect to the Egyptian calendar, but faster. But because the seasons are so alike, this doesn't really matter. Consequently, there is no necessity to keep the lunar "year" in step with the solar one. Indeed, a lunar "year" can happily be defined as any number of months one chooses, and this is precisely what seems to happen in some places, as Hale (Ref. 5, pp. 105-106) notes:

> "It is remarkable that the Rotumans reckon by periods of six months, or moons, instead of the full year. Living as they do, on a small island near the equator, at a distance from any extensive land, the changes of temperature must be slight, and the difference of seasons hardly perceptible. The westerly winds which blow from October to April do, no doubt, serve to distinguish this period of the year; but they cannot materially affect the course of vegetation. At the Kingsmill Group, situated directly under the equator, the natives reckon by periods of ten months, a number evidently adopted for convenience of counting, and with no reference whatever to any natural seasons."

Elsewhere in the same work (pp. 169-170) we read:

> "In general, very little attention is paid by the South Sea islanders to the division of time, and as we draw nearer to the equator, that little diminishes. Thus at Rotuma they have a year of six months, and when this is completed they begin to number over again; while at the Kingsmill Islands, which lie exactly under the line, the months had no name, but were merely numbered first, second, third, and so on up to ten, when they recommenced—thus losing every distinction of seasons or years."

Note that V actually refers to these two passages of Hale's work on *WiC* p. 331. Other 'short" years may

have a rather different explanation, along the lines of the following examples cited by Nilsson (Ref. 6, p. 90):

> "The Yoruba reckon in 16 day divisions. Fourteen of these form their old year, of 224 days, that is, in former times attention was paid to the rainy season only. The first thunder was the signal for the fishers and hunters to come back to their huts and begin farming again. The Toradja of the Dutch East Indies reckon in moon-months: two to three months however compose a vacant period in which they do not trouble about time reckoning. The Islamite Malays of Sumatra distinguish tahun baser, the great year, or tahua musin, the year of the seasons, both reckoned as 12 months, from tahun padi, the rice-year, which among them counts only eleven months. The Dusun of British North Borneo have two methods of reckoning their longest divisions of time. If the native be a hillman he will reckon by the taun kendinga or the hill-padi season, six months from planting to harvest, if a plain-dweller by the taun tanan or wet padi season, 8 to 9 months. This incomplete year is therefore a vegetation year in which the vacant period of no work is simply passed over."

Nilsson goes on to say that "in this manner may be explained the much discussed ten-month year of the Romans," and this idea is also taken up by Frazer in the notes to his translation of Ovid's *Fasti* (Ref. 7).

[Page 99] Frazer reviews a number of explanations of the 10-month year of the Romans, some of which are well worth looking up for their curiosity value, but regards as "probably the true one" the explanation of O.E. Hartmann, thus:

> "He (Hartmann) thought that in the old days the time from midwinter to spring, during which the labours of the husbandman were for the most part suspended and nature herself appeared to be dormant, if not dead, was looked on as a period of rest and repose, and was therefore, so to say, excluded from the calendar, the object of which was to regulate the activities of the people during the remainder of the year, from the opening of spring with the first of March, to the depth of winter with the last day of December" (Frazer pp. 15-16).

Frazer goes on to give analogous calendar practices from around the world. Thus the Negro tribes of southern Nigeria thought that the months from about November-December to January-February were negligible, and hardly included them in their calendar. The Ijaw of the Niger delta included only ten months of the year in their calendar. November and December, when no farming took place, were excluded. The parallel with the old Roman calendar here is a good one: both used the moon to regulate months, and little attempt was made to fit months to the solar year. Clearly, with such a calendar, calendar drift is not a problem, since any discrepancy between lunar and solar years can be absorbed into the "dead" period at the end of the year. As Frazer writes (p. 28), an indefinite period of unnamed months at the end of the year actually has a practical advantage insofar as "it dispenses with the need of intercalation, which is always a difficult and troublesome process for peoples with no more than a very rudimentary knowledge of astronomy."

NOTES AND REFERENCES FOR CHAPTER 26

1. W.M. O'Neil, *Time and the Calendars* (1976).
2. R.A. Parker, *The Calendars of Ancient Egypt* (1950).
3. O. Neugebauer, "The Origin of the Egyptian Calendar" in the *Journal of Near Eastern Studies*, Vol. 1, p. 400.
4. The lunar 'day" or *tithi* is perhaps best defined as "the period required for the angular separation in longitude of the Sun and the Moon to change by 12°" (O'Neil, p. 101). The mean length of a *tithi* is thus obtained by dividing the synodic lunar month of 29½ days into 30 equal parts, each of which is thus slightly shorter than a solar day.
5. H. Hale, *U.S. Exploring Expedition, 1838-42: Ethnography and Philology* (1846).
6. M.P. Nilsson, *Primitive Time Reckoning* (1920).
7. This is the Macmillan and Company five volume edition of 1929, pp. 8-29. The Loeb edition contains only a skeletal version of Frazer's notes.

CHAPTER 27. SUMMARY AND CONCLUSION

[Page 99] There are really two major issues to be considered in connection with Velikovsky (V) and WIC:

(A) Has the world suffered any global catastrophes in the historical past?

(B) And if so, were any of these catastrophes caused by the planets Venus and Mars?

I think we can answer (B) quite firmly in the negative. All the "evidence" that V produces to "prove" planetary involvement falls through in one way or another. Either it arises from a literal (mis)interpretation of the symbolic associations of deities with planets (Ref. 1), or from symbolic or poetic references to the planets themselves (Ref. 2). Under the latter heading I would include the astrological material that V uses in *WiC* (Ref. 3). Other "evidence" seems quite frankly to be V's own invention (Ref. 4), material which is "forced" into supporting the scenario of WIC, often by virtue of V's editing (Ref. 5). In any event, as we saw in Chapters 6, 7, and 8, the evidence for planetary involvement in global catastrophe seems to disperse like a mirage on closer inspection, leaving only a few items of genuine interest (Ref. 6), each of which is open to query. We must remember too that direct references to the planets (as opposed to symbolic ones) are generally uniformitarian in tone (Ref. 7).

As regards issue (A) we have to be more careful. Undoubtedly a lot of catastrophic material included by V in *WiC* should not really be there — either it is misinterpreted or forced (Ref. 8), magical or prophetic (Ref.9), or dramatic or metaphorical (Ref. l0) — these categories overlapping, of course. Other types of myth whose appearances in *WiC* are **[Page 100]** highly questionable are those which relate to Creation, the emergence from primordial chaos, and the subjugation of primeval forces as universal order unfolds, etc. (Ref. 11). Though in some cases one can invoke the creation-recreation argument (Ref. 12), I would argue that generally such creation myths do not represent "eyewitness" accounts of historical disasters, and that therefore, properly speaking, they do not belong in WIC.

MARDUK VERSUS TIAMAT — NOT THE VENUS COMET

ATHENE: NOT THE PLANET VENUS

Much of V's material, however, is genuinely catastrophic, and of particular interest are the myths, found in widely scattered parts of the globe, which refer specifically to the destruction of the world.

Some of these myths refer to the end of the world which is to come, and so properly do not belong in *WiC* (Ref. 13). Other myths do refer to destructions in the past, and so quite properly deserve our attention. Several points arise, however, in connection with these world-age, and other, catastrophic myths:

(a) The word "world," where it occurs in these myths, may be considerably more localised in meaning than it is for us.

(b) Throughout history life has been (locally) disrupted and even devastated by phenomena such as earthquakes, volcanoes, hurricanes, tidal waves, floods, and droughts, which have occurred *without* V's scenario. We should expect to find these forces featured in world mythology, and we should expect them to feature as attempts to destroy mankind, etc.

(c) Some of V's material is almost certainly local rather than global — at least, there is no real evidence that the events referred to are anything other than local. Three examples of events in this category are: the Middle Kingdom Egyptian Temple that was "swallowed by the ground" (*WiC* p. 75 [I.2.6]); the breach in the temple of Uzziah (*WiC* p. 205 [II.1.1]); the earthquake reports from Nineveh and Babylon (*WiC* p. 264 [II.4.5]).

(d) Some legends of world destruction may, in view of (a) and (b), be merely poetic enhancements of local catastrophes (Ref. 14), or philosophical speculations that draw their inspiration from the ordinary destructive forces of nature, or a combination of the poetic and philosophical (Ref. 15).

(e) Where similarities exist between widely scattered legends, these *could* merely indicate either (1) borrowing of myths from one culture by another or the spread of myths with tribal migrations, etc.; or (2) similar experiences of similar *local* events, which events being separated in time as well as distance, are causally unconnected with each other. It takes more than just global similarities to prove global disaster.

(f) Following on from (e) we should ask how we *could* distinguish a genuinely global disaster from a collection of scattered local ones (in the absence of precise historical and chronological details.) One identification tag for events associated with V's scenario would have been the repeated mention of Venus (or Mars, as the case may be), but the fact is that Venus is absent from most of the catastrophic material presented in WIC, and even when V claims it is present, such claims are doubtful (Ref. 16).

(g) Point (f) inevitably brings us to the piecemeal way in which V's evidence supports his theory. For example, the Olelbis myth (Chapter 21) mentions a world fire and a flood; the Canon of Yao (Chapter 17) mentions floods, but no fire (Ref. 17); and the Ipuwer papyrus (Chapter 2) has fires (albeit probably man-made), but no floods. None of these sources agrees fully with the others, and, incidentally, none of them mentions Venus, or displacements of the pole star, or disruptions of the Sun's movements. Compare also my comments on putting together the Typhon and Phaethon myths, at the end of Chapter 10.

Now, since V has included among the side-effects of his scenario just about every type of natural disaster known to man, it follows that any text or myth which contains a disaster will bear some similarity to *part* of V's scenario. The question naturally arises as to whether or not *this* is the explanation of the piecemeal fit of V's evidence. Personally I think it is.

(h) Further to (g) I have stressed time and again (for example, Chapter 13) that texts considered *as a whole* tend to bear little resemblance to V's scenario *as a whole*. (Recall Charles Fort: a camel is indistinguishable from a peanut if only their humps be considered.) A corollary of this is that when considered as wholes, the Olelbis myth, the Canon of Yao and the Ipuwer papyrus (to stay with the same three examples) are very different indeed. Of course, people do see things in different ways, and they do describe them differently, so that even if V's scenario had actually happened, perhaps we should not expect too perfect an agreement, *on the whole*, between American, Chinese, and Egyptian accounts of the disasters. Nevertheless it seems to me that the degree of catastrophic **[Page 101]** agreement between the three sources lust mentioned is rather poor, and there really isn't enough similarity there to justify hailing them as references to the same events.

There is also, of course, the issue of whether the events portrayed in these three accounts are contemporaneous, let alone causally related. To this we should add that it is a matter of personal opinion as to how far we can allow collective amnesia to "explain" some of these marked differences. I have stated my own views on collective amnesia in the introduction (Ref. 18).

(i) When we examine "world-age" legends (Chapter 22), the most specific form of "world destruction," from different corners of the globe, we likewise find marked differences as well as similarities. For example, the seven suns of the *Visuddhi Magga* and the fire-rain of the Aztecs are very different destructions by fire. As regards the similarities, see (e) above.

(j) The elaborate and highly artificial natures of the accounts of world-age disasters — the *Visuddhi Magga* and Aztec Ages, for example — do not inspire much confidence in "too literal" attempts at their interpretation.

(k) The one very well defined candidate for a real global disaster is, of course, the Flood. But as we saw in Chapter 19 there are a number of reasons for doubting that the "Universal Deluge" ever really took place, and, we should add, little or no reason to connect it with the planets in any Velikovskian sense.

(l) Despite all the foregoing points, after a reading of the large number of catastrophic legends from around the world, one does come away with the feeling that *something* may well have happened, even if it wasn't what V proposed in WIC. Whilst particularly bearing in mind (b) and (d) above, I think we *should* also keep open the possibility that some of V's evidence *may* refer to a past global catastrophe, and the large number of forced and outrightly false interpretations and deductions made in *WiC* should not be allowed to cloud that possibility. Personally, though, on textual and mythological grounds, I remain unconvinced that such a global disaster has taken place in the historical past, and so far as I am aware, there is no une-

quivocal archaeological evidence to support the idea either (Ref. 19).

There are a number of subsidiary issues involved in *WiC* which can stand or fall independently of catastrophism or Venusian involvement. These are:

(C) Has the Sun ever really gone off course or reversed its diurnal motion on account of disturbances of the earth's axis?

(D) Has the sky ever really inverted itself, or has the pole star or polar constellation ever been suddenly displaced by an axial tilt of the earth?

(E) Have the lengths of the solar year and lunar month remained constant at their present values throughout human history?

As regards issues (C) and (D), there are tantalising references to such things. Issue (C) has the Phaethon myth (Chapter 10), the reversal of Atreus and Thyestes (Chapter 15), and the sunrise-sunset interchanges of Herodotus (Chapter 16). Issue (D) has the Lapp legend of the Boahjenaste and the Pawnee myth of the End of the World (Chapter 25), both of which refer to the future, however. But then there are equally tantalising references in world mythology to the reversal of time, life after death, and the transformation of men into animals — the moral of which is that "tantalisation" is not really enough, especially when one remembers that the Sun was believed to be subject to magical interference anyway (Ref. 20), and that the pole star was elsewhere regarded as a symbol of steadfastness (Ref. 2l).

Against references to issues (C) and (D), too, we must set other things. Despite Herodotus, and others, Egypt provides us with ample evidence that throughout historical times the Sun and the constellations have consistently risen in the east and set in the west (Ref .22). The east is consistently the region of life and rebirth; the west the region of the dead — a concept found in Babylonia as well as Egypt (Ref. 23). From Egypt, too, we learn that the Great Bear has always been a northern constellation, and its reported circumpolarity (or "imperishability") supports the view that in the past few thousand years the sky has been subject to no more disturbance than the uniformitarianly accountable effects of precession (see Panel 12.)

As regards issue (E), though we cannot claim to have absolute proof, from ancient texts, that the solar year and lunar month have stayed constant at their present day values throughout the historical past:

(a) Velikovsky hasn't actually proved that they have changed either, and
(b) What relevant texts I have seen are at least consistent with the assumption of constancy, and in some cases seem actively to support it (Ref. 24).

It is, as stated earlier, possible to divorce issues C, D, and E from B, and, to some extent, from A. For example, the late Rene Gallant (author of *Bombarded Earth*, 1964) strenuously rejected the Venus scenario of WIC, yet still maintained the reality of a former actual year length of 360 days. Parts of *WiC* may stand and fall quite independently of each other. For myself, I think issues (C) and (D) should be answered with a "No," and (E) with a "Yes."

By way of a closing remark, I would say that though I regard *WiC* as something of a "crank" book, I do think that some of the issues involved merit some scrutiny. If nothing else, for example, the subject of catastrophe in mythology is one eminently worthy of a detailed study, for it may well tell us something about our history, though not, I fear, anything as dramatic as V would have us believe. When it comes to the claims, made by some of V's supporters, that *WiC* represents a revolutionary breakthrough in our ideas regarding human and solar system history, I'm afraid I really must beg to differ!

NOTES ON CHAPTER 27

Note 1. For example Ishtar (Chapter 4); Ares (Chapter 5); also, of course, Lucifer (Chapter 3).

Note 2. For example, Morning-Evening Star duality and colour of planet Mars (Panel 2); "Fall" of Lucifer (Chaptcr 3).

Note 3. For example, Great Year doctrine of Berosus (Panel 6); *Shabbat* 156a (Chapter 7); conjunctions in the *Surya Siddhanra* (Chapter 8); planetary meteorology in Chapter 18, Note 5.

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Note 4. For example, birth of Athene = origin of Venus (Chapter 5); archangel Michael = Venus (Chapter 7); Sekhmet and Tistrya as Venus (Chaptcr 8).

Note 5. For example, Venus Nogah in *Midrash Rabbah* (Chapter 7); war of stars and planets in the *Bundahis* (Chaptcr 8).

Note 6. For example, the Ammizaduga Tablets; the Venus prodigies in St Augustine and Soochow Chart (all in Chapter 6). Personally I regard none of these as good evidence for V's scenario for the reasons given in Chapter 6; principally, none of them is associated with catastrophism in V's sense. I do however think they merit some explanation.

Note 7. For example, planetary mentions in Pyramid Texts, Pliny, etc., are catastrophe-free (Chapter 6). Likewise the mentions of the planets in the Midrash & *Talmud* (Chapter 7).

Note 8. For example, the *Hymns to the Maruts* and the *Tir Yast* (Chapter 8); another example — V's "hailstones of iron" from the *Kalevala* (*WiC* p. 71 [I.2.5]) appear to be hailstones "as hard as iron," rather than actual meteorites.

Note 9. For example, the prophecy of the Altai Tartan (Panel 1). Another example — the Harris Magical Papyrus (*WiC* p. 113 [I.5.1]) is a very dubious source

from which to glean anything other than the obscurities of Egyptian magic. What the text says and what V takes it to imply are two very different things.

Note 10. For example, the End in Seneca's *Thlyestes* (Chapter 15); catastrophic references in the Book of Isaiah and the Psalms I would class as metaphorical.

Note 11. An example here is the battle between Marduk and Tiamat (*WiC* p. 78 [I.3.1]) which occurs in the fourth tablet of the seven tablets of creation. The battle, which takes place prior to the creation of man, appears to represent the subjugation of primordial chaos (Tiamat) by order (Marduk). The battle between Zeus and Typhon (Chapter 9) can perhaps also be described in terms of the subjugation of primeval forces.

Note 12. Briefly the argument is that "creation" is to be interpreted as a recreation following the destruction of a previous world.

Note 13. For example, the Pawnee End of the World (Chapter 25); also the End forecast by the Altai Tartars (Panel l).

Note 14. For example, the End as depicted in the Icelandic *Völuspa* may owe some of its inspiration to a volcanic eruption — see H.R Ellis Davidson, *Gods and Myths of Northem Europe* (1964), pp. 208-209. This is another vision of a *future* End which V turns into a reference to the past (*WiC*, p. 255 [II.4.2]). There is no evidence that the Fenris Wolf and the Midgard Serpent represent Mars and Venus respectively. This is pure assumption on V's part.

Note 15. For example, the catastrophes of Plato's *Statesman* (Chapter 18) or those of the *Visuddhi Magga* and the Aztec Suns (Chapter 22).

Note 15. For example, the pillar of cloud & fire in the Exodus (Chapter 1) or the "new stars" in the *Annals of the Bamboo Books* (Panel 14).

Note 17. The fires and the sun that did not set for 10 days, etc., come from UL and Hübner — see Chapter 17 and Panel 14.

Note 18. In *Velikovsky's Sources* and in the original introduction to this essay I assumed that collective amnesia was a sort of extension of traumatic amnesia in the individual which affected both the survivors of the catastrophes and their descendants. Leroy Ellenberger and Sean Mewhinney have pointed out, however, that this isn't the case, since V has collective amnesia affect the descendants of the survivors rather than the survivors themselves (*WiC* p. 288: [II.6.l]). Personally I find it difficult to conceive of any form of collective amnesia which would not affect those who actually experienced the catastrophes, but this does seem to be what V has in mind, so I accept the correction gratefully, and set the record straight accordingly.

Note 19. I would, however, like to see an orthodox reply to Mandelkehr's article "An Integrated Model for an Earthwide Event at 2300 BC, Part I: the Archaeological Evidence," in *SIS Review*, Vol. 5, No. 3, pp.77-95.

Note 20. Chapter 10, with Panel 9; also Chapters 12 and 14.

Note 21. J.G. Frazer, *The Golden Bough*, Vol. 1 (1911), p. 166.

Note 22. For example, the Pyramid Texts, paras. 820-821, 1835 and 2126. A Hymn of Praise to Ra in the l8th dynasty Papyrus of Ani likewise has sunrise in the east (para. 1) and sunset in the west (para. 29). Sec E.A Wallis Budge's *The Book of the Dead: the Papyrus of Ani* (1895), pp. 324-327. The famous Hymn to the Aten likewise: see W.K. Simpson (ed.), *The Literature of Ancient Egypt* (1972), p.290.

Note 23. See Chapter 16, particularly Note 3, for Egyptian references. For Babylonian, see N.K. Sandars' translation of the Epic of Gilgamesh, p. 79: "All living creatures born of the flesh shall sit at last in the boat of the west …."

Note 24. For example, the mention of 5 epagomenae in the Pyramid Texts is consistent with constancy; the 365-day year in problem 66 of the Rhind Mathematical Papyrus supports it. See Panel 13 and Chapter 26.

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Bob Forrest, Manchester, April 1986.

INDEX

2017 Editor's Note: This index is based on the one in the *Stonehenge Viewpoint* edition of this book, but the page numbers are different (for reasons explained in the Editor's Preface), and there are some differences in structure owing to the use of the Microsoft Word ™ indexing system. A small number of typographic errors have been corrected.

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