PART THREE

HYDROLOGY

Everything on Earth's Surface begins to appear anomalous. Hence we begin to suspect that the abnormal is really the norm. Water is no exception. To begin with, its reversal of the ordinary liquidity-solidity thermal behavior is awesome: it swells when it "should" contract. There seems to be too much of it to have been squeezed from below. Its excessive salinity in the oceans has already been discussed. Its "misbehavior" is subject of countless legends and its symbols are engraved in religious doctrine and ritual. It has apparently been highly energized in the past in the form of tides, deluges, and ice. That the exoterrestrial connections of Earth's water are multiform should then be ordinary knowledge in the earth sciences. In fact, the scientific literature hardly touches upon it.

CHAPTER TWELVE

WATER

With both waters and elaborate forms of life, Earth is unlike other planets. The belief that this situation has persisted for billions of years may be considered someday as bizarre as the belief that the earth is flat.

The world's oceans contain 1.4×10^{18} tons of salted water. Its surface fresh waters - streams, rivers, lakes - come to 5.1×10^{14} tons, 50,000 times less, a drop in the bucket. The ice of the continents amounts to a menacing 2.3×10^{16} tons. And water vapors constitute 0 to 7% of the atmosphere up to 50 miles high, enough to lay a cloud cover over half the globe at any given time. And there are groundwaters, more voluminous than those of the surface. The fresh waters amount in all to three percent of all waters, and three-fourths of the fresh waters are bound up in ice.

The omnipresence of water in large amounts in all life forms grant it a large role in biological and atmospheric activities. Its employment and bulk make its lithospheric transactions important shapers of the Earth's surface. Where do the ocean waters come from? Since she sees the streams and puddles after a rain, a child reasons that all water comes from the sky, that is, unless a geologist gets to her quickly to tell her that the oceans have always been here from the time the Earth was formed, or almost as long. An eccentric geologist might say that, over the ages, hydrogen atoms descend from the Sun and space upon Earth, unite with oxygen in the atmosphere and then over billions of years drop to form the waters of the oceans.

The conventional myth - by which I intend no slight - is set forth by E. Bullard[1] who assumes "the obvious things.... one of them is the constancy of the total volume of water through the ages."

Water is “obviously” in "equilibrium," but "the mechanisms of the equilibrium are unknown."

Thus "it looks as if the water must have been tied up in compounds, perhaps hydrated silicates, until the earth had formed and the neon had escaped." (This last is needed to explain why neon, so abundant in the Sun and stars, is so rare on Earth.) "Water must then have been released as a liquid sometime during the first billion years of the earth's history, for which we have no geological record." Bullard follows this with further apologies for the myth but says that the past decades have revolutionized oceanography and have "unlocked the history of the oceans."

The door may be unlocked, but few have entered. The billions of years of equilibrium can no longer be accepted: new theory has the ocean floors being scraped and relaid by the continental plates at least over the past two hundred million years or less; no longer can the myth hold that the most ancient sediments must rest on the ocean floors, hence no evidence is thereby offered of what the waters may have been like.

Surely there has been water so long as life has existed, but not necessarily salted water nor much water. One may assume little water to begin with and little for long after. Swamps and shallow seas are best for evolution and quantavolution of species; thick atmospheric soup might be even better, at least in the beginning. Even now, life seems to reject the oceanic abyss. This is a sign of youth, for the abyss is not without nutrients, and forms of life exist that require little or no sunlight.

The oceans do not carry all the uranium that they should possess after long eons of riverine deposits. Their salt is excessive and its sources are not organic. One calculation emerges with only 2.6% of the present chlorine of the oceans as conceivably of continental origins.

The sea bottoms seem never to have been compressed and folded, so this indirect evidence of the age of the water is lacking. Sediments are thin, and mostly accorded under 80 million years of existence. That is only one-fiftieth of the

conventional age of the world oceans. Have there been fifty world-girdling oceans?

If the ocean basins were filled late in time, deluges from the skies have to be assumed. There is no other source, nor any more apt source, than the waterlogged comets and great planets. One is compelled to seek water there, and bring it here. Hence the need to invoke explosions of water from Saturn *et al*., and passing cometary encounters.

Once the theory of a deluge(s) is given, the search for the source of the water is by no means ended. The Earth's water may have been injected, boiled off the imagined primodial melt, stayed up in the skies, and then fallen when a crust had formed and cooled below 212°. This may have happened, but then again it may not have. It would seem that if vapors rose high, they would stay there and rotate with the Earth, descending only when terrestrial electrical conditions permitted or were "seeded" by exoterrestrial fall out (which is also an electrical phenomenon).

Professional courtesy grants geologists not only their huge oceans but also the basins to hold the waters. "God" must have made the basins to hold the water, and even if gods are dispensed with, the basins must stay. So just as some communists stuff their religion into the mummies of Lenin and Mao, some geologists stuff their religion into the "nature" that wisely provided ocean basins to hold the great waters.

The waters are too great for the basins to contain; they cover much of the "true" continents. The fact that the basins occur and the waters occur does not mean that they were made for each other. Nor have they corresponded. Yet the presence of the basins is essential to the preservation of the greater part of the continents. If all the earth's present crust were a uniform level, the waters would cover the globe to a depth of a kilometer and more.

There is not enough water in the earth's granite or basalts to fill the oceans. Granite, the rock that underlies the continental sediments, is notably lacking in porosity. Porosity is the ratio of

void space to the bulk volume of a rock, and therefore a measure of the water or gas contained in the rock at the time of its emergence from a molten state. Its porosity ranges from 0.3 to 1.5%. That granite could not be generated from the deeper basalts of the mantle is argued by Y.N. Lyustikh, a soviet geophysicist; four times the present water mass of the earth would be needed for the job.[2] Nor can the process by imagined.

The crystalline, glassy, volcanic basalt, which lines the ocean floors, can have a porosity of anywhere from 1% to 30%. Generally the porosity declines with the depth of the sea, a phenomenon attributable to pressures more lately applied than to original pressures, since this rock was often melted and extruded in unfilled basins that is, at less depth that it is presently discovered. Rocks of the same chemical constitution that differ in porosity will have had different histories in at least one significant regard: the rock of lower porosity had larger infusions of water and/or vapors during its last melting and reforming. An expansion of the earth could be facilitated by the incorporation of water and vapors in heated rock. Water could recycle itself time and time again: it would flood a hot chasm, be incorporated in the rock, be extruded, expelled, and again enter a hot chasm.

Water exists exoterrestrially. Only in 1970 were the first observations of comets in the ultraviolet spectral region made. Cometary atmospheres (comas), in which dust and minor molecular components had been hitherto alone observable, now revealed indicators of a large component of water, "confirming the Whipple hypothesis of comets being ‘dirty’ ice conglomerates.”[3] By 1980, other comets had disclosed similar compositions.

The outer planets contain great amounts of water. The rings of Saturn contain about 377 billion km^3 of non- conglomerated swarms of ice particles, by one reckoning. It has been dropping rings in the past. Saturn is 95 times the size of Earth; if Earth carried the same amount of ring ice relative to its size, it would have had 4 billion km^3 of ice particles to fill the ocean basins. The ocean basins contain 1.37 billion km^3 of water. True the density of Saturn's rings is much less than Earth’s waters; still,

the necessary relation of sky waters to ocean waters can be premised, especially if Saturn were to have shed most of its waters in times past. Moreover, Saturn is only one of many waterbearers in space. Jupiter and the other planets carry water, like Saturn and numberless comets.

Ancient wise men of Palestine, Mexico and India are known to have attributed the deluging of the earth to planet Saturn. Thus, the Hebrew Talmud reads in one place. "When the Holy One decided to bring the Deluge on the Earth, He took two stars from Khima and (hurling them against the Earth) brought the Deluge on the Earth."[4] Velikovsky identified Khima as Saturn. In Mexican documents, where ages of the world are called "suns," "the first world age, at the end of which the earth was destroyed by a universal deluge, and presided over by Ce-acatl, or Saturn"[5] The ancient Persians reported the star Tistar appearing in three manifestations to the accompaniment each of a different deluge of rain of ten days' durations.[6]

Long before modern astronomy, Saturn was perceived to have rings and to be watery, never Venus, Mercury, or Mars. How the ancient would associate Saturn with water is a mystery unless the planet had been observed at a distance much closer than it appears to the eye today and seen to blow off some of its rings or gases that ultimately arrived to deluge the Earth. Since Saturn under various names was the ruling god in human cultures at the time of Noah's Flood, the associations begin to appear reasonable. However, the Saturnian deluge followed the Golden age of Saturn, and oceans existed at least to some depth in Saturnian times. They were navigable by Saturnian age peoples.

It can be hypothesized that Saturn contributed some of the vast bulk of ocean waters. Where did the earlier waters come from? If Saturn did not supply the primordial and secondary earth waters, the deluge theory has to seek evidence of earlier acquisition of water. We can begin with a postulation providing for some water that the Earth inherited from the plenum of gases in which it thrived over most of its history. Then three major sources are indicated, this inheritance from the gaseous plenum enveloping *Solaria Binaria* - the Sun and its partner - in a long period of binary transaction; second, deluges when the legendary

Uranus (Ouranos) complex broke up; and third, upon the disruption of Saturn. Let us say, for hypothetical purposes, the three investments of the Earth with water came in one-sixth, three-sixths, and two-sixths of the total.

The ocean waters are geologically young. Granted waters are difficult to date, Melvin Cook has shown that the oceans contain under 100,000 years' accumulation of uranium, even granted a uniformitarian riverine run-off curve (which, of course, would mean much less time on the quantavolutionary exponential curve).[7]

That the basins which hold the water are young, which is yet to be shown, holds significance for the youth of the waters as well. Few evolutionists and quantavolutionists regress in time to a completely water-covered Earth, although the first passage of Biblical *Genesis* might be construed so: for Elohim separated the chaos by a firmament dividing the waters below from the waters above, and assembled the land out of the waters below. And the primeval legend of the Earth being fished out of the waters is found in the farthest removed cultures of the globe. Also among the first impression and memories of mankind was the image of the vast cloudy universe recurrently pouring water and debris down upon the hapless Earth.

A more correct interpretation is that early man was caught in an increasingly turbulent cloudy world. The next chapter, on Deluges, carries this matter forward. But meanwhile let us interject a commentary on the origins of the fresh waters of the Earth.

Most if not all of the lakes of the world can be thought of as slowly diminishing stagnant floods - the salt lakes like the Great Salt Lake (Utah) and the Dead sea, and the freshwater lakes such as the Great Lakes (USA), and the thousands of Canadian and American "glacial lakes." That these latter are in most cases being fed by rains and streams as fast as they evaporate or drain does not obviate the fact of their origins. They were created under flood conditions. If this is so, it is likely that ground waters and swampland are also behaving as flood waters, that is, everywhere draining at the levels of the ocean basins.

The Caspian Sea has been shrinking rapidly over the past 150 years, not alone because of human diversions, and becoming more saline. According to the idea that this sea may be a remnant of a recent and westwards dumping of the contents of the vast Gobi Sea, now Desert, carried on over thousands of kilometers, ending in the Mediterranean, the desiccation is to be expected. But, too, the local freshwater replenishment of the Caspian may be inadequate, and may always have been since its quantavolutionary creation.

So, too, can the ocean basins be regarded as flood drains, again to make a logical point, which is otherwise an absurd stretching of language. It can be looked at in this way: the basins of the oceans existed before they contained water; some water flowed or dropped into them, "flooding" them. More craters were added, more ‘flooding’ took place. Finally they were even ‘over-flooded,’ that is, land not properly abyssal but belonging to continental sial was flooded up to present shorelines.

Whether or not the flooding is continuing is debated in hydrological circles, along with the questionable trend of land elevation, and is, of course, related to trends of climate as well. If the hypothesis here is correct and the freshwater (and saline) bodies are late aspects of world tidal and flood movements, and if swamp and groundwater levels are also aspects of the same, then the biosphere worldwide is faced with a growing shortage of water. In the foreseeable future, life on earth will come to depend upon the systematic utilization of freshwater trapped in ice, upon irrigation from reservoirs, upon converting freshwater bodies into reservoirs, upon worldwide controls over the augmentation and distribution of atmospheric waters, and upon conversion of salt waters to fresh water. Mankind may confront, not only the effects of its ravaging of water supplies everywhere by overuse, by populations pressure, and by promoting off-flow of continental water supplies - but also a more grave problem, the hitherto unsuspected natural trend of the continental crust to lose its water holdings, because "they never belonged there in the first place."

A great many dry lake basins exist around the world. Some are large, as Lake Bonneville, whose remnant is Great Salt Lake, and the Caspian Sea basin, containing today's shrunken lake, still the largest in the world. Some freshwater lakes, such as Titicaca (Andes) and Tanganyika, contain adapted or primordial oceanic animals like the seahorse and jelly fish. Perhaps a million watered and dry lakes exist.

By origin, basins may have been created by natural dams accreted gradually or thrown up abruptly by avalanche, by calderas of extinct volcanos, by meteoroid craters, by faults and rifts (as lake Baikal and the Dead Sea), and by the bulldozing done by ice and rock thrusts. The original water may have been groundwater seepage, rainwater, deluges, ice melt, or tides.

With six forms of basin and six archtypes of water, the combinations and permutations are numerous. And we have no global survey of lakes with which to compose a frequency distribution. The only exclusively non-quantavolutionary basin form is the damming by gradual accretion. Four types of water contents (excluding rainwater) might be quantavolutionary; three types (excluding deluges and tides) might be non-quantavolutionary.

No lake is geologically old: this is an impressive datum. It says something about the lately tortured Earth. An undisturbed or slowly changing surface should include a proportionately great number of lakes aged in the millions and tens of millions of years. To object that lakes become filled with sediments must imply that such fossil lakes should exist by tens of thousands in the stratified rocks of the world. They do not. Some seemingly ancient lake beds are evident. These should be placed in the frequency distribution.

The results, even by raw conjecture, would be disappointing. The fossil lakes would be all too few. For, if we multiply the present million lakes, say, of an average age of 10,000 years as a guess, and take the last billion years of the earth "history" as providing similar lakes, we get 100,000 periods, and one hundred billion lakes. With climates changing (and Flint, for one, along with many other geologists had to invent a turbulent rain

belt to fill his pluvial lakes), and with continents drifting about, and lands rising and sinking, why should not lakes have visited every place at some point in geological time, and be found in all (or say 10% to 100%) of the geological columns dutifully examined. I fear that *reductio ad absurdum* will once more assail conventional geological theory.

Freshwater springs exist in many places, emerging above their "natural " level, often quietly but sometimes with explosive vigor. The subterranean liquids and gases - water, oils, natural gas, and even compressed air - appear frequently to be pocketed under pressure. Calculations by M. Cook and others allow only a few thousand years for their escape, at most. Their burial must have occurred in some form of thrusting and folding, that is, is no longer occurring; we have accounts of many springs that have died, few that are new. This last fact would arbitrate against conventional theory that underground volatile pockets are fed from descending rock strata and then forced up above their local level at some interstices among the rocks, unless, of course, it is granted that the fresh waters generally are draining away, for the reasons given above.

Once more we turn to oceanography for help. The U.S. Atlantic Ocean shelf was drilled in 1976 at water depths of less than 300 meters and penetrated to depths of from 20 to 300 meters, at 19 widely separated sites. "One of the most significant discoveries... is that fresh ground water occurs beneath much of the Atlantic continental self."[8] These fresh and sometimes brackish waters occupy large lenses in rock strata that are Cretaceous or younger.

The investigators considered whether these expanses of fresh water below the ocean salt waters were remnants that had been trapped in shelf sediments when the Pleistocene ice ages lowered the ocean waters, or were submarine discharges from mainland aquifers. Generally the first solution was preferred, although indications of submarine intrusions were discovered at southerly sites. The investigators did not suggest a third hypothesis, which we offer here, that indeed the freshwater lenses are fossils, but not from a period of withdrawal of waters to make ice. Rather they are both remnants and submarine

channels of the age before deluges filled to over flowing the basaltic ocean basins. Fresh waters were trapped in the continental rocks as they made way toward the abyss and are probably trapped in the debris of the continental slope as well. They are extensions of normal aquifers, a circulation and storage system that is being broken into and polluted. We speculate(as do the investigators) that these waters have been suboceanic for only a few thousand years, and will not be with us for long.

Notes (Chapter Twelve: Water)

1. "The Origins of the Oceans," in *The Oceans* (San Francisco: Freeman,), 16-25.

2. B.Y. Levin, *op. cit.*, 168.

3. M.K. Wallis, "Cometary Science," 286 *Nature* (17 July 1980), 207.

4. III *Kronos* 4 (1978), 19.

5. Velikovsky, V *Kronos* 1 (1979), 5.

6. Bellamy, *Moon, Myths and Man*, loc. cit., 124.

7. *Prehistory and Earth Models, loc. cit.*

8. J.C. Hathaway *et al*., 206 *Science* 4418 (2 Nov. 1979), 515-27, 523.

CHAPTER THIRTEEN

DELUGES

We resort again to the skies for cataclysms. A dense canopy of primordial clouds, lately dropping, has long been a tempting theory. Jordan, who wrote a book generally upon earth expansion, assembled data and authorities in support of the idea that in the Devonian and Carboniferous age there was "a world-wide uniformity of climatic conditions from the furthest south to the furthest north."[1] A cloud cover of a thickness of perhaps ten kilometers was deemed possible, leading to the warmth and precipitation that grew rapidly the huge forests of the carboniferous period where, he pointed out, the trees carried no seasonal rings. R Potonie is cited on the evidence for low light intensity in those times.

Jordan favored Dirac's hypothesis of a declining gravitational constant. This would permit a larger solar constant in earlier times, which would have brought on the vapor cloud canopy. At some point the gravitational grip relaxed and the rings and clouds descended. Jordan was not concerned with the speed of drop or the basins required to collect the waters or with the recency of the translation from sky to Earth. However, the sky-drops may not have been so long ago. Rich and specific traditions of great celestial waters and deluging of the whole earth convey a strong presumption of truth. Prehistoric floods are believed in by many peoples who have suffered in historical times floods of only trivial consequences. Not even psychoanalytic theory, which is the most penetrating critic of delusions, can locate a psychic source of the flood complex; the waters of the sac in which we all swam in embryo are believed to have been a soothing, not devastating, medium.

Scholars have repeatedly analyzed much of the surface of deposits of the Earth and reported them to be the result of

universal deluges; just as often they have been rebutted by scientists who see in their studies the hand of religious authority. The greater the controversy, the less immediate the conviction that my few paragraphs here can convey. Nevertheless, I will state that an unbiased scientist must today admit that the action of heavy, large-scale floods produced by vertical and lateral rushes of water can, in a holistic context, account for numerous deposits and land forms around the world. A presumptive and perhaps invalid stretching of time can only stagger the events so as to deny them simultaneity and hence grand scope. Or, in keeping with legends, the events can be concentrated, but the intervals of quiescence then may be stretched out greatly. Or, finally, both the events and the interims may be condensed in time, a view preferred here.

The sources of huge flood waters are limited. They may occur from the sudden collapse of an ice cap such as that of the Pleistocene, which covered, it is said, 30% of the Earth's surface. They can be exoterrestrial - from a comet or exploding body of the planetary system. They can descend from a onetime far-flung vaporous canopy. They can be mobilized as tides from an interruption of the Earth's motion, a tilt of the Earth's axis, or a drag induced by a giant passing body. They can, also as tides, be generated from a heavy meteoroid impact on the ocean, directly and also indirectly as in all cases above, from the winds, rock shifts and seismism accompanying them.

Deluges and tides both cause flooding. Some distinctions are necessary, though, for the next chapter continues this one with the story of great tides that swept the Earth. "Deluges fell." We should preserve the strict meaning of deluge, as a cataclysm, a "down fall." That is, a deluge is defined as an immense rain or fall of matter from the sky. A flood tide is a body of water in motion. A flood is a raising of water levels from rain or tide or both. In this chapter, only the vertical flood, the true cataclysmic deluge, is considered; in the following chapters, lateral floods and tides are treated.

Diderot's *Encyclopedia* (1751-1765) carried an article on "The Deluge" written by a young French engineer and soldier, Nicholas-Antoine Boulanger. Going beyond Newton's disciple,

Whiston, who had explained the Deluge by a comet, he then wrote the first scientific work uniting the four factors; comet, flood, terror, and the origin of religion. G.R. Carli followed in a few years with additional world-wide legends and geological evidence of catastrophe. The ancient reports of universal catastrophe, both men reasoned, bore the stamp of truth.

In the century that followed, the natural and psychological sciences separated themselves from history and legend. The Biblical Deluge, for example, was steadily diminished and even dismissed as a fairy tale. It became a local flood along the Euphrates River, an account which the Hebrews picked up and patched into their holy scriptures. The influential geologist Seuss opined that "the traditions of other peoples do not in the least justify the assertion that the flood extended beyond the lower course of the Euphrates. More recently, the great floods that moved over the Indus River centers of India in the second millennium B.C. have been explained by Raikes as the effects of the bursting of natural mud dams. Such floods, goes the conventional belief, typified in the work of D. Vitaliano, occurred elsewhere from time to time and were exaggerated out of local pride.

Anyone who has experienced heavy rain and flood is keenly aware of the damage and the fright that come with the prolonged precipitation combined with the rising and swirling waters. Individuals and towns do not forget them easily. But no culture makes of any such weather event a centerpiece of their history as human beings. No matter how disastrous (as for example, was the Yangtse flood that killed an estimated million people in 1887), unless a flood practically obliterates a culture, or is accompanied by compelling foreign "divine" phenomena, it does not mark indelibly the social memory.

Donald Patten lists sixty-eight deluge traditions on six continents. He might have named many more. For instance, twenty-five of them come from the Americas; but Marie and Richard Andress, folklorist and geographer respectively, found forty-six in the New World, almost twice as many accounts. But Bellamy estimated 500 deluge myths coming from 250 peoples or tribes. The probability is high that every culture can recite the

story of a universal flood which practically nobody survived.[2] The deluge is frequently pictured, too, in ancient and modern art. A. Durer and Leonardo da Vinci painted their images of it, both making it a kind of typhoon. And indeed, in the ancient Chaldean story of the flood of Xisuthros the node of the Deluge is spoken of as a waterspout that "swelled up to heaven "and struck fear into the gods; the god Ea pleaded that any and all disaster be visited upon men, but nothing so terrible as "the waterspout of the Deluge."[3]

In every ancient legend of great waters descending from the sky, a few survivors live to tell the tale. At any rate, so it seemed to the survivors. But given any tiny sum of survivors in various parts of the world, one has the basis for survival of the human race. Even a single couple procreating successfully can set off a population explosion within a few generations. The mathematics of reproduction are such that some eight billions might theoretically come forth in a thousand years. That is over twice the present population of our crowded world of today.

While catastrophic forces work on exponential curves, so do populations of all living forms. Indeed, unwilling as they may be to accept such a defense, one of the best arguments for Darwinian adaptation is the capacity of all living things to increase from a pair to billions in a numbers of years. There would be no need for exponential population growth under uniformitarian conditions. But population explosions themselves are an indirect proof of catastrophes.

Since the time of Boulanger, quantavolutionary thought has arrived at a number of additional conclusions about the "Deluge." These are at odds with conventional science, yet have been using more and more the findings of conventional science.

Boulanger and others have talked of "the" Deluge as if there were only one, whether unique in occurrence or unique in size. Most of the ancients spoke of periodic flood catastrophes. The Greeks spoke of three great floods, Deucalion, Ogyges, and Dardanus. The first two have been tied to great floods of Exodus times, the mid-second millennium B.C.[4] According to Philochorus (3rd c. B.C.), "deluge-swept Attica remained

without a king for 189 [or 190] years " in the wake of the Ogygian Flood.[5] Sextus Julius Africanus said that "all the former population of Attica was killed in the Ogygian deluge and the country remained uninhabited for 270 years."[6]

The Flood of Dardanus was probably of the 8th century B.C. The story of Atlantis may be contemporary with the Saturnian flood. We note that the Atlantic Ocean was called the Sea of Kronos. Atlantis would then have sunk in the flooding of the continental shelves by the Noachian Deluge. In a prescient line, Bellamy thinks: "Genesis I is a dragon myth without a dragon, a deluge myth without a deluge."[7] This would be the initial deluges of the first, Uranian period of Chaos. The Greek myths of Ouranos and Okeanos were concerned with universal deluges of the earliest catastrophes, involving the breakup of the Super-Uranus partner of the Sun.

Diluvians are of several minds. My view is that the deluges were numerous, with two great peaks. This view has at least the advantage of including all known and suspected deluges in human memory. As pointed out earlier, various high energy expressions such as typhoons and volcanic explosions invariably pick up and drop huge amounts of water and are at least localized deluges.

The first peak, the Uranian, consisted of a series of drops of sky-held waters, occurring from the beginning of the holocene period when set at 14,000 B.C. and continued for several thousand years through the lunar fission. Deluges of stone and dust (or mud) occurred simultaneously. The second peak may be placed at the end of the age of Saturn and can be identified as the flood of Noah (sometimes calculated at 4000 B.C.). Dense material fall-outs of catastrophic extent occurred at the time of the heavy-body encounters with Venus and Mars, in the second and first millennia B.C. These were exoterrestrial. In these cases, described in *Chaos and Creation*, as well as on a number of other occasions, universal and local conflagrations and explosions caused damaging fall-outs of material that was raised from the Earth. The gravest such occurrences would have been the fall-back of some of the material that was erupting to form the Moon, around 11,500 B.C. Huge falls of insects, fish, frogs,

etc. would have certainly constituted terrifying spectacles over less extensive areas, and were sometimes the cause of plagues.

Issac Vail, an American naturalist, in 1874 proposed that the Deluge of Noah occurred "as a philosophical necessity, arising from a world-condition that no longer obtains .... A vast cloud-canopy of primitive earth-vapors, such as now envelop the planets Jupiter and Saturn, lingered as a revolving deluge-source, in the skies of antediluvian man -- a source of primeval rains, snow and hail, competent to produce all the floods, and all the Glacial Epochs the earth ever saw, and that this last fall of those primordial waters deepened the oceans many fathoms."[8] Vail was a polymath whose analyses of myth were superb. Unfortunately, a fire consumed his principal manuscripts and he was compelled to rewrite them from memory, and then only in part, omitting many citations of sources.

Vail calculated the fatal flaw of the conventional theory of the ice ages; the incapacity of the Earth internally to generate enough heat to lift the waters and convey them to where they would form ice. And, had a mechanism to lift such masses been employed by exoterrestrial sources (although noone considered this possibility), then the poles as well as the Equator would be consumed by heat. The only alternative, Vail thought, was a pre-existing high set of Saturnian rings which descended into Jovian cloud bands and then fell upon the Earth as snow and ice in the polar regions, to which they were deflected by the Earth's magnetosphere.

Vail thought that the vast changes recorded in ocean and terrestrial life proved that a canopy had existed and had from time to time dropped part of its contents upon the earth. He pointed to pre-existing tropical conditions uncovered throughout the globe as proof of a "greenhouse" climate in which the clouds diffused the sun's heat and maintained even temperatures everywhere.

Vail did not introduce heavy-body encounters into his model of heaven and earth. Yet there is yet another possible source of a deluge, terrible beyond all others. If a passing body were

attractive enough to disrupt, dislodge, and explosively pull into the sky portions of the earth's surface, it would also extract water and ice directly from the earth. The portion of the water that did not follow the intruding body into far space beyond the earth's grasp would fall back upon the world as a deluge or circle the earth with the moon and ultimately, if disturbed, fall.

Vail was not specific as to why the canopies would ever fall. He appealed to a "natural" and "divine" order or process happening over long ages, without external intervention. If the rings had moved with the Earth like the Moon does, they would hold their orbits similarly. Their fall would be at best exceedingly slow and the climatic ages that they would produce on earth exceedingly long, too long for any catastrophic theory. However, a collapse would be rapid under certain conditions. The globe or canopy might change its motions and/or electrical charges. Both would occur with large-body encounters and dense-material fall-outs and radionic storms. A great meteoritic explosion, a phaetonic atmospheric pass-through, and a bombardment of particles would singly or in combination, and in proportion to their volume, precipitate deluges upon Earth.

Now we see a complex of possible events: that "heavenly waters" (canopies) might have existed, that they might have fallen, and that explosions might have produced them and/or brought them down along with exploded waters. The mechanisms are described more precisely in *Solaria Binaria*.

We continue Vail's account: the most ancient of East Indian gods was Varuna, whose name means the "surrounder" or "concealer." He is the regent for the Sun. The root syllable "var" means water, hence "he who covers the heavens with his water canopy." Ouranos is the Greek equivalent: this Heaven-god, ancient Hesiod's *Theogony* tells us, came from far away to embrace "Mother Earth," Gaea, and "lay close about her on all sides around." The most archaic deity of the Latins was Coelus, ruler of heaven (Coelum), who like all the other heaven-gods, was ultimately banished. The Kojiki, holy scriptures of Japan, maintains that the gods, in the earliest days, brought the heavens and earth very close together. Two light-gods then ruled the

world from their "f1oating bridge of heaven." Later, heaven "began to retire and eventually passed utterly away."

In the Hebrew Genesis, the Elohim (the Most High) created the Heavens and the Earth. The Heavens were a "firmament" placed "in the midst of the waters." The "there-waters" (Shimayim or Heaven) existed with lights but not with the sun and moon, for they are not mentioned in the opening passage of Genesis. The Assyrians said also that the sun, moon and stars came into view only when the monster foes of order were dislodged. When the Scandinavian heaven, Asgard, died with the gods, during Ragnarok, "the Sun and his legions came riding through the gap in shining array."

The name "Yahweh" came later when the skies were opened, just as names of the leading gods changed in all cultures, with the coming of a new age. In Greek terms, Kronos (Saturn) became Zeus (Jupiter). When Kronos was removed by Zeus, Zeus removed also his own younger brother Poseidon from Heaven and sent him to rule the terrestrial waters. But note that Okeanos (*the Ocean*) had, as a rebellious Titan, already been expelled from Heaven before Poseidon left it.

So the Great Deep of the earliest religions was a watery sky. The final waters of the Great Deep were broken up at the time of the Noachian (or Poseidon) Flood. But there was "a long, long time when floods were the order of the day."

If I may refashion the theory of Vail, in the light of what I have written elsewhere, I should suggest that (a) self-conscious myth-making mankind was born beneath a high canopy of rings and clouds, without a visible Sun; (b) deluges began and a visible Uranian Sun and the present Sun appeared; (c) the Uranian Sun went nova, the Earth bore forth the Moon and cleaved, while undergoing further deluges that partially filled the newly formed ocean basins; (d) the heavenly clouds remained to some extent thereafter (during the Golden Age of Saturn when the world lived tropically); and then (e) the second great Deluge came, which was the Noachian deluge.

Jewish legends of the earliest period of man go beyond the Bible in defining a cosmic catastrophe prior to Noah's Deluge. It may be called the Enosh Catastrophe, for it happened during the time of Adam's grandson, Enosh. Since I have designated the full self-awareness of modern man (in *Homo Schizo I and I1*) as part of the early catastrophic scenario of a binary nova of Super-Uranus, and suggested that this was accompanied by great flooding, and that the Moon eruption and Earth cleavage (*Chaos and Creation*) also brought down to Earth great deluges to fill the ocean basins, perhaps Enosh belonged to one of these eras. The second is preferred if only because in legend and scripture Adam (mankind) was self-aware and active, and had been evicted into a hard world from the Garden of Eden, which represents a catastrophe of a universal globe-tilting kind.

The legends say that mankind's attention was riveted upon celestial events; idolatry (implying deviant sky-body worship) and gods (the same, but lawful) were active and importuned. The terrestrial effects were said to be threefold: the sea transgressed its bounds and a third of the Earth was flooded; "There arose mountains, valleys, and rocky ground, whereas prior to that everything had been smooth and even...; man's stature was shortened."[9] Ignoring the last, which is for another book, we are left to conjecture original or successive (Uranian) deluges possibly in conjunction with the eruption of the Moon and the cleavages of the globe, at which time great orogeny occurred and much of the land was thrusted and folded. O'Gheoghan points out that two deluges were attributed by Phoenician sources to the planet El (Saturn, possibly our lunar Super-Uranian and Super-Saturn novas) [10].

The Greeks had a god who was a son of Ouranos. His name was Okeanos and his behavior was consonant with our theory. Okeanos, writes Giorgio Santellana and Hertha von Dechand, dwelt originally in heaven [11]. He was the rivers of heaven who flowed down from the sky to earth. He was the "beloved end of the earth, ruler of the pale" and his name, too, is derived etymologically from "heaven." Jane Harrison also found that "Okeanos is much more than Ocean and of other birth."[12] He was the "daimon of the upper air," of the stratosphere, of the

binary system's atmospheric plenum in our interpretation. According to Homer, the universe took the form of an egg that was girded about by Okeanos, the Generator. And Socrates in *Theathetus* says, "When Homer sings of the wonder of 'Ocean whence sprang the Gods and Mother Tethys' does not mean that all things are the offspring of flux and motion."[13] "Mother Tethys" is the ancient sea that in my opinion preceded the earthly oceans, and was the central body of water of Pangea, as the wholly land-covered Earth may be called. A whole subsequent paragraph of Santillana and von Dechend bears quotation:

> The authority of Berger can reconstruct the image. The attributes of Okeanos in the literature are "deep-flowing," "flowing-back-on-itself," "untiring," "placidly flowing," "without billows." These images, remarks Berger, suggest silence, regularity, depth, stillness, rotation--what belongs really to the starry heaven. Later the name was transferred to another more earthbound concept: the actual sea which was supposed to surround the land on all sides. But the explicit distinction, often repeated, from the "main" shows that this was never the original idea. If Okeanos is a "silver-swirling" river with many branches which obviously never were on sea or land, then the main is not the sea either, *pontos* or thalassa, it has to be the Waters Above. The Okeanos of myth preserves these imposing characters of remoteness and silence. He was the one who could remain by himself when Zeus commanded attendance in Olympus by all the gods. It was he who sent his daughters to lament over the chained outcast Prometheus, and offered his powerful mediation on his behalf. He is the Father of Rivers; he dimly appears in tradition, indeed, as the original god of heaven in the past. He stands in an Orphic hymn as "beloved end of the earth, ruler of the pole," and in that famous ancient lexicon, the *Etymologicum magnum*, his name is seen to derive from "heaven."

Boreal means "northern." It also means "bore," a "hole". Both of these prehistoric meanings refer to the first human sense of

direction. As the clouds that surrounded man ‘s early cultures began to break up and descend as deluges, the first openings of the sky were in the north (to those living above the Equator). Uranus, in the late Roman Empire, was still pictured as a god cloaked in clouds.

The Hyperboreans were people who lived farthest north. Their legends said that the great light (commonly, but mistakenly translated as Helios) arose and also set but once a year. So time-cycles were possible in the brilliant peak of illumination.

Most legendary clues seem compatible with the model being tested here--of an early cloud-covered greenhouse world, now broken through and deluged by water, fire, and rocks; of clouds lowering upon a smothering Mother Earth; of the beginnings of reliable changing lights and planetary figures in the Boreal hole; of a rapid development of thought and culture; of the retreat of Ouranos (Uranus) and the appearance of Kronos (Saturn).

But then also the land of Pangea was being flooded and the ice was piling up in the polar regions. Life forms retreated steadily southwards. Then came a Lunarjan catastrophe, the worst, followed by the full mild, misty “golden age” of Saturn (Kronos). Again, disaster, with the Noachian Deluge and the coming of electrical Yahweh (Zeus-Jupiter) to the force [14].

Afterwards, sunshine, dryness, lightning, thunder and the present rain-making cycle governed the atmosphere. Vail put it one way: “All through the Ouranian and Kronian ages, the thunderer [Jove] was silent.” I would say that these former ages were fully catastrophic in their beginnings and end, and cosmic lightning and pandemonium were present, but that a fairly clear and dry world was the scene for the working out of Jupiter’s divine character.

The first fall-out of sky-waters must have been limited--one sixth of today’s total, we guess--because, as we argue later on, they descended upon a world largely without basins to receive them. The world would have drowned without the basins. Nor did the second fall come at one time but over a period of centuries prior

to and after the forming of the basins. Even then, if the waters had not fallen partly as ice upon the caps, where it did not melt, then too the world would have been swamped.

The deluges would not amount to much rain if they were spread out over thousands of years. This, of course, was not the case, but is worth calculating. We assume that the original Tethyan Sea, shallow but globe-gidling, held one-sixth of the 1,347 million cubic kilometers of water contained in the present oceans. Further, we assumed that two-sixths of the present oceans came down in subsequent deluges of Noah and thereafter. Ice caps (now I/200 of the total waters) are ignored, so, too, possible expansion of the Earth during the period, and also the rain cycle that would be occurring all the while. We allow ourselves 6000 years to bring down new waters equal to half the oceans today, that is, 673.5 million km^3. The annual average quota becomes 112,250 km^3/y, which turns out to be only 22 cm^3/cm^2/y, when it is averaged over the Earth's surface. This is much less than the average rainfall around the world today, which can rise well above 200 cm3 in a number of localities such as the State of Washington or Hongkong. Evaporation and precipitation would add to the figure. Further, most important, most of the deluging might occur in years, not millennia, and then we should have to resort to a dynamism unlike ordinary rain, and resembling more ropes, hoses, and cyclones of water at many locations.

The ancient Scandinavians called snow the "pus of the gods." Something is to be said about snow and ice deluges soon. In many places, however, the waters of the deluges and floods or tides were heated. Rains came down in gobs the size of a man's head and were at times boiling hot, according to the Zend-Avesta of Persia. Josippon bin-Gorion repeats a Jewish myth: "The fountains of the deep broke up first. Then came the flood from above. Then fire fell also, and rain, boiling hot."[15] Bellamy writes that "quite a number of peoples report not only a Great Flood, but specifically a flood of *hot* water." American Indians of the West claimed that the waters of the Great Flood were warm. The Voguls of Finland said a great fire raged over the world first and was followed by a deluge of hot water. Then

the hot waters raged across the land. Fire mixed with the water--even their rafts caught fire, they said. Amerindians of Brazil said that the Sun was a cauldron of boiling waters that tipped over.

Saturn was the chief sun in ancient legend, it should be borne in mind; several recent studies have established this identification (see *Chaos and Creation*). Saturn, successor to Uranus, was both an early sun, a bright binary partner of the Sun, and flared magnificently when it went nova just before its deluge waters struck the Earth. Moreover, while lightning would unquestionably have played about the deluge scene, the fires and heat connected with the deluge and flood waters would be associated with the debris of the nova and the heavy volcanism which, as one Jewish commentator wrote, sprang up on all sides [16].

The Feast of Lights (Hannukah) and the Christmas Light festivals, as well as the Hindu, Roman and other Saturnalia derive from the brilliant seven-day display of Saturn in nova, before the deluge struck. Frazer give us a Jewish folktale to conclude our instances of sky-associations for the Flood of Noah:

> Now the Deluge was caused by the male waters from the sky meeting the female waters which issued forth from the ground. The holes in the sky by which the upper waters escaped were made by God when he removed stars out of the constellation of the Pleiades; and in order to stop this torrent of rain, God had afterwards to bung up the two holes with a couple of stars borrowed from the constellation of the Bear. That is why the Bear runs after the Pleiades to this day; she wants her children back, but she will never get them till after the Last Day [17].

In *Solaria Binaria*, which is the heavily astronomical work of the Quantavolution series. Milton and I formulate the dynamics of the deluges. 1 mentioned earlier that the form which the deluges of Uranian and Saturnian times took was probably cyclonic, with the waters jetting down, as fountains or as liquid meteoritic fails. This would be a necessary assumption for

biosphere survival and for disposing of the huge quantities of water involved. At the same time, we must speculate upon the lithospheric effects of the thousands of jets or spouts. Where are the visible effects today?

Perhaps the myriad rings faintly visible on satellite photographs of the Earth's surface (as reported in earlier pages) represent cyclonic craters formed by the jets and soon filled by aquatic tides and earth flows. When I first began to study the incidence of meteoroid impacts, I was pleased at each new discovery. But as the number of indicated craters grew larger and larger, 1 began to wonder how the Earth could have been so completely bombarded yet its biosphere could have survived. Cosmic lightning bolts and plasmoid lightning balls supply part of the answer. A liquid bombardment might also be an answer. We shall have to await a more extensive survey of the surface halos of the Earth.

Notes (Chapter Thirteen: Deluges)

1. Pascual Jordan, *The Expanding Earth* (1971) (orig. German ed. 1966).

2. The Biblical Flood and the Ice Epoch, *op. cit.*, 164-6, 52. Bellamy: Moon, Myths and Man, *op. cit.*, 120.

3. Kelly and Dachille, *op. cit.*, 241.

4. By Velikovsky in *Worlds in Collision*, 148-52.

5. H.S. Bellamy, *The Atlantis Myth* (London: Fabar and Fabar, 1948), 145.

6. *Ibid*.

7. *Moon, Myths and Man*, *op. cit.*, 178.

8. "The Misread Record," p. 1. Most of the specific allusions in these next paragraphs are form Vail's *Selected Works*, *loc. cit.*

9. *Ginzberg, Legends of the Jews* (Philadelphia: 1909), V. 152, note 55. Quoted by B. O'Gheoghan, "Notes on a Possible Pre-Deluge Catastrophe," III *S.I.S. Rev*. 2(Aut. 1978), 36.

10. *Op. cit.*, and see H. Tresman and B. O'Gheoghan, "The primordial Light?" II S.I.S. Rev. (1977), 35ff.

11. *Op. cit.*, 190-1.

12. *Ibid*., 189.

13. *Ibid*.

14. The author's *Moses* examines the electrical associations of Yahweh.

15. Bellamy, *M.M.M.*, op cit., 124-5.

16. Velikovsky in V *Kronos* 1 (1979), 9.

17. *Folklore in the Old Testament* (1981), I, 143-4.

CHAPTER FOURTEEN

FLOODS AND TIDES

Paleontology is based largely upon the classification and ordering in sequence of marine fossils. Cuvier, one of its founders, claimed as the best evidence of universal floods, that land animals were always found in association with marine fossils. Terrestrial strata were laid upon marine strata which were superimposed upon terrestrial strata. In 1796, he named three ages and three catastrophes, evidenced by three quite different ‘aggregates of species. Man appeared following the last of these, he believed. Today, many fossil deposits consisting solely of land animals can be pointed out, but the presence of marine fossils in all regions of the world and at all altitudes provides an unending source of doubt. The Earth has had to be made mobile, with sliding land masses and sinkings and rising, to explain this fact, and with great stretches of time to accomplish what several very general tides, directed by exoterrestrial bodies, might in theory accomplish in short order.

Strictly speaking, floods are waters ‘seeking their own level.’ ‘Gravity flow’ is implied, whether a high cresting river is over-flowing a town’s streets or waters from all Sides are rushing down into a huge basin from which the Moon has been wrenched to form an ocean. Phenomena often called ‘floods’ might be more carefully denominated deluges, tides, and tsunamis. Remaining as floods would be barrier-bursting avalanching floods, the aforesaid floods from the rising and sinking of land (elsewhere treated), the varieties of rain-fed waterdownslides, the rising of waters below the ground from higher waters of distant sources and. more obviously, the melting of ice.

Tides. on the other hand, are moving waters led by other moving forces. We are not concerned here with ordinary lunar tides, of whose perplexities I. Michelson writes, “We are to this day unable to decide whether high tides occur when the Moon is in the meridian or whether the exact opposite, low tide, is more nearly correct.”[1] The implications in this state of affairs, that electrical fields are operative, etc., are not germane here.

The palaetiology of flooding is no less complex than the lunar tides. Possessed of records of the Nile, Thames, Mississippi and other river flows, one can make predictions of some value concerning their behavior in the near future. Given a case where long-term records are not available, it is easy to make errors both about past and future behavior. For instance, the Pecos River in Texas flooded severely in 1954. older techniques of paleohydrology had assigned a frequency of recurrence probability in the millions of years; newer techniques reduced the recurrence interval to about 2000 years [2]. Such cases should be borne in mind when considering the probable dates of prehistoric floods: are we viewing a 10 million-year effect or a 2000 year one? Are we dealing with a rapid series or very gradual pulses?

More important to geomorphology are the tides of the great tsunamis and the tides of an Earth that is losing its balance by some external intervention. On several occasions, the Earth has had not only its waters diverted up and around, but also its very crust, this too constituting a tidal movement of land.

A comet with a nucleus as large as the Earth would from 50,000 miles’ distance pull up ocean waters to a height of several miles at its focus. An exact calculation requires many assumptions; approximations of such encounters have been figured by persons as eminent as the mathematician Laplace. Hoerbiger and Bellamy more recently have calculated the tides engendered by a capture of moon-sized satellites. If one is pondering the escape of a Moon-sized mass from the Pacific Basin, a larger body, closer approach, greater mass, and favorable electrical conditions (greater attraction) must be conjectured. Atmosphere, water, the crustal rocks, and the upper mantle must participate in

the tidal action--indeed the tidal force would extend through the whole globe, and the concept of tide becomes as strained as the globe itself under the postulated circumstances.

Should such an event have occurred, and it does seem the most plausible method of providing the Earth with its satellite, the tidal pull would have dragged the surface waters everywhere towards the node of escape. Thereupon, as the intruding body moved on, the tidal force would relax and the tidal waters would rush back in great rings around the globe, reverberating for large but diminishing distances until they should accommodate to the new complex of Earth motions and the tortured terrain.

However, our model here and in *Chaos and Creation* calls for a small portion of the Earth's present waters having been available for the tides caused by lunar evacuation. Less waters would yet have been available for the tides that would otherwise reach miles into the sky. Nor, for that matter, were the mountains elevated to their present heights, but rather were only then forming under catastrophic diastrophism.

The Saturnian or Noachian Flood some thousands of years later than the postulated lunar tide also would have had major traits of a tidal disaster. Patten estimates aquatic tides of 5,000 to 10,000 feet above sea level and extensive tides of magma beneath the crust. This "breaking up of the fountains of the deep," he says, might account for 99.9% of the flood waters of the Great Flood of Noah, leaving only 0.1% as deluge waters from the skies. His schedule of events follows Davidson, Stibbs and Kevan and is useful [3]. During forty days the rains fell. For another 110 days flood (tidal) waters continued to rise. Next, 74 days were occupied in the "going and decreasing." Not until another 40 days passed did Noah send out a raven. Then 21 days were taken to send out three successive doves. A further 86 days occurred before the total experience ended. Thus 371 days passed.

If the Bible is historically accurate, even only generally so, a tidal catastrophe is depicted in which rains played a minor role. Even granting that all the overrunning of the land and climbing

of mountains was accomplished by tides, there remains in mind a question respecting the origin of the oceanic waters. The continental slopes and shelves were permanently inundated at some point in time, and this seems the most reasonable time for the job. The quantity of water required and mode of deluging are difficult to conceive. E.R. Milton and I finally settled upon introducing waters sufficient to cover the slopes and shelves at this time, despite the enormous bulk required to raise ocean levels by thousands of feet. We reasoned that, if all of this water were not introduced here, we could not find legendary substantiation for it elsewhere.

Having the waters descend was more difficult. As Kofahl has clearly shown, so heavy a deluge in the short period of forty days might practically wipe out the surface of the Earth [4]. So, as already indicated, we relied upon a few bits of evidence to consider and adopt the typhoon mechanism, having the waters streaming down in thick columns dispersed around much of the globe. This would have the advantage of letting much of the Earth go relatively unscathed. An average of one typhoon for every 100 square miles on the globe's surface would provide all the new water needed to cover the continental slopes and shelves. Preceding and successive deluges would make less severe the requirement. So would, of course, an increase in the 40 days and nights of rain that the Bible allows for the Deluge. A reason for acknowledging the many days of rising and falling tides is that, subsequent to exploding its waters upon the Earth, a major portion of the fissioned Super-Saturn may have pursued a path paralleling the Earth's for some time before overtaking and passing the Earth. This or another major portion finally receded into a position beyond Jupiter, and probably even retained its identity as the retired god, god of the underworld, the god placed in bonds by the new king of the gods, Zeus-Jupiter-Marduk-Yahweb.

Early students of Siberian geography, working without an ice-age theory, observed from geomorphology and fossil conglomerates that in the far north a gigantic tidal wave had recently been propagated. North-south tides of this size strongly suggest an axial imbalance of the Earth. Water in the bottom of a

rowboat splashes towards someone climbing up from the side, and splashes then back and forth, as he gets on or drops off. The enormous fossil aggregations that, with a sand admixture, compose whole offshore islands, testify also to tidal action proceeding northwards and then withdrawing [5].

A change in the speed of rotation of the globe, for which an exoterrestrial large-body encounter must be presumed, necessarily entails large tides. Some writers, including ourselves, have surmised a shift from 360 to 365 days a year around the eighth century B.C. Putting aside the more plausible cause of orbital recession, and laying the burden of such a shift upon a speed-up of rotation, with shorter and more days, the sea level would be theoretically raised by 118 m at the Equator and dropped by 227 m at the poles. So calculates V.J. Slabinski, assuming a water-covered Earth and implying instant time [5A]. The “historical belt” around the world in the Mediterranean, Near East, India, China, and Mesoamerica would have noted “moderate” drops or rises of 35 m or less.

If an axial tilt occurred at the same time, counterrailing and aggravating motions would have occurred. Presumably, too, the “solid crust” would soon warp and flow to erase much of the change. Some orbital change, as stated above, probably would alter the calculations, too. The several factors at work highlight the problems of conceptualizing and calculating the effects of encounters, but heavy tidal movements must be assumed.

The legends of tides number in the hundreds, but they are usually hard to allocate to periods of time, particularly in this incipient phase of the science of quantavolutions. When the Biblical Book of Exodus says, “The waters were a wall unto them on their right hand, and on their left,” tidal behavior is suggested at the critical point of the Venusian comet, about 1450 B.C. by Biblical-derived dating. And the Psalms are chanting of the same event when “He made the waters to stand as a heap...” And the Midrashim comment likewise, “The waters were piled up to a height of sixteen hundred miles, and they could be seen by all the nations of the earth.” (Though here we are bothered by the height and wonder whether, with the tides, there was a

cyclonic tube reaching into the far heavens, the famous column of smoke by day and fire by night, that guided the Hebrews in Exodus). Also, in China, if the time of Emperor Yahou belongs anywhere, it belongs around the time of Exodus; and there the waters "over-topped the great heights, threatening the heavens with their floods."[6]

But when the Lapps recite how the angry god Jubmel raged against the wicked, and, "foaming, dashing, rising sky-high came the sea-wall, crushing all things," we are not sure that this is the time of Exodus or earlier or a combination of later and earlier events. So it goes around the world. The tides are there: immense, overpowering everything, wrecking the surface, launched by the gods, accompanied by fire and wind; still each legend has to be examined carefully before assigning it to a given catastrophe.

The Jubmel legend ends up as sophisticated language, as good a poetry as ever written perhaps, but it is not the language of the time of the event. Even the Biblical language is not the Exodus language. All the accounts are much later than the events. So the quality of the language does not date the legend. I think one may accept, however, that the tides were overwhelming at Exodus-time.

They were also present at other catastrophic intervals, and particularly in the Lunarian Age. The Noachian-Saturnian Flood was a deluge and tidal flood. The *Popul Vuh* of the Meso-Americans speaks of the god Hurracan as the driver of disastrous winds and tides, but sounds as if it were reminiscing about events of the early primordial period, our Lunarian episode.

The peculiar image of the walls of water parting gives pause, too. It is not only Biblical but, for example, Inca; near Yucatan, twelve roads of escape were opened through the sea to let pass certain peoples from the East. Can tides behave to create passages? The answer must be "yes." Not only is there a typical shore withdrawal before a tsunami; the tsunami can occur in a series. Further, the immense expressions of energy in tides, as in

winds and earthquake, sometimes act to spare the most incongruous as well as precious things. Cows have been picked up by cyclones and set down miles away without injury.

When Krakatoa exploded, the people of Batavia a few miles away braced for a gigantic tidal wave that never came. Yet the wave wiped out other villages not far away and raced across the oceans to frighten Indians and Africans. There are parts of the Aegean islands that were scarcely mounted by the towering wall of water that set out with hurricane speed from Thera-Santorini around 1000 B.C. Tides rip, cross, translate, and in other ways convey their force. During the flood of Manu (Saturnian flood, probably about 4000 B.C.) hurricanes and turbulence surrounded the boat of the Indian Noah.

The skies are full of motion and the mover's body is itself moving. The atmospheric is raging with currents of wind and electricity. The Earth itself is moving. The celestial actors in the scene are imposing or withdrawing forces. Hence, exoterrestrially induced tides will not behave so simply as tides operate with the regular passage of the Moon or of a single earthquake. They will draw startling geometric figures. No one would have been more amazed than the Jews themselves, to have survived the double-walled water passage into Sinai. They lost, according to legend, the vast majority of their people to the waves that swallowed the Pharaoh's warriors. It is logical that few might reach the "Promised Land."

The "great spark" that Velikovsky says struck the walls of water and caused them to collapse upon the hapless pursued and pursuers is attributed by him to a discharge of cosmic lightning between Earth and Cometary Venus, releasing the attraction between the two bodies. It is well to note in this connection that an American Pima Indian myth paints a similar scene [7].

> There were 3 warnings from an eagle of great flood.
>
> Suddenly a terrible roar paralysed men with fear. A green water-mountain rose over the plain. For a very short time it seemed to stand upright like a wall - then it was split by

> a vivid flash of lightning, and plunged forward like a ravenous beast. Only one man escaped, keeping afloat by clinging to a large lump of rubber or pitch.

The flood of Noah is an example of both deluge and tide. If it were purely a deluge, how would the Ark end up on a tall mountain of Anatolia? (How would the boat of Manu, the Hindu Noah, end up in the high Himalayas, for that matter?) Even the heaviest deluge could not over-fill the ocean basins and cause the waters to ascend the highest mountains. The waters would run off, carrying any barges downstream, or else the world would be permanently drowned.

Alternatively, the mountains would have appeared in the course of the deluge (because the continents were on the move) and afford anchorage and survival. Or else the deluge was accompanied by tidal rises of the waters of the Earth owing to the electro-gravitational attraction of close-in celestial bodies. Or else all three events happened more or less simultaneously: the deluge fell; the lands moved and rose; and a tidal force (the same that was causing the deluge to fall and the lands to move and rise) drew the waters up to the heights of whatever mountains pre-existed or were appearing.

The Bible contains many specifics, almost as if it were, as Patten says, an eye-witness account. His is probably the best all-around analysis relating to the Flood. He establishes it securely as a tidal flood, “a universal, global Flood, and that it was caused by the interacting gravities of two astronomical bodies of planetary dimensions - the Earth and the astral visitor. Since the Earth possesses two fields, one gravitational and the other magnetic, there were two kinds of celestial conflicts with the intruder.”[8]

The question of “how few” were the survivors need not detain whether scores or thousands - but they certainly were widely scattered about the world. The following quotation from the ancient Nicolaus of Damascus seems reasonable [9]:

> There is a great mountain in Armenia, called Baris, upon which it is reported that many who fled at the time of the

> Deluge were saved; and that one who was carried in an ark came on shore upon the top of it; and that the remains of the timber were for a great while observed: this might be the man about whom Moses the legislator of the Jews wrote...

The steady increasing and decreasing of waters is a tidal as well as a deluge phenomenon. The ten-month duration assigned the flood seems more to indicate a long-range tidal attraction of a celestial body; a flood, even if universal, would not take so long to recede as the 74 explicit and 90 additional implicit days before the full grounding of the Ark.

The archaeological history of the deluge has been controversial. It has been reviewed by M.E.L. Mallowan and H.J. Lenzen, among others, and Robert Raikes has supplied a critique of the theories [10]. What is generally discoverable in the Middle East is a seeming succession of water-destroyed levels in many excavations dated in the period 2600 to 3500 B.C. Raikes accepts these datings. I cannot, for I am compelled by many other considerations in this book and others to assign the Biblical Flood to a time 500 to 1400 years earlier. That humans were civilized before the Flood is undoubted. Whether there exist excavations from this period among the Middle East excavations has to be determined by examining one site after another.

Judging by the way the tide advanced and retreated, there would not have been a total dredging and destruction of already buried antediluvian sites but probably a complete extirpation of diluvian settlements. There should therefore be a rupture and hiatus between ante-diluvian and post-diluvian cultures. Probably the distinction ordinarily made between Paleolithic and Neolithic ages directs itself unwittingly at this catastrophic break.

Hence the Great Archaeological Debate over the Deluge of Noah has probably not been treating of the Deluge at all, but has been trying to force lesser floods of later eras upon the legendary accounts of the great Saturnian floodtime. Nor was Velikovsky of a precise opinion in these matters. It is in the hiatuses between

Paleolithic and Neolithic that one must search for evidence of the Noachian-Saturnian-Gilgamish-Manu world flood.

Tides may be aquatic, but readily transport denser bodies. The velocity of water is as significant as its volume for carriage. Moving currents carry to the sixth power of their velocity. If a stream of volume "X" were to move at 2 km/h it would carry 64 times the load it could carry if it moved at 1 km/h. Tidal transport is scarcely less powerful.

Tides can stretch for great lengths and in all directions. Those who like to imagine that the Exodus tide was limited ignore the evidence that the Red Sea was in motion. Moreover, they overlook the fact that unidimensional tides are practically restricted to hurricanes. A splash, a large-body pass-by, an explosion or a deluge summons a 360 degree tidal effect.

The speed of tides is swift unless remote bodies are their cause, as with the daily tides of the Moon. The appearance of the tidal effect during the Exodus, long after the first plague signaled the approaching comet, indicates a remote and approaching body. The Navajo say that on the occasion of the world flood (which cannot be precisely named) the animals had been running from east to west for days before they saw a semi-circle of water moving, like a mountain range, towards them from the east. By the next day the waters were upon them and only those who had reached the nearby mountain-tops survived. The tidal flood was preceded by a bright light in the east, an indication that an incandescent body was in the sky [11]. Again the speed was relatively slow compared with the tidal waves from hurricanes, explosions, earthquakes, and falling bodies.

The amplitude of tidal waves will vary greatly. Historical explosions have raised waves of 85 meters, as in the Krakatoan case. Earthquakes, as in Alaska, have done as much too. The Thera volcanic tsunami of circa 1000 B.C., is thought to have raised higher tidal waves than Krakatoa. As we have said, an exoterrestrial body may raise tides kilometers high.

Adding to the rain-flood from a deluge would be the flash-flood, the destruction wrought by fast-draining rain waters. Ancient times witnessed flash floods of great scope and intensity under deluge conditions. Heavy deluge waters filled the rivers and ocean canyons of the world; they poured off the mountains in the Deluge of Noah, and legendary heroes from Columbia, China and elsewhere earned their glory from engineering the escape of the floods.

A non-tidal moving flood is caused by the bursting of barriers: a natural dam blocks and collects water and then collapses. Some of the behavior and landscaping to be expected of great tides and floods are exemplified in the Channeled Scablands (Wash., U.S.A). They are 15,000 square miles of effects of a barrier burst flood; they were not made by a tide, not directly at least. Some 100,000 miles of this section of North America are thickly covered with lava, in places more than 10,000 feet thick, which can be ascribed to the immense volcanism incurred when the American continent traveled westwards over the global fracture of the East Pacific area. This might have been around 11,500 years ago, not the 10 to 30 million years conventionally given to the set of events. The whole area was then covered with silt and loess.

The Scablands are a water sculpture of this lava surface. Expert opinion asserts that a barrier of ice corked a mountain pass and caused a Glacial Lake Missoula to form. The Lake was half the volume of present-day Lake Michigan, but pitched high above sea level. The lake, it is thought, was of short duration and finally overflowed. The water cut through the ice cork. (The immediate cause may have been Earth movements.) “Within a very short time - perhaps no more than a day or two - the ice dam was destroyed and the contents of the lake were released.”[12] So reads a tourist bulletin on the area. A maximum speed of 45 miles per hour has been assigned to the resulting flood, and a maximum rate of flow ten times the combined flow of all the rivers of the world today. A luxuriant biosphere was wiped out, including large mammals, camels, bison, antelope, and, to my thinking, humans. I add “humans”

partly because a doll was found in clay below 150 feet of lava, not far east of the same lava field, at Nampa, Idaho.

The flood plucked and transported huge blocks of basalt. It flayed the basalt of its skin of loess. It dug channels in the basalt more than 200 feet in depth, and one of 8 miles in width. It made instant falls and plunge pools and eroded them backwards quickly. When the waters slowed they began to dump debris, some 500 square miles of it, to a depth of over 125 feet. The flood crest lasted a day or so, the main flood 2 to 3 weeks. Today, a satellite photo taken from 569 miles up shows the ramified and interlacing channelways of the flood cutting through the loess into the basalt, and then generally the unvegetated region around them.

The barrier-burst flood theory originated with Professor J.H. Bretz of the University of Chicago and was not accepted for many years because it was catastrophic.[13] In fact, the theory can be pressed further in the direction of radical catastrophism.

First there are the reaffirmations of certain catastrophic doctrines. Energy kills time. Buttes, ravines, and river channels can be carved from dense rock in days. A biosphere can be destroyed down to bedrock in a single rush. Broad river channels are sculpted immediately through deep soil and loose rock. Giant gravel ripples are laid down; hills are fashioned; long steep slopes are fashioned *à la minute*. Heavy stones are sown far and wide, the famous “eccentrics.” Basalt is stripped to form monumental columns.

A catastrophist still may not rest content with the analysis. Why, he can ask, is the volcanic base of the region timed so long ago and why is the volcanism supposed to have required intervals of thousands or millions of years to be laid down deeply? What water did in a month could be equaled and surpassed by lava in a few years.

It is thought that glacial Lake Missoula formed 18 to 20 thousand years ago. Also it is said that several smaller lakes had formed in the same way and been discharged in the same

manner. That is, the glacial ice lobe plugged the escape gap and pulled the plug several times. The previous logic holds here too: ice can form slowly or fast; climates change slowly or fast; plugs must be pulled in tempo with these fluctuations.

Moreover, plugs can be placed or pulled tectonically, perhaps without the use of ice; the Earth shakes and gaps are blocked; another shake and the blockage bursts. More generally, suppose that the lava-paving occurred in the first phase of "Lunaria" (11,500 to 10,500 B.P.), after the Moon explosion, global fracture and the mountain-building thrusts and folds from the north. The high canopies are still descending and drenching the northern areas. The waters drain down the old raised glacial valleys and new ravines. The tectonic scenario of Lake Missoula goes into effect.

The area through which the flood raged is tipped to the southwest and the waters of the flood drained that way. The land is supposed to have tilted after the lava beds were laid. The tilting actually might have been responsible for the uncorking of Lake Missoula. Such extraordinary seismism would have been heavily felt in the Lake area.

Nor may the heavy loess coverings of the basalt give more than brief pause. Credited to wind-blown erosion material, it is not clear where such heavy dust would have originated or what climate brought such strong winds to transport it. Wherever it came from should contain the "mother lode"; where is it? This deep frosting was laid down by exoterrestrial sources, a cometary train, some would say. Others may claim that the loess or silt is a deposit from the inutterably greater thrust and fold phase of the ice cap avalanche and crustal movement, with contributions of ashes from biospheric and volcanic fire. By the time the scablands were etched upon the surface, the fires had been banked and the Earth was settling down.

The Scablands, we recall, are supposed to have registered several floods in succession from the same general source, glacial waters. I collapsed these somewhat and placed the Uranian-Lunarian deluge-avalanche-uplift period earlier. The

Saturnian deluge and tidal flood would have come later, and contributed to a huge rise of waters drawn by a passing comet, which moved from place to place, drawn upwards and penetrating barriers and then withdrew as the attractive force was withdrawn. I have not attempted to say whether the Venusian episodes drowned and scoured the Scablands; when one thinks of the shrinking times allotted to ice ages, Lake Lakontan, Niagara Falls, and a great many “post-glacial” lakes, one should not be surprised if the Scablands Flood was a much later event and that my guess is too old.

Across the world from the Scablands are Mesopotamia and India, whose peoples claim great floods as part of their historical experiences. These floods - were they originally from deluges or tides? Comparisons with the Scablands may be useful. In all cases, the tradition claims several great floods. Just as the Greeks had at least three floods, the Indians seem to have had their flood of Manu and the flood of the Gariga region, both described in the Puranas.

Both were disastrous, and we need not doubt that, as with the Scablands, other floods occurred from time to time. A similar series seems to have happened in Mesopotamia, where for centuries controversy over the number and extent of floods has raged.

However a hydraulic engineer and scholar, Robert Raikes, has given close attention to the literature of archaeology and to the topography of the reported events; Raikes favors a non-catastrophic approach which, to his annoyance, has been deemed by many others to be a catastrophic approach. So he is in somewhat the same seesawing position as Bretz of Scablands fame.

Let us take up the Indian case first. Here, on the one side, are the true catastrophists, religious or scientific, who say that the Indus civilization was wrecked by the mid-second millennium Venusian events - mostly earth movements and tidal floods. In full opposition, the uniformitarian extremist would be one scholar (Fairservis) who deems the Indus culture to have

declined because of economic extravagance and poor ecological practices, until finally the Aryans of the northern plateau could swoop down upon the remains [14].

The area under discussion is of great size. The influence and interconnections of the Indus and probably pre-Indus culture were most extensive - at least from today's Iran on the north to China on the east, to Arabia and Africa in the west and south to the islands of the South Seas.

Raikes finds in the Indus River Valley evidence of repeated flooding and of attempts to build against the flooding, until finally about 1500 the Valley was abandoned. He finds reprehensible "a general tendency to ascribe the abandonment of prehistoric sites to climate changes" without quantification of the degree of change beyond normal variations; also quite wrong is "the over-simplification which is to ascribe abandonments of sites to regional, or even world-wide periods of tectonic catastrophes." [15]

"Many archaeologists believe that at Mohenjodaro an extreme flood event or a series of them account for the great depth of silt/clay which has buried 11 or 12 meters depth of occupation levels under the present flood plain." Raikes traces the cause of flooding to "a combination of tectonically caused damming of a part of the Indus south of Mohenjodaro coupled with the division of Indus flows between the Nara channel and that of the Indus proper." Behind the tectonism may have been a rising seacoast, together with "extensive mud extrusions (including mud volcanoes) still active..."

"Both the flood deposits and the evidence of rebuilding occur at a great many different levels." Thought Raikes, perhaps the people built, were flooded, rebuilt, and so on, always keeping just above the new water levels. But why did the act not go on indefinitely, so that when the river finally settled itself the people might be still around and flourishing? They either abandoned the culture or they were destroyed. One can imagine that silt (loess, clay) can be laid down by comet trains. Also from far off multiple volcanism and cyclones. Or the tectonism, that Raikes

tries to contain, was far more extensive. The seacoast and mountains were rising rapidly. Dams were tectonically built and burst as at the Scablands. The elapsed time from damming to filling to flood "would have been very short," in Raikes own words.

Raikes suggests similar events at Chanhu-daro. He refers to "other uplift episodes," in the same article. And in another to "a general, if less marked," raising of the Indus flood-plain to the south, at Sehwan. He believes that "there has been no climatic trend toward either wetter or dryer conditions since Harappan times," so again turns to a stress upon tectonism [16].

Many sites, particularly in the Baluchistan region, north of Mohenjodaro, show signs of a destruction by burning. Harappen centers were not flooded. Abandonment was sudden in these and other places after which they stood empty for centuries. Yet "one fails to see any evidence of the hill raiders who supposedly brought Harappa to its knees."

B.B. Lal turned his attention to the phenomenon of a wide scattering of copper pieces and Ocher Color Ware in the present Delhi area of India. They are found over a huge area of 60,000 km^2 [17]. At Bahabrabad, for example, the pottery and copper objects had been strewn in a level six meters below ground, and had been covered by sand, pebbles and earth. The hypothesis was a veritable "deluge." Tectonism is blamed, with or without a deluge, possibly through the mud dam mechanism or river diversion.

The Indian flood area, whether once devastated or several times over, includes the famous fossil beds of the Siwalik hills. These are foothills of the Himalayas, north of Delhi. They are crammed with hordes of specimens of a great many species. Many of them appear for the first time in these beds and are extinguished in them, so far as paleontologists know.

In the *Geology of India*, D.N. Wadia writes [18], "This sudden bursting on the stage of such a varied population of herbivores, carnivores, rodents and of primates, the highest order of

mammals, must be regarded as a most remarkable instance of rapid evolution of species." Tortoises of over six meters, two dozen species of elephant, pigs, oxen, and apes are scattered about. There are signs of earthquake, folding of the land, perhaps folding and deep burial of animals.

Similar deposits are found 1300 miles away in Burma, cut away to view in the valley of the Irawaddy River. Two great zones of fossils are separated by 4000 feet of sand. Petrified trees pervade the fossils in the thousands. Writes Velikovsky: "Animals met death and extinction by the elementary forces of nature, which also uprooted forests and from Kashmir to Indo-China threw sand over species and genera in mountains thousands of feet high."[19]

Other instances may be added to extend the area involved in disaster much further, probably to the limits of proto-Indian civilization, and indeed throughout the world. The dates are hinging upon 1500 B.C. in many instances. Therefore, it would seem reasonable to place Raikes' work on the revolutionary shelf; try as he may to limit it, his evidence and own conjectures press in the direction of general catastrophe.

What emerges from Raikes' complex analysis is that in the Old and Middle Bronze Age - and particularly at the age-break between Middle and Late Bronze - there is proof of various terrific floods to which all known settlements succumbed. Raikes inclines, after considering six possibilities, towards a land subsidance on a large scale complementing a land rise to the east.

He does not mention the backup of river waters that would occur from Thira-type tsunamis driving north through the Persian Gulf, although the evidence allows it. Such tides could come from a Typhonic impact explosion, a poseidonian earthquake, or a large-body encounter producing an axial tilt or interrupted rotation of the globe. (One notes the level of ashes and char beneath the flood level of Shurrupak. It does not appear to have been an incendiary blaze.)

He does not consider canopy water-drops, but insists upon retrojecting uniformly precipitation rates from modern times. Although the evidence of the period which he is examining is disordered and prejudiced already, yet the evidence that he must confront shows a flooding that is utterly devastating, and unexampled in recent times. But still, he draws back from catastrophic conclusions, loath to abandon the dogma that catastrophe could not have happened, and certainly not an exoterrestrial one.

Since large upthrusts of the Himalayan mountains are now being dated to post-glacial times [20], since even mountains much higher than the Siwalik foothills contain “old” marine fossil beds, since the Siwalik-type beds are so young even when conventionally dated, since evidences occur of huge waves of translation moving from south to north in India and leaving great moraines (including the Siwalik-type hills), since neolithic stones are found in the loess of the Himalayas and since great human cultures were flooded over and probably deluged as well, one is entitled to the quantavolutionary hypothesis: a series of abrupt, intensive, wide-scale changes overwhelmed the Indian subcontinent.

Frantic proliferation and extinction of species occurred, while India broke from Africa and crashed into Asia, while tides moved over the land, ramming, ripping, rising, and drowning, while the land raised up in a great arc into Asia, while hominids, then humans, entered and built cultures that were then destroyed and recreated. It may be that from this part of the world will come the easiest and fullest proofs of revolutionary primevalogy, of a succession of geological and cultural ages coinciding with the successive disruptions of what had been *Solaria Binaria*.

Dwarfing the Scablands and Indus barrier floods was the Gobi Sea flood, which may have been connected with the complex Noachian Flood. Thomas Huxley wrote the first scenario of the event. Bellamy refurbished the story in this century [21]. The Gobi desert, which the Chinese call “the Sea of Sand,” was once a great body of water. Numerous settlements lined its shores. Then suddenly it was emptied in a huge barrier-type flood. Its

cultures disappeared along with a great many other settlements along the line of the flood. The western barrier of the Gobi Sea broke between Tian Shan and Altai mountains, and rushed through where today remain the waters of Telli-nor, Ebi-nor, Ala-kul, Sasyk-kul and Lake Balkhash, much of it now saline and disappearing. The great flood spread out into a "Sea of Turkestan" and then drained down into the depression of the Aral and Caspian Seas.

It then poured out between the Ural mountains and the mountains of northern Iran, descended west through the Manych Depression into the Valley of the Don, the Sea of Azov, and the Black Sea. The areas of today's Romania and Bulgaria were temporarily part of a greater Black Sea. Soon it overflowed at the straits of the Bosphorus and pushed through the Dardanelles into the Mediterranean region. The Aegean and Eastern Mediterranean lands were flooded.

Next the Adriatic River, possibly the legendary River of Eridanus, and nowadays the truncated Po River, was turned into an Adriatic Sea. The Ionian Sea overflowed and the land bridges between Italy and Africa were covered with water. The shelves of the region of Tyrrhenia were submerged, the survivors driven to the high places of the Italian peninsula and islands, and contact was ultimately made with Gibraltar.

The Sahara basin may have been filled with water upon this occasion, to have become the ancient sea of Triton. It was this Tritonian Sea that figured in the mythical birth of Goddess Pallas Athena (the planet Venus) and I think that it was around 3500 B.P., therefore, when the Tritonian Sea broke out and threw itself into the Atlantic Basin. Ancient Saharan ruins and the art of the Ahaggar mountain caves amply testify to the ancient cultures there between 4000-1500 B.C.

The elapsed time for the 4000-mile journey from China may have been months or years. The drainage of the several temporary basins established en route from East Asia to the Atlantic Ocean occupied centuries.

Barrier-burst floods and tides must have been numerous, we conclude, because of the mountain-building, severe faulting, deluging, and other movements and outbursts that were occurring. Both actions would have been quite unexpected and erratic. They would have devastated the biosphere. Evidence of both effects comes sometimes from jumbled deposits of animal bones and wood. These locations consist of different species, that were killed suddenly (not by men), by the hundreds or thousands, and were transported to the location, by tides of water but in some cases also by hurricane and cyclonic action. In the Yukon Valley of Alaska, bulldozers scraping for gold have removed bones by the ton and drills have picked up bones hundreds of meters below ground. Such evidence exists around the world, and much more will be said on the subject in Chapter 26.

The number of fossil deposits will probably be extended to many hundreds of cases in the future. Still, most deposits would have been destroyed at the moment of catastrophe. Fires would have burned others. Impenetrable ice covers many bone piles. A succession of revolutionary actions would have blown to bits, dissipated, ground up, converted to fuels, washed into the sea, and deeply buried many others. The scenes at bone deposits are impressive: they are worldwide; they are found at low and high altitudes. Strange bedmates are discovered: ostriches and foxes; mammoths and lions; peacocks and horses; elephants and sharks.

Anthropologist Frank Hibben surveyed the bone mucks of Alaska and heard of similar deposits in nearby Siberia. The Arctic Ocean is in fact rimmed by the bones of many millions of animals. Hibben weighed the possibilities: hunters' overkill, ice flows, natural death, volcanic ash burials (ashes are abundant in the muck), volcanic gases? The mystery seemed to him unsolvable. He wrote of it in 1947; he revised his work in 1967 [22]. There is no indication that he had heard meanwhile about Velikovsky, Hapgood, Patten, or Cook who were offering solutions to the mystery in terms of Cuvier's century-old expression - "revolutions of the globe."

Derek Ager, with a mind and eye for the catastrophic occurrence, remarks that "tsunami,' or 'tidal waves' as they were for long misnamed, have an immense effect on shorelines, both in erosion and in the shifting of great quantities of sediment."[23] But what parcel of land in the world has never experienced a tsunami?

"It is generally accepted that tsunamis are usually triggered by earthquakes or violent volcanic explosions. It is also possible that they can be produced by the slumping of large masses of sediment in water..." Or by meteoroid splashes, we might add, or hurricanes and cyclones. "Though infrequent, there are certainly enough of them for geological purposes. From historical records it can be deduced that there have been more than two hundred notable tsunamis in the last two thousand years; this would allow us more than 100,000 in a million years."

Then move the continents a little here and there, raise and lower shorelines, change climates a few times, and add ten, fifty, a hundred million years. We have millions of great tsunamis to work with. Obviously the whole surface of the Earth will have been worked over a number of times by ordinary, uniformitarian waves. Thereupon add all the other high-energy forms: deluges, exoterrestrial impacts, volcanism, and so on: it is a wonder that the crust of the Earth is not a homogenous finely ground mixture of all past life and surfacing rocks. Now add great catastrophes elaborated in this book and the homogenous mixture should be guaranteed.

That is, stratigraphy is hardly understandable by following uniformitarian principles, if we acknowledge what scientists have all along been discovering, but more recently have become acutely aware of. Even if, as Ager writes, "the changes do not take place gradually but as sporadic bursts, as a series of minor catastrophes," the strata of the Earth do not make sense.

Those who believe in major catastrophes interrupting huge serene tracts of time may be wrong, because they must add to the effects of the great disasters the effects of a multitude of

minor ones called for during great stretches of “peaceful” time. The result would be a homogenized crust. The effects of the forces that have operated are such as to suggest for the Earth a short and recently catastrophic history. The Earth’s surface still retains its forms and fossils because its tortures have been clustered and have occurred following a short total Earth history.

Notes (Chapter Fourteen: Floods and Tides)

1. *Pensée* (1974), 71.

2. 215 *Science* (Jan. 22), 4531.

3. *Op. cit.*, 65, 61.

4. R.E. Kofahl, "Could the Flood Waters Have Come from a Canopy or Extraterrestrial Source?" 13 *Creation Res. Soc. Q.* (March, 1977), 202-6.

5. Velikovsky, *Earth in Upheaval*, 7-9, 38-9.

5A. C.L. Ellenberger, ltr., VIII *Kronos* (1982), 94-5.

6. Velikovsky, *Worlds in Collision*, 70-6.

7. Bellamy, *M.M.M., op. cit.*, 257.

8. *Op. cit.*

9. Book 96 (lost) quoted by Josephus, *Antiquities of the Jews*, by Whiston, and by Patten, *op. cit.*, 61.

10. R.L. Raikes, Unpubl. paper, "Ecological Role of Extreme but Predictable Climate Events on Prehistory with some examples, for comparison, of Unpredictable Events and Their Consequences;" "The Physical Evidence of Noah′s Flood," 28 I *Rag* part I, 52-63.

12. *The Channelled Scablands of Eastern Washington* (U.S. Govt. Printing Office, Wash. D.C., 1974).

13. J.H. Bretz, "The Lake Missoula Floods and the Channelled Scabland," 77 *J. Geol.*. (1969), 503-43. The original work was published in 1923.

14. See Gil. Possehl, "The Mohenjo-daro Flood," 69 Am. Anthrop. I (1967), 32-40, opposing views such as Raikes, 66 *Amer. Anthrop*. (1964), 284-9 and see below, fn 16.

15. *Op. cit.*, fn 10 (unpubl. paper).

16. "The Mohenjo-Daro Floods," 39 *Antiquity* (1965), 196-203, 203.

17. "A Deluge? Which Deluge?" 70 *Amer. Anthrop*. 5(1968), 857-63.

18. Velikovsky, *Earth in Upheaval*, 79.

19. *Ibid*., 21.

20. *Ibid*., 74-8.

21. Bellamy, *M.M.M*., *op. cit.*, 308-16.

22. *The Lost Americans* (NY: Crowell, 1968).

23. *Op. cit.*, 45.

CHAPTER FIFTEEN

ICE FIELDS OF THE EARTH

The earliest humans had to contend with growing ice caps and glacial fields, or at least some force that created their effects. Did the Great Ice Ages really happen? For a century the confident answer of science has been "yes." The idea is fetching; so much ice surrounds the north and south poles now that it seems reasonable that once there was even more, and probably once there was less, or none at all. At peak time, an estimated 30% of the Earth's land surface was covered by ice, three times the area occupied by ice today; this was as late as 11,000 years ago, or so it is believed.

When Emiliani discovered evidence that the Gulf of Mexico was for a time freshwater, he posited a rapid end to the Ice Ages and a flooding which may have drowned the mythical Atlantis culture, since the time (ca. 11,600 B.P.) conforms to Plato's date of the disaster. The surmise engendered sharp criticisms, allowing even historians to get into the act [1].

It seems that everyone believes that the ice cameth and each has an individual scenario, which is not complete unless it contains quotas of confusion and contradictions. If one wishes to spend a lifetime solving a puzzle while wrapped in an enigma, a career in paleoglaciology is recommended. One can scarcely blame an amateur from enjoying and even tolerating Donnelly's old idea that the ice ages never existed. Next best, one can call down the ice (or most of it) from outer space, as we do here. And so does Patten. Third best would be the Milankovich theory which depends upon cosmic perturbations in Earth-Sun transactions, but lets Earth manufacture the ice. John and K.P. Imbrie have updated and defended the theory, which, highly complicated in itself, is also confounded by the uncertainties of paleoclimatic studies [2].

Hard evidence that a set of ice ages occurred falls into several categories, as follows:

Certain northern lands near the present ice are rising, as if a large load had been lifted from them. They seem to form arcs with Baffin Bay as an old geographical pole and center of an ice cap. (The western rising arc is separated from the eastern arc, as if they had been pulled apart.) An issue occurs if one asserts that the rising would ensue from a shifting of the Earth's axis and North Pole, regardless of the presence of ice.

Far to the South of the present Arctic ice, and far to the north of the present Antarctic ice, the rocks and soils show peculiar qualities. Huge areas of rock are scoured and scratched as if some gigantic force has scraped over them, now advancing and then again retreating. Immense fields of stones (or drift) have been pushed and shoved into place, as if by moving ice. An issue occurs if one asserts that tides and exoterrestrial stone fall-outs had produced the fields.

Glaciers, formed on mountaintops around the world, take their origin usually in a U-shaped nook of a mountain. Their ice forms and slowly slides downwards through valleys, carrying drift and ending in melting waters. They abrade and pluck the drift as they go along. They are broad, and they terminate in broad curls, from which streams form and run off. Many "extinct" glacier forms exist, indicating that once there may have been much more cold and ice. That is, unless these "fossil" glaciers were pointed towards the sun in a global Earth tilt, and melted, or once were a part of a large crustal lateral avalanche that thrust whole areas away from the polar regions. Or unless exoterrestrial ice were dumped upon higher places and melted away from lower places.

Heat is required in large amounts to raise water for the snow falls over glaciers as well as polar regions. Some say the heat required would be too great for the biosphere to tolerate unless the snow gathered by very slow increments; there is evidence that "glacial ages" came and went rapidly. Further flora and fauna of the glacial age seas are arctic types; then where were the sufficient warm seas whose waters would evaporate and

stream polewards as clouds? If cold water and snow fell from high cloud canopies, it could persist at higher altitudes and latitudes and accumulate and flow.

In many settings, such as Cape Cod, Massachusetts, large plains end on the downslope with a number of ponds and layer upon layer of sands, gravel, and clay. In it are scratched stones and finely ground glacial flour. It seems that an ice sheet had once moved downwards on all sides from a northerly direction, acting like a glacier on a grand scale.

Humps, low ridges, occasional erratics (rocks foreign to where they are found), and kettle pools (some dry) are scattered along the hypothetical front of the glacial sheet and might well have been produced by the forward march and retreat of the flood of ice.

Futhermore, an ice sheet that moved down into North America all across the continent blocked all northward flowing rivers; it created many lakes, some extinct like Lake Agassiz, others extant like the Great Lakes. The ice sheet forced a southward fanning out of many rivers, away from the ice front, to carry the melt waters. Once again, much, if not all, of the work assigned to ice could have been performed by winds, tides, exoterrestrial fall-outs of pebbles, dust and ice, extreme precipitation, and axial tilts of the globe.

I have not mentioned climatic changes: a very cold climate, as evidenced by the kinds of fossil flora and fauna discovered in old beds, indicates that a great deal of ice might have been nearby. Nor have I ventured to say when the ice ages happened and how many of them there might have been.

Full justice cannot be done here to the case for the ice ages. The conventional literature does so. But because some of the ice age reasoning falls victim readily to catastrophic claims, it may be time to advance the cause of quantavolution. Here three different positions are held: one is that the Ice Ages did not occur. The second says that they did exist but were sudden events,

beginning and ending in disaster. A third admits their slow development but claims that they ended in catastrophe.

Ignatius Donnelly is the best older critic of the very idea of ice ages. (Douglas Cox has recently presented strong persistent objections to the reality of the ice ages.)[3] In *Ragnarok: The Age of Fire and Gravel*, Donnelly asserts first of all that there is no evidence of the ice ages in the cold Siberian wastelands and parts of Alaska that stretch up to the present Arctic ice. This is true enough. But, most catastrophists believe that a sudden tilt of the Earth occurred in the last ice age and hence these areas had *not* been so cold before then.

However, Donnelly proceeds. He argues that the debris of the called ice age - the pebble fields, erratic stones, and vast clay and till deposits - are not caused by the movements of ice at all. Rather they are the stuff of which the long tail of a comet is in part composed and it was a comet that devastated the earth in the early memory of mankind.

Little was known of comets and comet tails in his days. Until the past few years, scientists generally doubted that such substantial material was being transported around the heavens. Indeed, Velikovsky came in for much ridicule when he wrote in the nineteen fifties, in much greater detail and with stronger evidence, of the substantiality of comets. (He did not adopt Donnelly's anti-theory of the ice ages, however.)

Today the immense material potentiality of comets is scarcely doubted. Ice and gases, and otherwise terrestrial minerals found in meteoroids, are now accorded comets. Yet Donnelly's theory has not been seriously criticized; we forget that geology once got along without the ice ages, and that the inventor of the ice age theory, Louis Agassiz, was a catastrophist. The immense drift and till deposits could have come from exoterrestrial sources.

Although the analogies between glacial behavior and ice sheet behavior are numerous and strong, it is possible that the ice did not exist and that the dead glacial moraines are merely evidences of a cold climatic episode or episodes, not direct proof that they

were related to a larger ice age sheet that blanketed millions of square miles to a depth of a kilometer and more.

Moreover, since the poles are flattened a bit from the spin of the Earth, would not the old polar areas of a perhaps faster spinning Earth be still relaxing into a spherical form? This would give a false impression of heavy ice caps having been removed. Further the weight of the Wisconsin ice cap would have been 3.10^{23} grams and 10^{33} ergs of heat would have been required to melt it. The melting would have taken at least 30,000 years, yet there is near to a consensus even among uniformitarian geologists that the ice cap disappeared rapidly, catastrophically. And the arctic land rising, mentioned earlier, appears to have begun only 10,000 years ago.

Why I do not accept Donnelly's theory despite its brilliance has to do with the correlative evidence going far off the straightforward discussion of ice ages. Some of the reasoning emerges when the theory of Melvin Cook is explained. Cook writing in the nineteen sixties, accepts the evidence for huge ice caps at both poles. Further he seeks no exoterrestrial power. His theory is nonetheless the most perfect of catastrophic models yet advanced. Ignoring the beginnings of the ice ages, but pursuing their end, his story commences with the great ice caps.

These, he says, by their enormous and accumulating weight, bore down upon the crust so heavily as finally to cause a rupture of the rim of the crater. The ice caps avalanched. They scraped the earth as they moved. They acted as gigantic bulldozers that caused mountain ranges to be thrust forward and buckled and folded upwards. Giant floods from the rapid melts swept the earth.

The globe fractured and caused the continents to spread apart rapidly. The Atlantic Ocean and the Arctic Ocean were opened up. In the end the surface of the earth was greatly changed. A great many land and life forms, together with cultural centers, were destroyed in the process. As the huge ice blocks descended, they turned over the biosphere and folded it to create coal and oil deposits in a geological "instant." Waters that were

buried deeply are still rising under pressure. Yet the end came quickly, occupying a few years, not millions of years.

The legends are definite but seemingly too rich. The northern peoples talk of terrible ice falls and winters, far beyond historical experience, and perhaps long before history as we gauge it. In Old Norse, the language of the Edda epics, snow is called *eitr-ornir*, "white pus of the dragon." Martin Sieff writes: "Saturn is the solar system's 'treasury of snow'... The Greeks associated the planet Saturn (Kronos) with snow and hail, which were thought to be the planet-god's weapons; Nonnos told of the "shining victory of Zeus at war and the hailstorm-snowstorm conflict of Kronos..."[4]

Could the ice have fallen from the skies? Examination of glaciers shows that there is a gradation of consistency, from fresh fallen snow to dense ice, the dense ice being older. No question but that, if snows fell heavily they would promptly turn into ice. Further, the greater the falls, the swifter the glaciers would move and the longer and greater their moraines.

Moreover, why should the ice ages occur in extremely distant as well as recent ages; how do they come and go in stages, and concentrate most recently in a million years of the recent Pleistocene epoch (which is the typical allotted time)? The Sun is invoked. Whereas, on the one hand, the Sun is credited with great stability, on the other hand it is presumed to have stoked its furnaces from time to time, causing the ice to form. But back again. If the Sun cools, the equator cools; if the equator cools, waters evaporate more slowly; there is less to be carried north and to drop in the form of snow.

Continental drift has been argued as the cause of ice ages: "The ultimate cause of glaciation is thus seen to be movement of continents into appropriate latitudes... And much of the fossil evidence upon which the time-honored concept of Tertiary 'cooling' has been founded could be nothing more than a reflection of drifting of what are now the northern-hemisphere land masses and ocean floors toward the pole and hence into cooler climes."[5]

Another theory holds that a huge number of tropical volcanos erupted at once, which threw vast amounts of water into the air, which, because the upper atmosphere was darkened, caused less sunlight to bombard and warm the Earth, which finally caused the vapors to fall at the poles in the form of snow and ice [6]. Also, Hibbin attests to many burials of pleistocene animals in ashes that fell *after* the ice ages [7]. It should be borne in mind, however, that extensive simultaneous volcanism, as well as the ice ages, points to exoterrestrial forces impinging on Earth.

The solution must be catastrophic, it appears, but must take a special form, which elsewhere we have called *Solaria Binaria*. If it is consolation to the reader, explanations of "the ice ages" have generally been bizarre and fantastic. Nothing less may be expected of our theory here, unless, of course, the reader is conversant ahead of time with our work. It is not unreasonable, we argue, to postulate a primordial age, as recent as 14,000 years ago, when no ice caps existed. The Earth would have been generally comfortable. It would be also enveloped in the gaseous atmosphere of the binary magnetic tube. This Uranian heaven blocked direct sunlight, but afforded an equable climate to the Earth.

The binary tube atmosphere would itself have been maintained by the same electrical and inertial forces that kept the Earth in rotation and orbit. Then the solar system as a whole was disturbed by the failure of one of its parts. The part that failed was the counter-solar or Super-Uranian node of the binary solar system. When the electrical current between the Sun and Super-Uranus diminished, the magnetic field around the current diminished. All the bodies that circled around the current ceased orbiting around the axis between Super-Uranus and the Sun and descended radially to the plane of the ecliptic. They began to find new individual orbital paths around the Sun. They moved out towards larger orbits.

The atmosphere, a remnant, specially attached to the Earth, of the old plenum atmosphere, drew more closely about the Earth. "Heaven came down to embrace Earth," to paraphrase the Greek myth. The clouds were pierced by material erupted from the

disintegrating Super-Uranus and blown down the magnetic tube between the binary partners. Some of it precipitated upon the surface of the Earth. The Earth could not melt much of the ice, most of which fell at the electrically least-guarded poles. The now direct sunlight helped the friction of the fall to vaporize and precipitate some of the ice as rain. Flooding began at the edges of the forming ice caps. The time postulated for these events began about 14,000 years ago.

Within a few centuries the threat to life on Earth became extreme. Great ice blocks covered the extremities and local regions of the globe and threatened ultimately to make contact, erasing practically all life.. At the same time flooding spread throughout the world.

If one-third of the globe was covered by ice at the time of maximum advance, according to conventional theory, ice was piled three miles deep at the poles; there was twelve million cubic miles of ice. For a hundred years catastrophists and disbelievers in the ice ages have pointed out that an incredible power (heat and winds) was required to evaporate equatorial water, lift it, and transport it to the polar areas. The world would have burned up at the equator while freezing deeply at the poles. The idea supplies its own contradiction; yet it is the accepted theory, that molecule by molecule the water evaporated, drop by drop it condensed in vapor clouds, ton by ton it fell - all off and on for a million years and more. Then the mechanism was turned off, rather suddenly; much of the ice melted and the oceans rose by several hundred feet several thousand years ago.

Direct exoterrestrial deposition of snow to form the caps follows from the heat requirements to evaporate, lift, transport and condense as snow the contents of the ice caps. The surface heat requirements might have stressed the biosphere life tolerances. Further, in order to raise the required mass of water, the clouds transporting water from tropical to arctic regions would become so dense that heat from the Sun of today would cease to penetrate to the surface with sufficient energy to continue the lifting task. The latent heat of aqueous vapor at the tropics is 1000°F. A pound of water vaporized at the Equator has

absorbed 1000 times the quantity of heat that would raise a pound of water in temperature by one degree Fahrenheit.

An exoterrestrial catastrophic solution is called for, from beginning to end. The time to erupt the Moon arrived with a passing great fragment of Super-Uranus. The Earth's crust burst. Lava had to flow in endless streams. Great volumes of sky-borne ice must have fallen and participated in the bursting mechanics. Cook has figured the needed forces, but we should add an initial impetus from the eruption and blow-off of the Pacific crust. A fracture shot to the old north pole and down the Atlantic, thence around the world. The ice avalanched. It fed the boiling sea bottoms to help them settle and expand. Much was then evaporated and precipitated again by the conventional method, but under catastrophic conditions. Finally the new world surface shaped up and stabilized. The precipitous curve of disaster dropped exponentially to the slight level of activity where it could be mistaken for a linear uniformitarianism.

It was thus that the worst and best accident happened. The earth cleaved, lost most of its continental crust, and the ocean basins began to form. This greatest of all catastrophes removed the ice and permitted life to survive; it became the greatest of all blessings. A date of 11,500 B.P. may be ascribed to the event.

The ice caps, as Cook has so well calculated the scene, collapsed and avalanched upon all sides, moving into the great chasms of boiling lava directly or through floods that rushed over the land and plunged down into the new oceanic chasms, carrying debris to form slopes. Hundreds of deep canyons were grooved into the land and slopes around the world, where they remain today, "fossils" from the time of ice age collapse and of the filling of the ocean basins. The ice caves were formed - solid ice from the ice ages sandwiched in between layers of once boiling lava flows, still intact, though hollowed out somewhat, now refrigerating food and supplying age-old spring waters [8].

Geologists have counted and recounted the number of ice ages and of interstadials, the periods between stages. John Gribben, in a recent work on *Forecasts, Famines and Freezes,* counts ten

ice ages, of which one lasted only for a century or less. Paying no attention in their "petrofabric analyses" to our impression that fossil "glacial and stream deposits" could just as well come from comet-tail or meteoritic splashing, geologists saw breaks of climate in the interruptions of moraines, where now a swelling and then a shrinking may appear. In the soil found squeezed between strata of glacial debris, there is also the suggestion of successive ice ages. Even the Arctic Ocean is said to have been free of ice in Pliocene and Pleistocene times, on the basis of calcareous nanno-fossil deposits below the present ice [9]. And another study, of the Labrador shelf area, based on fossilized sediment cores, argues for an ice-free sea extending back 21,000 years from the present [10].

Over a mile deep in the Greenland ice field around Dye 3 radar station, Greenland, ice cores are being drilled, extracted and analyzed [11]. From its rock base upwards, the ice is expected to afford 100,000 years of Earth history and the beginning of at least the local ice age (*cf* other estimates of 1 to 3 million years and our own of 14,000 years). Oxygen ratios in sampled slices of the drilled ice are calculated to determine climatic trends and time scales. The units are "annual" ice varves. As depths increase, the distinctions blur. Dust ratios are used as indicators of heavy volcanic events in the world.

The stratification challenges any quantavolutionary attempt, as here, to explain the ice accumulation as a brief episode. Obviously the ice under examination did not fall as blocks, at least not most of it, or, if it did so fall in the region, the blocks splattered and connected up or flowed afterwards under weight, internal pressure and heat, picking up atmospheric exposure and dust.

Heavy snowfalls, whirled about by heavy winds, would, however, establish the great depth in short order, in dozens or several thousands of years, with present snowfall adding steadily to the basic conserved precipitation. It is noted that at an estimated 10,000 years, the "ice age" deposits of tiny crystals end and the large ice crystals of the present era begin. For those who are disturbed by only 100,000 years for the Greenland ice

cap, because of ice age theories of a million years, there is the consolation that the ice beneath relentlessly squeezes out to form icebergs that search out more southern climes.

Interpretations that seek a long drawn-out succession of uniform deposits may be an illusion of sorts. The evidence rather may indicate the erratic character of the ice falls, both in intensity and distribution over the Earth's surface. It may also indicate a wobbling of the axis of the Earth as its electrical fields changed and its motions within the solar system altered. Whether the globe changed geographical axis once, with such gradualness that it scarcely wobbled, or whether it changed once quickly and wobbled several times before settling down in its new position, or whether the geographical axis changed several times in several hundreds or thousands of years, an illusion of several ice ages and subdivisions thereof might be fostered.

Faced with the problem of explaining the chalk cliffs of Etretat (France) across from Dover, which are laminated, French geologists have tried to establish a correlation between the laminations and the oscillations of the axis of the Earth. The oscillations occur some 23,000 to 41,000 years apart, the sedimentary layers are individually accorded 20,000 to 40,000 years. *Voila*, as the Earth rocks, the sea level and the biological activity of the sea rise and fall, as evidenced in the layers. "But how explain that such feeble orbital variations should be capable of engendering such important changes? The problem," wrote a group of French editors led by Serge Berg, "is far from being clarified." Surely so; however, not only chalk sediments but also ice layers could be deposited in a short time if the wobblings of the axis were greater and more frequent, as is demanded in quantavolutionary theory. Strata of all kinds can be laid down quickly, including strata that reflect and measure falling snow and ice.

Furthermore, as we have pointed out, unfossilized till deposits, possibly themselves exoterrestrial, are used to denote recent and ancient ice ages. "....The Huronian super-group in the south of the Canadian Shield presents this evidence most unambiguously. Three tillite levels are reported from that region ....

corresponding to three glacial periods separated by epochs of warm or even hot climatic regimes which lasted some tens of millions of years."[12]

So, too, around the world, on every continent (whence geologists have deduced shifting sidereal poles); thus "two principal tillites are dated isotopically at 870-820 MY and at about 680 MY." These statements, by a pronounced quantavolutionist, L.J. Salop, evidence the overall grip of conventional scientific theory on the scientific mind, for it would be only consistent of Salop to query the origin of the tillites and then the conventional view of many ancient and modern ice ages. The correlation of tillites with ice ages is deceptive of time and causation. Why not repeated switches of a comet tail?

A late report, in the newsletter of *Science and Technology* (54: 2, 1982), describes an area of the Huqf Desert of Oman where tillites on striated bedrock - taken as glaciation - seem to be associated with oil reservoirs, and the complex is pronounced Early Permian (-158 my), when coal is supposed to have formed as well from tropical vegetation. We see no contradiction in ice striking hot tropics, provided the ice comes from the skies, and provided that along with the ice one brings down stony till to gust along, scratching the rocks. Here, however, one may dispense with the glaciation, which is predicated upon the till; ice may or may not have fallen. One may also tie in the oil deposits with the exoterrestrial source of the till, a comet. One may, moreover, hold in abeyance the dates assigned to the events; the time may have been only thousands of years ago.

The ice ages, then, may be a product not of a million or more years, but of several thousand years, from 14,000 B.P. to about 9000 B.P. At this latter time, there began a settled and milder age, with a subdued binary, an equable climate under still cloudy skies and two suns, the Sun and Saturn. This would be the renowned Golden Age of Saturn, of which so many legends speak, an age following the revolt that dethroned the god Uranus, the age before another great catastrophe, when the gods warred again and Jupiter removed his father, Saturn. There occurred huge inundations, brighter skies, and the present ice

caps developed, shaped around the present geographical poles. The Antarctic cap is largely contained on a land mass with an ice flow over its boundaries and into the sea. The Arctic Sea was almost entirely a swamped continent, despite the rifts through it, and received its ice directly upon this land in the transition from Saturn to Jupiter. The extreme conditions of Earth fracture and ice avalanching encountered in the critical period beginning at 11,500 B.P. would have destroyed all ice. Evidences of mild climate and an abundant biosphere are present in both polar areas, some of this presumably from the Saturnian interlude, most from pre-lunar times.

Thus far, no human vestiges have been discovered where once the Uranian ice cap lay. The turbulent moving ice would have erased all such evidence down to a considerable depth of rock, even in the absence of land thrusts, flood, wind and fire. Certainly humans retreated to warmer climates in the face of the icy tempests. Still, primates, proto-humans and *homo sapiens* lived among the animals whose remains have been found under ice and permafrost. Whether a long-term date (like two million years) or a short-term date such as I suggest here is adopted, these species existed before the ice and they may one day provide new fossil discoveries.

There is an old map, called the Piri Reis map, that shows perhaps the coastline of the Antarctic continent as it would have appeared in the interim between the settling down from the great ice cap collapse and crustal shifts of Lunaria and the new ice caps of Jovea that remain today. That would be during the "Golden Age" of Saturn. The Piri Reis map is the subject of a book by Charles Hapgood, who also provided a singular theory of ice cap avalanche with a mechanism different than Cook's. (Einstein thought Hapgood's idea that the ice cap would have shoved the continental crust on a wedge principle to be mechanically acceptable [13].)

I incline to the view that the map, which was drawn up from various old sources a few years after Columbus anchored off Santo Domingo, plots the shores of Antarctica well because, during the Saturnian period, a mild cloudy climate prevailed, the

southern oceans and shores were free of ice, and navigation was well developed. Probably human settlements then existed in Antarctica as they did in many places in the far north that are now encased in ice or permafrosted.

We speculate that the "ice ages" did happen, first in Uranian, then in Jovian times. Much of the Earth was frozen. The ice was mainly exoterrestrial. Vsekhsviatskii writes of Saturn that "observation of its rings over the past 300 years have shown that during this time the middle line has moved 0.17 of its original distance closer to the surface of the planet. Therefore, one may suppose that in a matter of some 1800 years a large part of the material in Ring B will fall onto the surface."[14] We are here back to visualizing Vail's canopy drops, from primeval sources, or as a way-station. But a Saturnian explosion, not a falling of Saturn's rings, deluged the Earth with ice. Saturn's rings today may be fall-back debris of the same incident, still falling back.

The ice came down with falls of gravel and tillites. The great Ice Age extended from about 14,000 to 11,500 B.P. During this time the Earth was wobbling, the atmosphere turbulent and the deposits of ice were eccentric. Life would have been exterminated by the spread of ice and flooding if the greatest of all catastrophes had not cleaved the Earth and formed the ocean basins. Then ice and waters avalanched or fell into the basins as these grew in size, filling them ultimately over their brims.

The present ice age began in proto-historical times. Saturn's explosion drenched Earth with water and ice and the terrestrial axis tilted as a result of the explosive force. The age of "Jupiter of the Bright Skies," as the Greeks significantly denominated him, began; the skies were clearer and the climate colder because of the tilt; the high canopy was almost quite gone leaving merely the present upper atmospheric levels and magnetosphere of Earth. Ice began to gather around the northern and southern poles, drifting over the cultures of the age of Saturn [15].

Notes (Chapter Fifteen: Ice Fields of the Earth)

1. 189 *Science* (1975) 1083; 193 *Science* (1976), 1268- 71.

2. Ice Ages (Short Hills, N. J.: Enslow, 1979); *cf*. Ian Cornwall, *Ice Ages* (NY: Humanities Press, 1970); Björn Kurtén, *The Ice Age* (NY: Putnam, 1972); Clifford Embleton, *Glacial Geomorphology* (NY: Wiley, 1975); Salop, *op. cit.* introduces cosmic disturbance as causes of glaciation, too, as does Pattern, *op. cit.*

3. 13 *Creation Res. Soc. Q.* (June 1976), 25-34.

4. *S.I.S. Workshop* (Mar, 1978), 4.

5. C.B. Beaty, "The Causes of Glaciation," 66 *Amer.Sci*. 4(July 1978), 452-9, 458.

6. J.R. Bray, "Volcanism and Glaciation During the Past 40 Millennia," 252 *Nature* (20 Dec. 1974), 679-80.

7. *The Lost Americans*, 163.

8. Patten, *op. cit.*, 120-4.

9. T.R. Worsley and Yvonne Herman, 210 *Science* (17 Oct. 1980), 323-5.

10. G. Vilks and Peta J. Mudie, 202 *Science* (15 Dec. 1978), 1181-3.

11. See Walter Sullivan, *N Y Times*, Aug. 9, 1981, 1, 24.

12. Salop, *op. cit.*, 23 ff.

13. *The Path of The Pole* (Philadelphia: Chilton, 1970).

14. "Physical Characteristics of Comets," (Moscow, 1958), NASA-TTF-80.

15. Flavio Barbiero, *Una Civiltá sotto Ghiaccio* (Milan: Nord, 1974).

16. 178 *Science* (13 oct. 1972), 190-1.

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