

V. Global catastrophes in the “Era of Sacrifice” between Stone Age and Iron Age.

“We don’t know where myth comes from. But one thing is certain: in the second millennium before Christ, a wave of astral myths has rolled over the world.”¹³¹

For ancient historians, the catastrophic character of the transition from Stone Age to Bronze Age was still entirely without doubt: “According to the report of Varro there are in fact three eras of history, the first reaches from the beginning of humanity to the first cataclysm, and as nothing is known about this time, it is called the “time of uncertainty,” [modern: the Stone Age]. The second era goes from the first cataclysm to the first Olympiad [meaning also the last cataclysm], and because from these times much legendary stuff is reported, we call it “mythical” [modern: the Bronze Age]. The third era dates from the first Olympiad until our own time, of this we speak as the “historic” time [modern: Iron Age, i.e. western civilization], as the events of this time are known from true historical tradition.”¹³²

Plato tells “about a mighty inundation, the third before the devastation of Deucalion,”¹³³ attributes therefore a total of four great catastrophes to the Bronze Age. Famously, the Central-American Indians also remember “four ages of the world,” i.e. four “suns” before the present sun (modern: Iron Age).¹³⁴ Archaeology has been able to prove Plato’s and Varro’s assertions true in an astounding way. It is said about the Mediterranean area and the Near East: “archaeological investigations are bringing to light catastrophes, but are unable to tell us what brought them on, or who was involved in them.”¹³⁵

Again, one might have been able to find relevant mentions in Boulanger, but also, of course, in authors from the Middle-Ages¹³⁶ and from the beginnings of Modern Times.¹³⁷ Yet the great Frenchman already saw himself compelled to protect the

¹³¹ E. Stucken, *Astralmythen: Religionsgeschichtliche Untersuchungen* (1896 bis 1907), Leipzig: Eduard Pfeiffer, 1907, p. 432.

¹³² Censorinus, *De die natali liber*, 21: 1.

¹³³ *Critias*, 112 a.

¹³⁴ Compare above all the *Anales de Cuauhtitlän*, originally written in Nahuatl, in: M. Leon-Portilla, *Pre-Columbian Literatures of Mexico* (1969), Norman und London: University of Oklahoma Press, 1986, p. 35-37; see also the *Balam de Chumayel*, *ibid.*, p. 49-51.

¹³⁵ M. I. Finley, *Die frühe griechische Welt* (1970, 1981²), München: C. H. Beck, 1982, p. 24.

¹³⁶ Compare with the literature p. ex. J. Hamel, «Die Kometen im Weltbild der Antike und des Mittelalters», in: *Die Sterne: Zeitschrift für alle Gebiete der Himmelskunde*, vol. 60, 1984, p. 347 ff.

¹³⁷ Compare with the literature p. ex. J. Hamel, «Die Kometen in der Kleinliteratur um 1600», in: *Die Sterne: Zeitschrift für alle Gebiete der Himmelskunde*, Bd. 71, 1995, p. 18 ff.

evidence against increasing denial: ““What? You believe in the Deluge?”¹³⁸ a certain crowd today is exclaiming, and this crowd is quite numerous. The eye of the natural scientist has discovered the incontrovertible signs of these ancient transformations of earth:... when he dug the earth, he found piled up vestiges of ships in the wrong places: he has found enormous amounts of mussels and crustaceans on the tops of mountains which are now far away from any sea: he has found in the depth of Earth undeniable remains of fish... indeed he has found deep under the soil upon which he lives, bones and remains of animals which nowadays live only on the Earth’s surface, or in the water. These... well-known facts compel the physicist to recognize that the whole surface of our globe has undergone a change, that it has known other oceans, and other lands, that it has had another geography, and that the *terra firma* which we now occupy has been an ocean before then. To doubt the veracity of these, would be tantamount to accusing nature of lies, when she has herself left memorials everywhere, who bear witness to this change... The great transformation therefore, which has put one part of our land surface under the water, only to expose and dry up another part, or in other words, what has been called the All-encompassing Deluge, is an event which one cannot deny, and which one would have to believe even in the absence of any traditions telling us about it. Scrupulous students of nature know that our globe is nothing else but an assemblage of ruins, and that it presents in all its parts the traces of an all-encompassing upheaval.”¹³⁹

In antiquity, such nature research was already conducted. Xenophanes reports to us “that in the middle of the lands and high in the mountains, mussels are found; in the stone-quarries of Syracuse the imprints of a fish and of seals have been found, in Paros the impression of a laurel leaf inside a stone, in Malta, flattened shapes of all sea animals and plants... All humans would needs be annihilated every time that the land, sunk beneath the sea, turns to mud; after this, creation would begin anew; and such would be the beginning of every order of the world.”¹⁴⁰

These clear insights were pushed back, yes, downright repressed through the creed of evolutionism, which has the histories of humanity and nature moving in the smallest of pace over extremely long periods right from the beginning, undergoing differentiation only through the agent of such forces as we know to be at work today. By reason of only allowing for terrestrial erosion forces as we know them today, i.e., down to our own time, such as the wind, the sun, rivers, waves and the rain, with some occasional earthquakes and volcanic eruptions, Darwinian thought also signs up as

¹³⁸ About those already pre-Darwin “screamers” see a. o. B. Glass, O. Temkin, W. L. Straus Jr. (Hg.), *Forerunners of Darwin: 1745-1859*, Baltimore: Johns Hopkins Press, 1959.

¹³⁹ N.-A. Boulanger, *Das durch seine Gebräuche aufgedeckte Altertum: Oder Kritische Untersuchung der vornehmsten Meynungen, Ceremonien und Einrichtungen der verschiedenen Völker des Erdbodens in Religions- und bürgerlichen Sachen* (1766), Greifswald: Anton Ferdinand Rösens Buchhandlung, 1767, p. 3/ 5/11 f.

¹⁴⁰ Xenophanes, *Die Fragmente*, ed. by E. Heitsch, München und Zürich: Artemis/ Sammlung Tusculum, 1983, p. 83.

actualism or uniformitarianism.

In the year 1833 the Scottish attorney Charles Lyell had, in his *Principles of Geology*¹⁴¹ subjected the Earth as well to this law of the smallest of forces and been able to push back¹⁴² the teaching of cosmic “catastrophism” which had been dominant until then.¹⁴³ The last titan of catastrophism, the Frenchman George Cuvier, had in the year 1825 in his *Discours sur les révolutions de la surface du globe, et sur les changements qu’elles ont produits dans le règne animal*¹⁴⁴ produced the last original thinking. Through Lyell’s enthusiastic follower Charles Darwin and through the latter’s own book *On the Origin of Species by Means of Natural Selection* (1859)¹⁴⁵ the actualistic belief in minimal changes became dogmatized in the natural sciences all over the world. This happened incidentally through the agency of the same publishing house (John Murray) which in 1823 had brought out the last great English compendium of cosmic catastrophism, William Buckland’s *Reliquiae Diluvianae*¹⁴⁶.

Whoever from that point on wanted to succeed in an academic examination had to know the new Credo on the tip of his fingers: “all theories will be pushed back which operate through the admission of sudden and violent catastrophes and of earth-wide upheavals.”¹⁴⁷ The universality of the Deluge ended up being given consideration

¹⁴¹ C. Lyell, *The Principles of Geology: Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation*, London: John Murray, 3 vols, 1830,1832,1833.

¹⁴² The term «catastrophism» - as well as its opposite «uniformitarianism» - was created in 1832 by William Whewell, who later published an account of the controversy: W. Whewell, *History of the Inductive Sciences*, London: Parker, 2 vols, 1837. See A. Hallam, *Great Geological Controversies*, Oxford: Oxford University Press, 2nd edition, 1989, p. 52.

¹⁴³ Notwithstanding, Lyell - quite the opposite of his catastrophist predecessor Cuvier - had preserved his own belief in an active God, and had attributed to him the creation of new species, the emergence of which Darwin than began to see fundamentally differently. See. E. Mayr, *The Growth of Biological Thought*, Cambridge/Mass.: Belknap Press, Harvard, 1982, p. 364 (zu Cuvier) as well as E. Mayr, *One Long Argument*, Harmondsworth: Penguin, 1991, p. 12 (zu Lyell). See in detail T. Palmer, «Uniformitarianism, Catastrophism and Evolution», in: *Chronology and Catastrophism Review*, 1996, vol. XVIII, p.4-14.

¹⁴⁴ G. Cuvier, *Discours sur les révolutions de la surface du globe, et sur les changements qu’elles ont produits dans le règne animal* (1821), Paris: G. Dufour & E. d'Ocagne, 1825.

¹⁴⁵ C. Darwin, *On the Origin of Species by Means of Natural Selection, or, the Preservation of Favored Races in the Struggle for Life*, London: John Murray, 1859. The basic reflections had been written down already in 1844. For fear of a political scandal, they remained confidential. In 1858, they were presented before the “Linnean Society” on grounds of defending priority against Alfred Russell Wallace who was presenting at the same meeting his theses about evolution through natural selection. See A. R. Wallace, *Contributions to the Theory of Natural Selection: A Series of Essays*, London & New York: Mac-millan, 1870.

¹⁴⁶ Buckland, W., *Reliquiae diluvianae: Observations on the Organic Remains Contained in Caves, Fisures, and Diluvial Gravel, and Other Geological Pheno-mena, Attesting the Action of an Universal Deluge*, London: John Murray, 1823.

¹⁴⁷ C. Lyell, *The Principles of Geology: Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation* (1830-1833), London: John Murray, 3 vols., 12th

only in the light of psychoanalysis and explained away through the nightly urinary urges of humans, which brought them to have dreams about inundations.¹⁴⁸ The cosmologies from the times preceding the 19th century¹⁴⁹ were now judged to be childish phantasies. Scholars of antiquity asserted from now on that the sacrificial games were associated only retroactively with phantasies of the flood,¹⁵⁰ which remained mysterious nonetheless. The greatest names among religious scholars didn't even want to admit until well into the seventies of the 20th century the certainty of terrestrial flood catastrophes. They "possibly" may have taken place. "But it would be unwise to pretend to explain such a wide-spread myth by the means of phenomena which did not leave any kind of geological traces behind."¹⁵¹ The merely mental intuition of a "pre-cosmic Chaos"¹⁵² supposedly produced the myths of forces combating in the skies. And so the cosmos was darwinized into peacefulness over aeons.

Stubborn mavericks, who insisted on the visible archaeological evidence, have always existed. One must give the names above all of Ignatius Donnelly with his *Ragnarok*¹⁵³ of the year 1883, Comyns W. Beaumont with his *Riddle of the Earth*¹⁵⁴ and *The Mysterious Comet*¹⁵⁵ from the years 1925 and 1932, Otto Schindewolf with *Fragen der Abstammungslehre*¹⁵⁶ from 1947 as well as the continuator of Beaumont,

ed., 1875, vol. I, p. 318.

¹⁴⁸ See exemplarily G. Röheim, «The Flood Myth as Vesical Dream» (1952), in: A. Dundes (Hg.), *The Flood Myth*, Berkeley et al.: University of California Press, 1988, p. 151 ff.

¹⁴⁹ On this subject see, p. ex. K. B. Collier, *Cosmogonies of Our Fathers: Some Theories of the Seventeenth and Eighteenth Centuries*, New York: Octagon Books, 1968.

¹⁵⁰ See. H. W. Parke, *Festivals of the Athenians* (1977), Ithaca, N.Y.: Cornell University Press, 1986, p. 117.

¹⁵¹ M. Eliade, *Geschichte der religiösen Ideen. I: Von der Steinzeit bis zu den Mysterien von Eleusis* (1976), Freiburg et al.: Herder, 1978, p. 68.

¹⁵² See M. Eliade, *Geschichte der religiösen Ideen. I: Von der Steinzeit bis zu den Mysterien von Eleusis* (1976), Freiburg et al.: Herder, 1978, p. 78.

¹⁵³ I. Donnelly, *Ragnarok: The Age of Fire and Gravel* (1883), New York: University Books, 1970.

¹⁵⁴ C. Beaumont (alias Appian Way), *The Riddle of the Earth*, New York: Brentano's, 1924.

¹⁵⁵ C. Beaumont, *The Mysterious Comet. Or: The Origin, Building up, and Destruction of Worlds by Means of Cometary Contacts*, London: Rider, 1932; see C. Beaumont, *The Riddle of Pre-Historic Britain*, London & New York: Rider, 1946.

¹⁵⁶ O. H. Schindewolf, *Fragen der Abstammungslehre*, Frankfurt am Main: Kramer, 1947.

Immanuel Velikovsky, with *Worlds in Collision*¹⁵⁷ and *Earth in Upheaval*¹⁵⁸ of the years 1950 and 1956.¹⁵⁹ These heirs of Boulanger hardly found a hearing in the groves of Academia, they were condemned and rejected in totality for the parts of their work which were erroneous or adventuresome, and made the targets of downright campaigns of calumnies.¹⁶⁰

Especially the postulates of Velikovsky, ridiculed from the first and still today held to be impossible, of a Venus that would be totally atypical for the solar system, and moreover geologically highly active, found in space exploration of the 1990s a measure of support. Venus has in the mean-time come to be considered as “the most unusual body in the whole solar system.”¹⁶¹ Such is the result of the estimation of the data which the Magellan-probe conveyed to Earth between 1990 and 1994. Donald Turell - a geophysicist at Cornell University - has been ever since preoccupied by the enormous heat inside our neighbor planet: this heat must somewhere, some place, come out. “In my view, it can have lead to a recent total submerging of the outside by the inside [total resurfacing].”¹⁶² This “recent” event must have been preceded again by a tremendous event which happened between 300 and 500 million years ago, through which a hitherto unexplainable enigma of Venus reportedly found a solution.

This enigma consist in her smooth face, which shows a mere 900 impact craters, when Mercury, Mars and the Moon are pockmarked by myriads of such blemishes. Because of this difference, it is assumed that the *surface* of Venus displays only one tenth of the age of the other planets, whose craterings are claimed to go back three to four billion years. The idea that Venus as a whole could conceivably be younger than the rest of the solar system is indeed suggested by her surface and her

¹⁵⁷ I. Velikovsky, *Worlds in Collision*, New York: Macmillan, 1950; deutsch *Welten im Zusammenstoß* (1950), Stuttgart: Kohlhammer, 1951 sowie Frankfurt am Main: Umschau, 1978.

¹⁵⁸ I. Velikovsky, *Earth in Upheaval*, Garden City/N. Y.: Doubleday, 1955; deutsch: *Erde im Aufruhr*, Frankfurt am Main: Umschau, 1980.

¹⁵⁹ See also an author like R. L. C. Gallant, *The Bombarded Earth: An Essay on the Geological and Biological Effects of Huge Meteorite Impacts*, London: J. Baker, 1964 as well as the one text by Nobel Prize laureate H. C. Urey, by which he entered what was at the time the academic danger zone: «Cometary Collisions and Geological Periods», in: *Nature*, Bd. 242, 1973, p.32f.

¹⁶⁰ See. A. de Grazia, *The Velikovsky Affair: Scientism versus Science* (1966¹), London: Sphere Books, 1978; German: *Immanuel Velikovsky: Die Theorie der kosmischen Katastrophen*, München: Wilhelm Goldmann, 1979; G. Heinsohn, «Über die heiße Venus, das dunkle Zeitalter Griechenlands und das Zittern im akademischen Lehrgebäude: Leben und Forschungen Immanuel Velikovskys», in: *Freibeuter*, Bd. I, Nr. 2, Dezember 1979, s. 1f.

¹⁶¹ Compare to the overview p. ex. In W. J. Broad, «Venus's Remade Face Offers Hints of Cataclysm: Earth's Twin Planet, with its Surface Radically Remade by Inner Heat, is no Twin After All», in: *The New York Times/Science Times*, 16. Juli 1996, p. B5f.

¹⁶² W. J. Broad, «Venus's Remade Face Offers Hints of Cataclysm: Earth's Twin Planet, with its Surface Radically Remade by Inner Heat, is no Twin After All», in: *The New York Times/Science Times*, 16. Juli 1996, p. B5f.

heat, but still held for too radical. Therefore Gerald Schaber and his colleagues of the *United States Geological Survey* at Flagstaff/Arizona reflected upon how the visage of Venus, which at one time must have shown as many craters as the rest of the planets, may have undergone a lifting. A mighty meteorite may have crashed into our heavenly neighbor, and through the energy of its impact brought her to boil and to break open. The hot and fluid magma which exploded out of Venus inundated her whole surface and made her youthfully smooth again. The fact that magma has flown out of very many of ca 930 - non-volcanic - craters of the past 360 million years on Venus, shows that the planet is still liquid and hot just a short way under the crust. Any further impact could rip open again this thin skin and therefore represented a danger for the whole body and for her cosmic neighbors such as Mercury and Earth.

Remarkably, in the case of Earth, some 200,000 impact craters of at least the size of the 40,000 years old Arizona-crater (1,2 km diameter) have been counted for the last 400 million years.¹⁶³ We must wait and see if this bombardment, which is higher by a factor of 200, should compel one to give a younger date for the explosion of Venus. The American Air Force data of the *Los Alamos National Laboratory* show that for Earth “the observed number of bombardments show about twelve events [of bodies with a diameter of 2-3m) per year, which produce at the minimum an explosion which is equivalent to that of a nuclear weapon of one kiloton, corresponding therefore to one thousand tons of high explosive.”¹⁶⁴ Needless to say, these impacts are way below the dimensions of the Arizona event, but once a year still one of them reaches a diameter of 6 to 7 meters and the explosive force of one Hiroshima bomb of 15,000 tons of high explosive. In 400 million years one would have to deal with 400 million of Hiroshima size impacts - 400 times more than the Arizona-type craters counted by now - so that from this point of view also the question of a shortening of time might impose itself. Once every 15 years, objects of 15 to 235 meters diameter and an explosive force of a one million tons are counted with. These numbers represent minimas. In 400 million years of an average - therefore, not of truly catastrophic - cosmic activity, there would have been already 30 million impacts of a megaton size on Earth.

Internally to the profession, an unprejudiced view has made itself noticeable for the first time in 1972, when the still darwinistically formed American biologists and geophysicists Niles Eldredge and Stephen Jay Gould admitted that one would never find the *missing links* of Darwin, that in reality, pointedly fast evolutionary processes were responsible for changes in nature, the origins of which could impossibly be

¹⁶³ Compare B. Neukum und B. Ivanov, «Crater Size Distributions and Impact Probabilities on Earth from Lunar, Terrestrial Planet, and Asteroid Cratering Data», in: T. Gehreis (Hg.), *Hazards Due to Comets and Asteroids*, Tucson: University of Arizona Press, 1994, p. 411.

¹⁶⁴ See W. J. Board, «Earth Is Target for Space Rocks at Higher Rate than Thought», in: *The New York Times/The Science Times*, 6. Januar 1997.

assigned solely to rain, wind and sun.¹⁶⁵

Only at the end of the 1970s did the work about the sudden extinction of the dinosaurs through cosmic catastrophes¹⁶⁶ encourage even more definitely an unobstructed view of the facts. Inspired by the research about the disappearance of this animal species,¹⁶⁷ even established astrophysicists dared themselves to take the evidence seriously. Especially Victor Clube and Bill Napier came to the fore, who did not shy away from an astrophysical layman like Velikovsky, and with whom we will occupy ourselves further.¹⁶⁸ At the end of the 1980s finally, the quintessence of this revolution conquered, under the formula “Darwin was not right,”¹⁶⁹ the standard textbooks of biology and geology. In 1986 already, the American geophysicist David Raup summed it up thus for the benefit of the earth- and sky scientists: that “Lyell’s ‘uniformity’ teaching will have to abdicate in favor of the catastrophic theories of Cuvier.”¹⁷⁰ It would take another decade nevertheless for the news that in pre-Darwinian thought the facts had actually been taken into account, to reach the press cultivating the general public. Ever since, there are audacious reports about a new

¹⁶⁵ N. Eldredge, S. J. Gould, «Punctuated Equilibria: An Alternative to Phyletic Gradualism», in: T. S. M. Schopf (Hg.), *Models in Paleobiology*, San Francisco: Freeman, Cooper and Co., 1972; see also N. Eldredge, *Wendezeiten des Lebens: Katastrophen in Erdgeschichte und Evolution* (1991), Heidelberg et al.: Spektrum Akademischer Verlag, 1994.

¹⁶⁶ See p. ex. P Beland, J.-R. Roy, D. Russell, «Chains of Events Leading to Mass Extinctions: Two Synopses», in: P Beland et al. (The K-TEC Group] (ed.), *Cretaceous-Tertiary Extinctions and Possible Terrestrial and Extraterrestrial Causes*, Ottawa: The National Museums of Canada, Syllogeus No. 12, 1977, p. 155 ff.; L. W. Alvarez, W. Alvarez, W. Asaro, H. V Michel, «Extraterrestrial Cause for the Cretaceous-Tertiary Extinction: Experiment and Theory», *Lawrence Berkeley Report (LBL-9666)*, University of California, 1979; L. W. Alvarez, W. Alvarez, W. Asaro, H. V Michel, «Extraterrestrial Cause for the Cretaceous-Tertiary Extinction», in: *Science*, Bd. 208, 1980, p. 1095-1108; see also D. M. Raup, J. J. Sepkoski, «Periodicity of Extinctions in the Geologic Past», in: *Proceedings of the National Academy of Sciences in the USA*, vol. 81, 1984, p. 801 ff. as well as J. J. Sepkoski, «Periodicity in Extinction and the Problem of Catastrophism in the History of Life», in: *Journal of the Geological Society. London*, Bd. 146, 1989, p. 7ff.

¹⁶⁷ The apparition of the dinosaurs could also be assigned to catastrophically induced mutations: see M. J. Benton, «Late Triassic Extinctions and the Origin of the Dinosaurs», in: *Science*, vol. 260, 1993, p. 769 f.

¹⁶⁸ See W. M. Napier, S. V. M. Clube, «A Theory of Terrestrial Catastrophism», in: *Nature*, vol. 282, 1979, p. 455ff.; S. V. M. Clube, W. M. Napier, «Spiral Arms, Comets and Terrestrial Catastrophism», in: *Quarterly Journal of the Royal Astronomical Society*, vol. 23, 1982, p. 45-66; S. V. M. Clube, W. M. Napier, *The Cosmic Serpent: A Catastrophist View of Earth History*, London: Faber & Faber, 1982; S. V. M. Clube, W. M. Napier, «The Microstructure of Terrestrial Catastrophism», *Monthly Notices of the Royal Astronomical Society*, Vol. 211, 1984, p. 953ff.; see also S. V. M. Clube, W. M. Napier, *The Cosmic Winter*, Oxford: Basil Blackwell, 1990.

¹⁶⁹ See K. L. Feder, M. A. Park, *Human Antiquity: An Introduction to Physical Anthropology and Archaeology*, Mountain View/CA: Mayfield, 1989, p. 42.

¹⁷⁰ See D. M. Raup, *Der schwarze Stern: Wie die Saurier starben. Der Streit um die Nemesis-Hypothese* (1986), Reinbek: Rowohlt, 1990, p. 186; see. D. M. Raup, *Extinction: Bad Genes or Bad Luck?*, New York: W. W. Norton & Co., 1991.

science, “according to which Earth has now and again been subjected to devastating upheavals. To this catastrophism the French zoologist Georges Cuvier (1796 to 1832), who founded the paleontology of the vertebrates and comparative anatomy, also dedicated himself.”¹⁷¹ The fact that these views had been kept alive and developed over time by mavericks, remains carefully hidden, so that there is still a good way to go, including for journalism.

If the house of academia had not been focused foremost on ideology, instead of science,¹⁷² we might have been able to reach the neo-cuvieristic state of knowledge in 1947 already, or at the latest on September 2., 1961, when Otto Schindewolf admitted before the 113th General Assembly of the *German Geological Society*: “The acceptance of fauna-breaks in earth-history has been recently somewhat deprecatorily termed as neocatastrophism and as a regression to the long left behind thinking of CUVIER and of his time. A new examination of these questions revealed that, at the turning points of the great geological eras, and also to a smaller degree at the borders of geological epochs, there occur comprehensive shiftings in the composition of the animal kingdom, which were produced through the accumulated *simultaneous extinctions* of numerous species and the emergence of new ones. This *universal phenomenon* must be viewed as a reality and demands for its causal interpretation the acceptance of *universally active factors*. One acceptable possibility of interpretation is seen in influences which were exercised through the incursion of cosmic radiation.”¹⁷³

At the latest after the crash of the Shoemaker-Levy comet into Jupiter and the mighty explosions it induced on this planet in the summer of 1994, the field of scientific neocatastrophism moved out of biology, geology and astrophysics¹⁷⁴ to reach

¹⁷¹ E. Lausch, «Vorwärts über Katastrophen: Verheerende Ereignisse prägen die Erdgeschichte. Auch der Mensch verdankt seine Existenz einem Großunfall», in: *Die Zeit / Wissen*, 9. August 1996, p. 32.

¹⁷² Compare with the political background of the development and dominance of the gradualistic theory of evolution G. Grinnell, «Catastrophism and Uniformity: A Probe into the Origin of the 1833 Gestalt Shift in Geology», in: *Kronos*, vol. 1, Nr. 4, 1976, p. 68ff.

¹⁷³ O. H. Schindewolf, «Neokatastrophismus?» in: *Zeitschrift der Deutschen Geologischen Gesellschaft*, vol. 114, 1962 (erschienen 1963/64), p. 430; compare to the earlier O. H. Schindewolf, *Fragen der Abstammungslehre*, Frankfurt am Main: Kramer, 1947.

¹⁷⁴ See a. o. L. T. Silver, P. H. Schultz (Hg.), *Geological Implications of Large Asteroids and Comets on the Earth*, Boulder/CO: The Geological Society of America, Special Paper 190, 1982; M. H. Nitecki (ed.), *Extinctions*, Chicago: The University of Chicago Press, 1984; W. A. Berggren, J. A. Couvering (ed.), *Catastrophes and Earth History*, Princeton: Princeton University Press, 1984; D. K. Elliot (ed.), *Dynamics of Extinction*, New York: John Wiley & Sons, 1986; C. R. Chapman, D. Morrison, *Cosmic Catastrophes*, New York & London: Plenum Press, 1989; S. V. M. Clube (ed.), *Catastrophes and Evolution: Astronomical Foundations*, New York et al.: Cambridge University Press, 1989; R. Huggett, *Cataclysms and Earth History*, Oxford: Clarendon Press, 1989; S. K. Donovan (ed.), *Mass Extinctions*, Stuttgart: Enke, 1989; R. Huggett, *Catastrophism: Systems of Earth History*, London: Arnold, 1990; E. G. Kauffman, O. H. Walliser (ed.), *Extinction Events in Earth History*, Berlin et al.: Springer, 1990; V. L. Sharpton, P. D. Ward (ed.), *Global Catastrophes in Earth History: An Interdisciplinary Conference on Impacts, Volcanism, and Mass Mortality*, Boulder /CO: The Geological Society of America, Special paper 247, 1990; D. I. Steel, «Our Asteroid-Pelted Planet», in: *Nature*, Bd. 354, 1991, p. 265ff.; T. Van Flandern, *Dark Matter, Missing Planets and New Comets*:

the general public and the professors. Now specialists and popular media¹⁷⁵ truly find themselves in a race for the new establishment of a fearless view on the facts. Their repression between 1825 (last edition of Cuvier's *Discourses on the revolutions on the surface of the globe...*) and 1972 (Eldredge/Gould's "punctuated equilibria") has rendered the continuation of the enlightenment - except as concerns the aforementioned mavericks - practically impossible for a century and a half.¹⁷⁶ Within the earth sciences, the catastrophic frontline now runs between long range daters and the so-called recentists,¹⁷⁷ who also subject to the test of evidence the darwinisingly long periods¹⁷⁸ of many million years making up the history of nature and of man, and recognize readily the massive accumulation of signs of earth-transforming cataclysms in historic times,¹⁷⁹ i.e. in the order of grandeur of millennia.¹⁸⁰ For instance, the

Paradoxes Resolved, Origins Illuminated, Berkeley/CA: North Atlantic Books, 1993; E. Tollmann, A. Tollmann, *Und die Sintflut gab es doch: Vom Mythos zur historischen Wahrheit*, München: Droemer Knauer, 1993; W. G. Chaloner, A. Hallam (ed.), *Evolution and Extinction: Proceedings of a Joint Symposium of the Royal Society and the Linnean Society*, Cambridge: Cambridge University Press, 1994; H. R. Shaw, *Craters, Cosmos and Chronicles: A New Theory of Earth*, Stanford/CA: Stanford University Press, 1994; D. S. Allan, J. B. Delair, *When the Earth Nearly Died: Compelling Evidence of a Catastrophic World Change 9,500 BC*, Bath: Gateway Books, 1995; J. Gribbin, M. Gribbin, *Fire on Earth: Doomsday, Dinosaurs and Humankind*, New York: St. Martin's Press, 1996.

¹⁷⁵ See p. ex. N. Hawkes, «RainingDeath and Dark Ages: Theories that the Earth Is Shaped by Cosmic Catastrophes Are Gaining Ground», in: *The Times*, 19. September 1994, p. 16 or N. N., «Erdgeschichte: Öko-Katastrophen steuern die Evolution», *Der Spiegel*, Nr. 19, 8. Mai 1995, p. 184-187 or E. Eausch, «Vorwärts über Katastrophen: Verheerende Ergebnisse prägen die Erdgeschichte. Auch der Mensch verdankt seine Existenz einem Großunfall», in: *Die Zeit / Wissen*, 9. August 1996, p. 32.

¹⁷⁶ For the consequences to palaeoanthropology of this interruption in research, see G. Heinsohn, *Wie alt ist das Menschengeschlecht? Stratigraphische Grundlegung der Paläoanthropologie und Vorgeschichte* (1991), Gräfelting: Mantis, 1996, passim.

¹⁷⁷ About this view of global catastrophes in historical times see most recently S. V. M. Clube, F. Hoyle, W. M. Napier, N. C. Wickramasinghe, «Giant Comets, Evolution and Civilization: Climatic Cycles, Ice Epochs, Mass Extinctions and Other Global Disturbances May Be Attributed to Episodes of Bombardment by Giant Comets. Such Bodies Now in Chaotic Orbits Beyond Jupiter Present the Most Serious Current Celestial Hazard», paper submitted to *Science*, 1996, Computer-Printout. See already in G. Heinsohn, «Destruction Layers in Archaeological Sites: The Stratigraphy of Armageddon», in: M. Zysman, C. Whelton (Hg.), *Catastrophism 2000*, Toronto: Heretic Press, 1990.

¹⁷⁸ See C. C. Albritton, *The Abyss of Time: Changing Conceptions of the Earth's Antiquity after the Sixteenth Century*, San Francisco: Freeman Cooper, 1980; see also B. J. Peiser, «Was the Cambridge Conference a Flop? Evidence for Multiple Catastrophes in Historical Times», in: *Chronology and Catastrophism Review*, vol. 15, 1995, S. 23-28.

¹⁷⁹ See above all M. B. Zysman, «The Greater and Lesser Swarms. Crustal Formation: A Meteoric Hypothesis», Vortrag auf dem *Symposium on Cosmic Catastrophism and Ancient History*, Deerfield Beach, Florida, 12.- 14. Juli 1996.

¹⁸⁰ See K. L. Rasmussen, «Historical Accretionary Events from 800 BC to AD 1750: Evidence for Planetary Rings around the Earth?», in: *Quarterly Journal of the Royal Astronomical Society*, vol. 32, 1991, p. 25-34; M. E. Bailey, «Recent Results in Cometary Astronomy: Implication for the Ancient Sky», in: *Vistas in*

craters of Aorounga in Tchad, of three to 8 km in diameter, which were created by “a mini planet colliding with Earth,”¹⁸¹ are dated to at most 1500 years B.P.

Palaeoecologists date the catastrophic end of the Bronze Age to the 7th century B.P.¹⁸²

Maverick positions such as those of Donnelly (1883) or Velikovsky (1950), once ridiculed, lose by comparison with the newly dominant ideas their sensational character. In opposition to these, there remain the ‘conservative’ neocatastrophists,¹⁸³ who allege with great seriousness that fossil dinosaur skeletons sticking out of the ground and showing almost no traces of erosion, and who are supposed additionally to carry unpetrified DNA,¹⁸⁴ still have been polished by sandstorms for 80 to 120 million years.¹⁸⁵

All things considered, the evolutionary denial of global catastrophes has given way to a real race¹⁸⁶ to be the first to predict the next great impact upon Earth.¹⁸⁷ From 1991 to the time of this writing, one dozen international conferences of astronomers and astrophysicists have taken place, which were dedicated exclusively to cosmic

Astronomy, vol. 39, 1996; D. I. Steel, «The Limitations of NEO [Near Earth Objects] -Uniformitarianism», in: *Earth, Moon and Planets*, vol. 72, 1996.

¹⁸¹ See [i. e. T. Ribi], «Die Astrobleme von Aorounga», in: *Neue Zürcher Zeitung: Forschung und Wissenschaft*, 5. Juni 1996.

¹⁸² Vgl. B. van Geel, J. Buurman, H. T. Waterbolk, «Archaeological and Palaeological Indications of an Abrupt Climate Change in the Netherlands, and Evidence for Climatological Telecommunications around 2650 BP», in: *Journal of Quaternary Science*, vol. 11, 1996.

¹⁸³ See D. Ager, *The New Catastrophism: The Importance of the Rare Event in Geological History*, Cambridge: Cambridge University Press, 1993.

¹⁸⁴ On this subject see S. R. Woodward, N. J. Weyand, M. Bunnell, «DNA Sequence from Cretaceous Period Bone Fragments», in: *Science*, vol. 266, 18. November 1994, p. 1229-1232. S. B. Hedges und J. R. Horner, on their search for dinosaur DNA, have worked with bones of *Tyrannosaurus rex*, which for 80 Million years have miraculously «survived without becoming mineralized to stone». Instead of casting doubt onto the age of the DNA, the critics preferred to dismiss the DNA altogether. M. W. Browne, «Skepticism Over Dinosaur DNA», *International Herald Tribune*, 22. Juni 1995, p. 12.

¹⁸⁵ M. Novacek discovered in the Gobi desert dinosaur skeletons lying directly on the surface of the ground. He is convinced that the sandstorms who today blow the tents of his own expedition out of their moorings, also tipped over and killed the dinosaurs almost 80 Million years ago, when the climate could not have been different from now: «Freshly exposed skeletons sometimes look more like the recent remains of a carcass than like an 80 million-year-old fossil.» See J. Adler, A. Rogers, «The Great Boneyard of the Gobi», *Newsweek*, 5. Juni 1995, p. 44.

¹⁸⁶ About the scientific fraction of this ‘sport’ see p. ex. D. K. Yeomans, «Killer Rocks and the Celestial Police: The Search for Near-Earth Asteroids», in: *The Planetary Report*, vol. 11, Nr. 6 (November/Dezember), 1991, p. 4ff.

¹⁸⁷ From the standpoint of the commercial press, compare the titel story of *The Economist*, 11.-17. September 1993: «The Threat from Space» and Sir B. Lovell, «Will a Space Rock Destroy the World?», in: *The Times*, 26. September 1994

catastrophes and to the risk of further impacts on Earth. A more recent publication carries together the corresponding contributions of 185 experts.¹⁸⁸ Just as one was heartily, or meanly mocked once upon a time,¹⁸⁹ when one insisted on the massive indications pointing to catastrophes in the past, when from the beginning, as everybody knew, everything had been caused by class struggle - the author remembers vividly some such admonitions from lovely housewives and professors or journalists or highschool teachers - just in the same way, someone who today does not participate in the prediction of catastrophes through “killer comets”¹⁹⁰ in the near future¹⁹¹ is considered scientifically uneducated. The mere mention of past catastrophes elicits a bored yawn in many places.

In January 1996 the USA was the first ever government to assign to its Air force and space administration (NASA) the task of assembling within a few decades a comprehensive catalogue of all the sky objects which might collide with Earth. By May 1996, already four heretofore unknown asteroids had been discovered, whose orbits crossed the Earth, the diameter of the biggest of which, three kilometers, qualified it for the appellation of “killer comet.”¹⁹²

But let's return to the antique traditions of cosmic catastrophes in historical times. In Hebrew sources, we read of collisions with a deity called Sisera, who most likely represents merely an *alter ego* of Ishtar: “from the heavens the stars fought, from their orbits they fought against Sisera.”¹⁹³

The Greek philosopher Aristotle reports similarly: “From the Ancients and the Fathers of most ancient times it is transmitted to the younger in the form of myths that

¹⁸⁸ Compare T. Gehreis (ed.), *Hazards Due to Comets and Asteroids*, Tucson: University of Arizona Press, 1994.

¹⁸⁹ See also A. de Grazia, *Cosmic Heretics: A Personal History of Attempts to Establish and Resist Theories of Quantavolution and Catastrophe in the Natural and Human Sciences 1963 to 1983*, Princeton/NJ: Metron Publications, 1984.

¹⁹⁰ Finally, compare R. A. Kerr, «Second Crater Points to Killer Comets», in: *Science*, vol. 259, 1993, S. 1543.

¹⁹¹ See G. Heinsohn, «Imaginary and Expected Catastrophes: Apocalyptic Desire and Scientific Prognosis», in: *Chronology and Catastrophism Review*, vol. XVII, 1995, Special Issue «Cosmic Catastrophism», 1996, p. 22ff. As well as N. Hawkes, «How Great Is the Threat from Comets? Danger from Deep Space», in: *The Times*, 2. Oktober, 1995, p. 18.

¹⁹² See W. J. Broad, «Collision Course: The Search for Asteroids», in *The International Herald Tribune*, 16. Mai 1996, p. 11. NOTE OF TRANSLATOR: As of the end of April 2010, we know of 7,000 Near Earth Asteroids and of over 1,100 Potentially Hazardous Asteroids. That is, nearly 1 NEA out of 6 is also a PHA, which is a very high percentage.

¹⁹³ *Richter* 5: 20.

the stars are gods.”¹⁹⁴ The period designated today as the Bronze Ages he sees as divided at regular intervals by catastrophes, in which civilizations were destroyed.¹⁹⁵ His predecessor Plato designates also irregular sky bodies as the causes of the four catastrophes,¹⁹⁶ which he attributes to the Bronze Age: "There have been and there will be many and diverse destructions of mankind, of which the greatest are by fire and water, and lesser ones by countless other means. For in truth the story that is told in your country as well as ours, how once upon a time Phaethon, son of Helios, yoked his father's chariot, and because he was unable to drive it along the course taken by his father, burnt up all that was upon the earth and himself perished by a thunderbolt - that story, as it is told, has a fashion of a legend, but the truth of it lies in the occurrence of a shifting of the bodies in the heavens which move around the earth, and a destruction of the things on the earth by fierce fire, which recurs at long intervals." ¹⁹⁷

It goes without saying that Plato was in no position to prove the universality of a natural catastrophe. International systems of information, which could have verified the globality of disasters, were of course inexistant. Only the modern research on flood legends was able to verify the world-wide spread of this tradition. At the beginning of the 20th century, independent Flood-legends had been verified for the following places: Iceland, Wales, Lithuania, Finland, Transylvania, Savoy, Persia, India, Mongolia, China, Malaysia, Indonesia, Australia, Melanesia, Polynesia, Micronesia, South-America, Central America, Mexico, North-America and Africa.¹⁹⁸ Already in 1891, a first vast study of Flood legends was presented by Andree. From Babylon to Haiti, eighty-eight texts found together. Of those, forty were classified as fully independent from each other. Only twenty could be explained by diffusion. The rest fell into true doublets.¹⁹⁹ One decade later, the number of independent Flood legends had risen to seventy-three.²⁰⁰ Soon two hundred sixty-eight legends were known.²⁰¹ In 1936, Bellamy was able to document five hundred legends from a total of one hundred

¹⁹⁴ *Metaphysics*, 1074 bl.

¹⁹⁵ *Fragment*, 18.

¹⁹⁶ *Critias*, 112a.

¹⁹⁷ *Fragments*, 18, *Timaeus*, 22c-d.

¹⁹⁸ A comprehensive outlook is provided by J. G. Frazer, *Folklore in the Old Testament: Studies in Comparative Religion, Legend and Law*, vol. I, London: Macmillan, 1919, S. 104-361.

¹⁹⁹ R. Andree, *Die Flutsagen*, Braunschweig: Friedrich Vieweg, 1891

²⁰⁰ M. Winternitz, «Die Fluthsagen des Altertums und der Naturvölker», *Mitteilungen der anthropologischen Gesellschaft*, Wien, vol. XXI, 1901

²⁰¹ J. Riem, *Die Sintflut in Sage und Wissenschaft*, Hamburg: Rauhes Haus, 1925.

fifty nine peoples and tribes.²⁰² Special studies were then introduced for regions which had hitherto been found as being poor in Flood legends. Twenty texts were discovered in Northern Asia,²⁰³ and two dozen in Africa.²⁰⁴ Research also showed that a derivation of over-regional flood catastrophes from cosmic impacts was still current in the 18th century.²⁰⁵ Next to Boulanger,²⁰⁶ the names of William Whiston²⁰⁷ and Giovanni-Rinaldo Carli-Rubbi²⁰⁸ were especially prominent.

Claude F. Schaeffer became in the 20th century the archaeologist of exception, to whom research into the great catastrophes of the Bronze Age is most indebted. He did not reduce the lores of “Deluge” and “World Burning” to mere emanations of the soul. He took them seriously. Schaeffer suspected already at the end of the 1920s, during his excavations at Ugarit, that something awesome must have happened during the Bronze Age. There were to be found there in succession four layers of destruction, in-between which respective city cultures developed, by and large undisturbed. Extensive traces of fire on the clay buildings, and stones and walls which had burst from the heat, were too strong a sign to be assigned merely to the results of destruction by human hands. The wars of this time can very well be recognized through the findings of arrowheads, remains of armaments, purposeful breaches in walls which were later mended. But in the aforementioned destruction layers, nothing of the sort is to be found. Therefore Schaeffer thought at first of earthquakes. Yet, he quickly came to doubt this. 900 kilometers away, at Troy, Carl Blegen found destruction layers which were synchronous with those of Ugarit. No normal earthquake can level cities which are separated by over 1000 kilometers. Old-Ugarit II, together with Troy II “disappeared in a tremendous fire, which did not spare even one building. What really happened to cause the incineration of the whole settlement is still an unsolved

²⁰² H. S. Bellamy, *Moons, Myths and Man*, London: Faber & Faber, 1936.

²⁰³ W. Andersen, «Nordasiatische Flutsagen», *Acta and Commentationes Universitatis Dorpatensis. B. Humaniora*, vol. 4, 1923.

²⁰⁴ H. Baumann, *Schöpfung und Urzeit des Menschen im Mythos der afrikanischen Völker*, Berlin: Dietrich Reimer, 1936.

²⁰⁵ A detailed chronology of catastrophist scholars of the post-middle-ages is provided by A. de Grazia, *Chaos and Creation: An Introduction to Quantavolution in Human and Natural History*, Princeton et al.: Metron Publications, 1981, p. 3.

²⁰⁶ N.-A. Boulanger, «Deluge», in: D. Diderot et al. (Hg.), *L'Encyclopedie* [1751-80], vol. 4, Paris: Briasson et al, 1764.

²⁰⁷ W. Whiston, *Astronomical Principles of Religion, Natural and Revealed*, London: J. Senex, 1717.

²⁰⁸ G. N. Carli, *Lettres Americaines*, 2 Bde., Paris: Buisson, 1788.

mystery.”²⁰⁹

At St. John’s College in Oxford, Schaeffer studied between 1942 and 1944 a list of almost forty excavation reports. He was collaborating as a lieutenant of Charles de Gaulle’s *Free France* at the *British Admiralty* in Bletchey at the decipherment of German navy codes. As an Alsatian, he had served towards the end of World War One in the Navy of the German Reich. During his free time, he used the library. The result of his studies - the famous *Stratigraphie Comparée*²¹⁰ - appeared in the year 1948 as the only book that *Oxford University Press* ever published in French.

The authors of many of the reports referred to also signaled destruction layers, which they ascribed to local enemy incursions or to earthquakes. They had done good work but it had not occurred to even one of them to correlate his destruction findings with those of his colleagues. That Schaeffer now did. The longest straight line distance between two simultaneously destroyed cities - Troy and Tepe Hissar - amounts to 2300 kilometers: “In truth, we do not have the slightest doubt that the burning of Troy II corresponds with the catastrophe which brought an end to the early Bronze Age settlements of Alaça Hüyük (layer III), Alissar (layer IA), Tarsus (layer III, 12 to 13 meters below the surface) and [ca. 2300 kilometers to the East of Troy] Tepe Hissar (layer IIB). In Syria, this same catastrophe incinerated Old-Ugarit II, the city of Byblos... and the contemporaneous towns of Palestine.”²¹¹

Schaeffer kept asking himself “what was the nature of these events, to which cities from Anatolian Troy... all the way to the Caucasus had fallen victims.”²¹² He excluded human action. Earthquakes as we know them nowadays were also excluded. Vaguely, he decided in favor of seismic activities “but of a kind which was much stronger than the modern earthquakes”²¹³. So that he concluded his gigantic work thus: “Our research has yielded that the successive upheavals which inaugurated and closed the epochs of the 3rd and 2nd Millennium were not caused by human action. In the contrary: compared to the extent of this all-encompassing crises and their profound consequences, the great feats of military conquerors and the assaults of political

²⁰⁹ C. Biegen, *Troy and the Trojans*, London: Thames and Hudson, 1963, S. 69, 70. On this subject, see also A. de Grazia, *The Burning of Troy*, Princeton/NJ: Metron, 1984, p. 13 ff.

²¹⁰ C. F. Schaeffer, *Stratigraphie comparee et Chronologie de l'Asie Occidentale (III^e et II^e millenaires)*, London: Oxford University Press, 1948.

²¹¹ C. F. Schaeffer, *Stratigraphie comparée et Chronologie de l'Asie Occidentale (III^e et II^e millenaires)*, London: Oxford University Press, 1948, p. 225.

²¹² See C. F. Schaeffer, *Stratigraphie comparée et Chronologie de l'Asie Occidentale (III^e et II^e millenaires)*, London: Oxford University Press, 1948, p. 535.

²¹³ See C. F. Schaeffer, *Stratigraphie comparée et Chronologie de l'Asie Occidentale (III^e et II^e millenaires)*, London: Oxford University Press, 1948, p. X; compare also p. XI f. and 1 ff.

leaders must appear almost puny.”²¹⁴

For Greece, the Bronze Age findings²¹⁵ look quite the same: “These centuries proceeded by no means peacefully. At regular intervals, there occurred catastrophes, whence come the five layers which are definitely separated from each other.”²¹⁶ To climatology also,²¹⁷ the natural upheavals at the beginning and at the end of the “area of sacrifices” have not gone unnoticed.²¹⁸ Changes in temperature and in sea level are established to have occurred between the late Stone Age and the early Bronze Age, that is, precisely at the critical time of the emerging of sacrificial cults.²¹⁹ A further climatic break is ascertained at the beginning of the use of iron,²²⁰ that is, precisely at the threshold of the period in which radical movements appear in opposition to blood sacrifice.

Two years after Schaeffer’s *Stratigraphie Comparée*, which has remained probably his least read book, Immanuel Velikovsky created a sensation with his book *Worlds in Collision*²²¹, according to which the records of ancient peoples about comets and planets fighting in the heavens had to be read largely as traditions of a natural-historical kind, in anthropomorphic and bestiomorphic disguise. Most of the details of his astrophysical reconstructions of collisions between planets and of their indirect, but massive consequences on Earth have been attacked with strong arguments and are possibly in the main untenable. Especially his representations of some sort of billiards of the planets have been rejected as abstruse. In today’s known orbits, changes

²¹⁴ C. F. Schaeffer, *Stratigraphie comparée et Chronologie de l’Asie Occidentale (III^e et II^e millénaires)*, London: Oxford University Press, 1948, p. 565.

²¹⁵ A new study attempts to explain the collapse of the Mycenaean culture with the help of new, but not yet identified techniques of infantry through which the chariot units of the high cultures would have been vanquished by still mysterious barbarians, against the evidence available, so that we are left guessing. See R. Drews, *The End of the Bronze Age: Changes in Warfare and the Catastrophe ca. 1200 B. C.*, Princeton: Princeton University Press, 1993.

²¹⁶ M. I. Finley, *Die frühe griechische Welt* (1970, 1981²), München: C. H. Beck, 1982, s. 73

²¹⁷ See generally W. H. Berger, L. D. Labeyrie (ed.), *Abrupt Climatic Change: Evidence and Implication*, Dordrecht: Kluwer C, 1987

²¹⁸ See p. ex. M. G. L. Baillie, *A Slice Through Time: Dendro-Chronology and Precision Dating*, London: Batsford, 1995.

²¹⁹ See W. Nützel, «The Climate Changes of Mesopotamia and Bordering Areas», in: *Sumer*, vol. XXXII, Nos. 1-2, 1976.

²²⁰ See J. Dayton, *Minerals, Metals, Glazing and Man*, London: Harrap, 1978, p. 191 after H. H. Lamb, *Climate, History and the Modern World*, London & London: Methuen, 1982; compare also W. H. Stiebing, *Out of the Desert? Archaeology and the Exodus Conquest Narratives*, Buffalo/NY: Prometheus Books, 1979, p. 182-189.

²²¹ I. Velikovsky, *Worlds in Collision*, New York: Macmillan, 1950; deutsch *Welten im Zusammenstoß* (1950), Stuttgart: Kohlhammer, 1951 sowie Frankfurt am Main: Umschau, 1978.

occurring over extremely long periods of hundreds of millions, if not several billion years, were considered the rule. This dominant view has only recently been challenged by the physician Robert Bass. According to the dynamics underlying the Titius-Bode Law, planets would, after violent changes in orbit, literally spring back within a very short time to their present orbits, so that from today's observed 'harmonic' course of orbits, no conclusions could be drawn as to the great ancienty of these orbits.²²² The astrophysicist Philip Morrison (*Massachusetts Institute of Technology*) describes this process in a modellisation for a three-bodies-system in January 1997 as follows: the planets "accomplish their more or less unchanged orbits during long, long periods of... 'millennia.' Then, in one single bad season, every planet abandons its ancestrally ascribed orbit, closely approaches the nearest one, until they both return to their original path. A little bit later, the attraction becomes irresistible; both hurtle towards each other and fusion."²²³

Mini-planets, meteorite swarms and comets dominate momentarily opinions as to the originators of the innumerable impacts on Earth. The destructive activities of these relatively small celestial objects, it seems, would have in later times - after their burning up, their disappearance, etc. - been reported onto the visible planets and moons of the solar system, in order to make possible a material connexion with earlier narratives. Yet it is not easily understandable why such derivations of meteorite stories would not only have resulted in attributions here and there, but over the whole world, to the very same planets - especially Venus and Mercury.

The hour of birth of professional neo-catastrophism for historic, i.e., for recorded time, occurred in the year 1982 through the British astrophysicists Victor Clube and William Napier (both at the time at the *Royal Observatory Edinburgh*) with their book *The Cosmic Serpent: A Catastrophist View of Earth History*.²²⁴ In this work, they searched for - as they later formulated - "an astronomically secure frame for the old legends about cosmic catastrophes,"²²⁵ i.e. for a scientifically more plausible solution for the heavenly collisions of Velikovsky: "Short-lived comets have a characteristic life-span of between several hundred and a few thousand years. They do not only break apart, they are thrown off course by planetary collisions. At the present time, there exist about one hundred times too many short period comets in relation to the number of long period comets, which are captured by Jupiter and then fed into the observable strain of the Apollo-asteroids. This present surplus stems probably from the birth of new short-period comets, which were formed a few thousand years ago. They

²²² R. Bass, «Planetary Distances Explained? 230-Year Old Mystery Solved?», Dokument für *KRONIA-E-Mail Discussion Group*, 20. Januar 1997.

²²³ See P. Morrison, «Wonders: Doing the Poincare Shuffle. The Unpredictable Reshuffling of the Planets», in: *Scientific American*, Bd. 276, Januar 1997, p. 99.

²²⁴ S. V. M. Clube, W. M. Napier, *The Cosmic Serpent: A Catastrophist View of Earth History*, London: Faber & Faber, 1982.

²²⁵ See S. V. M. Clube, W. M. Napier, *The Cosmic Winter*, Oxford: Basil Blackwell, 1990, p. 153 f.

issued from one large comet which was fragmented during capture by, or perihelic by-pass of Jupiter. Many myths of humanity can be read as allegorical descriptions of the breaking-up of a great comet crossing the Earth's orbit. Several fragments hit Earth during the 3rd. and 2nd millennia B.C. A number of biblical episodes, especially the events of Exodus and of the Flood, describe the effects of a greater size impact."²²⁶

In 1993, the British astronomer Sir Fred Hoyle joined his two colleagues with his own, all in all rather more vague scenarii of cosmic catastrophes as the origin of religion.²²⁷ Our purpose in the present work cannot be to decide in the controversy surrounding the astrophysical "how" of historical cataclysms. The internal debate in the profession occurs at such a hectic pace and with such fast changes of positions that a plausible and possibly consensual picture is still to be waited for. Nevertheless, the content of the myths must not be allowed to be twisted or denied in favor of a particular astrophysical position. If myths persistently speak about Venus, the attempted analysis must take this fact into account. Yet, it must not stiffen itself in a discussion about whether the ancient peoples meant to designate by the names of "Venus" and "Mercury" the actual planets of these names, or then active and now lost celestial objects.

Even a conciliatory position is not to be excluded. When the findings of the NASA cosmic probe *Magellan* suggest a direct collision with Venus, it cannot simply be associated with the narratives of the myths, for the simple reason that the Venus explosion has been dated, for the time being, between the Silurian and the Devonian, that is, about 360 million years ago. When the three impact craters of Aorounga (Tchad) were identified out of space, they too were dated at first to the time between Silurian and Devonian, that is, too, at an age of about 360 million years.²²⁸ The French expert geologists, who did not undertake their dating out of space but on the ground, have placed the impact of this mini-planet into the Holocene, at a minimal time of 1500 B.P.²²⁹ Even their maximal date of 8000 B.P. has, according to the dominant scientific views, humans living on earth just about to start the neolithic revolution. The

²²⁶ See S. V. M. Clube, W. M. Napier, *The Cosmic Serpent: A Catastrophist View of Earth History*, London: Faber & Faber, 1982, p. 131/190. Compare also P. Hut et al., «Comet Showers As a Cause of Mass Extinctions», in: *Nature*, vol. 329, 1987, p. 118ff.; S. V. M. Clube, «The Catastrophic Role of Giant Comets», in: S. V. M. Clube (ed.), *Catastrophes and Evolution: Astronomical Foundations*, New York et al.: Cambridge University Press, 1989, p. 81 ff. As well as M. E. Bailey, S. V. M. Clube, W. M. Napier, *The Origin of Comets*, New York: Pergamon, 1990.

²²⁷ F. Hoyle, *The Origin of the Universe and the Origin of Religion*, Anshen Trans-disciplinary Lectureships in Art, Science and the Philosophy of Culture, Mono-graph 2, Wakefield/RI und London: Moyer Bell, 1993.

²²⁸ See R. A. Kerr, «Impact Craters All in a Row?», in *Science*, vol. 272, 5. April 1996, p. 33.

²²⁹ See J.-F. Becq-Giraudon, O. Rouzeau, E. Goachet, S. Solages, «Impact hypervélocité d'une météorite géante à l'origine de la dépression circulaire d'Aorounga au Tchad (Afrique)», in *C. R. Acad. Sci.*, Paris, Bd. 315, Serie II, 1992, p. 83ff.

creation of myths dating back to these times is now no longer excluded by anybody.²³⁰ Whether a mini-planet issued from Venus collided then with Earth can obviously not be decided here. But an impression of mobility in the debate is to be welcomed. Let's now see how humanity managed to deal with the impacts from heaven on Earth.

²³⁰ See R. A. Kerr, «Impact Craters All in a Row»? in *Science*, vol. 272, 5. April 1996, p. 33.

VI.

Temples and places of sacrifice on top of catastrophic layers

“The varied cosmogonies which I interrogated, affirm with a single voice that the surface of Earth was destroyed by fire and by water. It seemeth, that the variety of the traditions merely derives from the variety of the lands in which the peoples lived./ We have noticed further that these old festivities [rituals] are tied to a theology in the allegorical language, which we call mythology. In this very same, the misfortunes of the earthly surface are commonly represented through symbols and images, in which one can merely make out lucky or unlucky adventures of the gods, their wars, encounters, victories, and the good and evil which they have brought onto man.”²³¹

If the kingship of the sacrificial priests landed on Mesopotamian soil, after the Flood had washed over it,²³² one should be able to follow its trace archaeologically. Moreover, the connection between catastrophe and the emergence of sacrifice, if it can indeed be supported, must be supported by other sources. We may call upon the so-called “Flood-story” in Akkadian cuneiform to document this connexion:

“My race of humans, through its *destruction*, I want to...,
To Nintu I want to return the... of my creatures,
I want to return the people to their dwelling places.
From these towns they shall *build the [cultic]places of the godly laws*,/
After the... kingship was brought down from heaven,
After the lofty crown and the throne of kingship
had been descended from Heaven
he fulfilled the cults and the exalted laws of the gods...,
he founded the five cities on... unblemished sites
gave them a name and attributed them as *centers of the cult*.”²³³

²³¹ N.-A. Boulanger, *Das durch seine Gebräuche aufgedeckte Altertum: Oder Kritische Untersuchung der vornehmsten Meynungen, Ceremonien und Einrichtungen der verschiedenen Völker des Erdbodens in Religions- und bürgerlichen Sachen* (1766), Greifswald: Anton Ferdinand Rösens Buchhandlung, 1767, p. 533/ 100 f.

²³² See T. Jacobsen, *The Sumerian King List*, Chicago: University of Chicago Press, 1939, p. 71, 77

²³³ Compare with S. N. Kramer, *History Begins at Sumer: Thirty-Nine Firsts in Man's Recorded History*, Philadelphia: University of Pennsylvania Press, 1981, p. 149, my emphasis: “My mankind, in its destruction I will To Nintu I will return the ... of my creatures,

I will return the people to their Settlements,
Of the cities, verily they will their place of (divine) ordinances/
After the ... of kingship had been lowered from heaven,
After the exalted tiara and the throne of kingship had been
lowered from heaven, He perfected the rites and the exalted divine laws...,
Founded the five cities in ... pure places, Called their names, apportioned them as *cult centers*.»

See also J. B. Pritchard (ed.), *Ancient Near Eastern Texts Relating to the Old Testament*, Princeton: Princeton University Press, 1969, p. 43.

The “destruction” through “flood,” to which humans reacted by creating the first cultic places and the first sacrificial temples, was not the only catastrophe of the Bronze Age. Mesopotamia was devastated several times. After another such catastrophes “the priestly kingship was moved to Kish.”²³⁴ When this town was excavated in the years 1922 to 1933, the Anglo-American team of archaeologists discovered a flood layer. Upon this, they found the remains of the so-called early-dynastic Period I, that is, the first post-Stone Age, respectively First Bronze Age phase with royal sacrificial priests, which archaeologically defines the beginning of human high culture.²³⁵ Since then, further excavations have “shown that the old-sumerian, or early dynastic civilization of the third millennium follows in various important sites upon considerable flood layers - among others in Shurruk, Kish and Uruk... These layers put a close to the last prehistoric [Age of Copper] period.”²³⁶

The first investigation of the material uncovered by Woolley, which had smothered Late-Stone-Age settlements, was undertaken by Watelin, an excavator of Kisch, using the flood sediments of Ur: “Fresh-water silt, which contains but elements which one must expect from the waters of the Euphrates,”²³⁷ such is his pronouncement. Yet, there is puzzlement at the “absence of shells of fresh-water mollusks, as well as the lack of sea organisms and the presence of only one land mollusk.”²³⁸

The sterility of the flood-layer seems incomprehensible because an inundation which leaves behind 370 centimeters of silt must have been all-encompassing and have dragged with it many live creatures. Even more disturbing appear the geological findings that the waters of the Schatt-el-Arab, around which the flooded settlements were set, contains practically no silt at all.²³⁹ As a result, the theory of an uncommonly strong, but otherwise entirely natural swelling of the waters as the origin of the silt must be abandoned. Even if silt were present, the speed of flow of the ripping river

²³⁴ See T. Jacobsen, *The Sumerian King List*, Chicago: University of Chicago Press, 1939, p. 77.

²³⁵ See M. Gibson, «Kis. B. Archäologisch», in: *Reallexikon der Assyriologie*, Bd. 5, Berlin und New York: Walter de Gruyter, 1976-80, p. 618.

²³⁶ N. K. Sandars, *The Epic of Gilgamesh*, Revised Edition, Harmondsworth: Penguin Books, 1972, p. 14; cf. to the stratigraphic situation in Northern Iraqi Kharabeh Schattani in T. Watkins, «Kharabeh Shattani: An Halaf culture exposure in Northern Iraq», Centre National de la Recherche Scientifique (ed.), *Préhistoire de la Mésopotamie*, Paris: Edition du Centre National de la Recherche Scientifique, 1987.

²³⁷ Cf. L. Woolley, *Ur Excavations. Vol. IV: The Early Periods*, Oxford: Oxford University Press, 1955, p. 15.

²³⁸ Cf. V. Malycheff, «Analyse des Limons de Kish et d'Ur», *L'Anthropologie*, vol. XLI, 1931, p. 271.

²³⁹ Cf. G. M. Lees, M. L. Falcon, «The Geographical History of the Mesopotamian Plains», *Geographical Journal*, vol. CXVIII, Part 1, 1952.

should “practically prevent the accumulation of silt.”²⁴⁰ “The enormous thickness of the deposits in Ur, superior to 3m, and in Shurruk, of probably some 60cm, is significant as very long enduring lagunary conditions must have been necessary for its formation.”²⁴¹ Why no mollusks are to be found there is then unfathomable.

In view of these facts, the theory of an inundation had to be abandoned. Instead, the theory of an accumulation of windborne silt was taken up. Yet the fact that the silt is different “from today’s desert sand,”²⁴² from which it is supposed to have been lifted, speaks against it. Besides, “the total absence of somehow larger, round particles, which appear normally in wind deposits,”²⁴³ is troubling.

With this, flood scholarship came to a full stop. The scholars started anew, from the beginning. They now speculated about a “capture of the [deposit bearing] water through the operation of a hitherto not identifiable phenomenon.”²⁴⁴ Even a downward movement of Mesopotamia “by ten to one hundred meters in a vertical direction” to below sea level, to which “a rise followed,”²⁴⁵ has furnished a scenario for the deposits. Such a tremendous geological catastrophe could explain the thickness of the deposits. But then the presence of sea organisms should substantiate it, and this is not the case. Therefore this thesis is very prudently presented as being “only one among many possible explanations.”²⁴⁶ Yet, of the other many possible explanations, none has been imparted. The pendulum of silt studies could be made to swing back to the 1920s or 1930s, when a cosmic origin of this type of soil was held as quite possible among geologists²⁴⁷ and astronomers.²⁴⁸ From a comet of the type “dirty snowball” one might expect massive and relatively sterile dejections.

One heavenly object, most often perceived as female, named Inanna, Ishtar, Nintu etc., who as a queen of heaven can often not be distinguished from the heavenly

²⁴⁰ R. L. Raikes, «The Physical Evidence of Noah's Flood», in: *Iraq*, vol. XXVIII, 1966, p. 60.

²⁴¹ R. L. Raikes, «The Physical Evidence of Noah's Flood», in: *Iraq*, vol. XXVIII, 1966, p. 53.

²⁴² Cf. Forbes in Appendix VI von L. Woolley, *Ur Excavations. Vol. IV: The Early Periods*, Oxford: Oxford University Press, 1955, p. 160 f.

²⁴³ Cf. M. E. L. Mallowan, «Noah's Flood Reconsidered», in: *Iraq*, vol. XXVI, 1964, p. 73.

²⁴⁴ Cf. R. L. Raikes, «The Physical Evidence of Noah's Flood», in: *Iraq*, vol. XXVIII, 1966, p. 62.

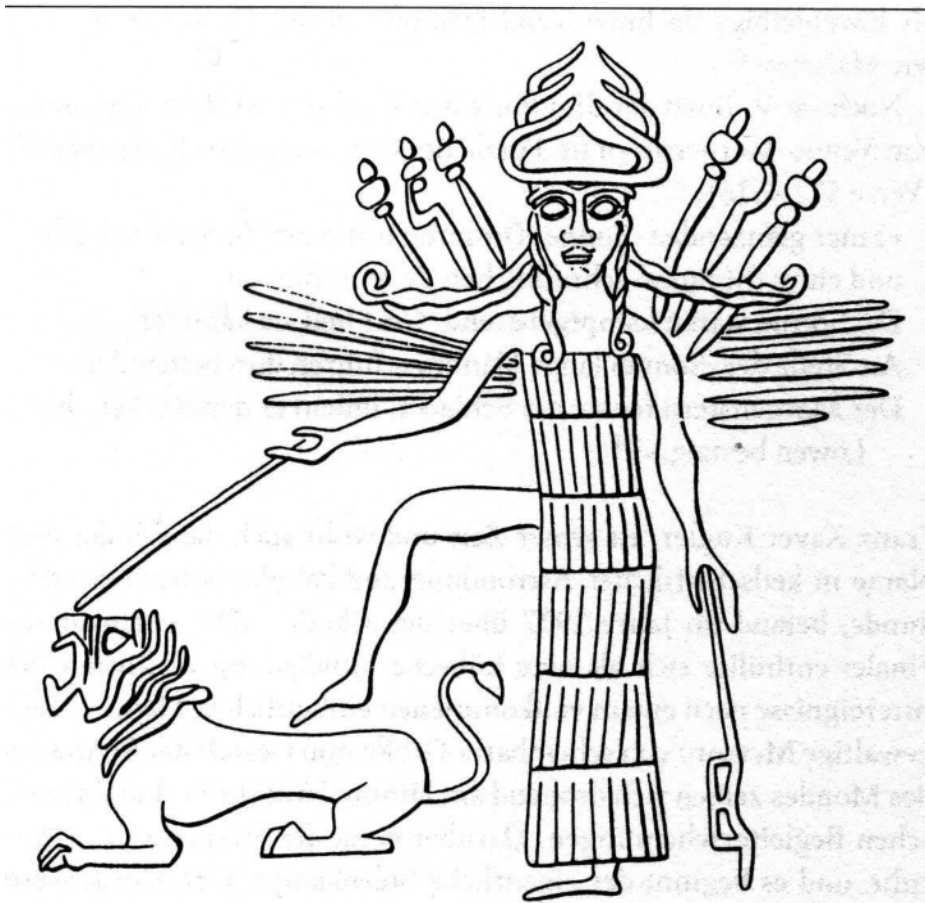
²⁴⁵ Cf. R. L. Raikes, «The Physical Evidence of Noah's Flood», in: *Iraq*, vol. XXVIII, 1966, p. 62.

²⁴⁶ Cf. R. L. Raikes, «The Physical Evidence of Noah's Flood», in: *Iraq*, vol. XXVIII, 1966, p. 62.

²⁴⁷ K. Keilhack, «Das Rätsel der Lößbildung», in: *Zeitschrift der deutschen geologischen Gesellschaft*, vol. 72, Nr. 6 und 7, 1920.

²⁴⁸ Cf. J. B. Penniston, «Note on the Origins of Loess», in: *Popular Astronomy*, vol. 39, 1929, p. 429ff.; J. B. Penniston, «Additional Note on the Origin of Loess», in: *Popular Astronomy*, vol. 51, 1943, p. 170ff. 39, 1929, p. 429ff.; J. B. Penniston, «Additional Note on the Origin of Loess», in: *Popular Astronomy*, vol. 51, 1943, p. 170ff.

serpent and was simultaneously equated to Venus, the Evening- and the Morningstar²⁴⁹ appears in early myths as a co- or main culprit for the Flood disasters to which the technologically remarkable culture of the late Stone Age, with its first seals and its copper metallurgy, fell victim.



Ill.10: Assyrian representation of Inanna/Ishtar in a warrior-pose with a curved sword, about to mount (the constellation of) the Lion.²⁵⁰

In the epic “Atra-Hasis” it is said: “However could I ordain in the assembly of

²⁴⁹ Cf. J. Black, A. Green, *Gods, Demons and Symbols of Ancient Mesopotamia: An Illustrated Dictionary*, London: The Trustees of the British Museum, 1992, p. 109.

²⁵⁰ Cf. J. Black, A. Green, *Gods, Demons and Symbols of Ancient Mesopotamia: An Illustrated Dictionary*, London: The Trustees of the British Museum, 1992, p. 108.

the gods total destruction, wept she, after the force of the Flood had descended [like a combat formation] upon mankind.”²⁵¹ In Egyptian myth, the goddess appears as Hathor “and she slew the humans in the desert” or also as the lioness-bodied Sekhmet “and she stomped in the darkness her blood to mash.”²⁵²

In Book V. of the *Sibylline Oracle*²⁵³, the prominence of Venus-the Morning Star is expounded in the finale of the battle of the gods (verse 512-516):

“I saw the threat of a brilliant ‘Sun’ among the stars
and of a ‘Moon’s’ terrible fury in lightning-flashes.
The stars gave birth to the battle. God let them fight.
The Morning Star directed the battle, by mounting on the back of the Lion.”²⁵⁴

Franz Xaver Kugler, the foremost name in cuneiform astronomy and Babylonian astronomy, in his own time as well as later, opined in 1927 about the *Sibylle*: “The ‘insane finale’ revealed itself as a pretty disguise of true natural events following of perfectly uniform plan... Two large meteorites of the same apparent size and shape to the Sun and the Moon appear threateningly in the sky, with their characteristic, accompanying displays. At this, the world of the stars enters in upheaval and the true star battle begins. The Morning Star (Venus) standing on the back of the Lion, gives the start of the battle... The stars which, at the beginning of the battle, dominated the morning sky, finally sink into the Ocean and in so doing, they set the Earth a-fire.”²⁵⁵ Over half a century went by before a convergence towards these views occurred within the sciences of antiquity.²⁵⁶

Practically no other old-oriental deity of the old-oriental god-heaven was as important and terrible as Ishtar. In the Gilgamesh epic she is given special prominence (table XI, 103-130):

²⁵¹ Cf. W. G. Lambert, A. R. Miliard, *Atra-Hasis: The Babylonian Story of the Flood*, Oxford: Clarendon Press, 1969, p. 95. «How did I, with them, command total destruction, she wept after the flood's might came upon the people [like a battle array]».

²⁵² Cf. J. B. Pritchard (ed.), *Ancient Near Eastern Texts Relating to the Old Testament*, Princeton: Princeton University Press, 1969, p. 11. «Slew mankind in the desert»; «the [beer-]mash of the night, to wade in their blood».

²⁵³ Cf. generally on this type of text H. W. Parke, *Sibyls and Sibylline Prophecy in Classical Antiquity*, ed. by B. C. McGing, London und New York: Routledge, 1988.

²⁵⁴ Cf. F. X. Kugler, *Sibyllinischer Sternkampf und Phaethon in naturgeschichtlicher Beleuchtung*, Münster i. W.: Aschendorffsche Verlagsbuchhandlung, 1927, p. 11,13.

²⁵⁵ F. X. Kugler, *Sibyllinischer Sternkampf und Phaethon in naturgeschichtlicher Beleuchtung*, Münster i. W.: Aschendorffsche Verlagsbuchhandlung, 1927, p. 9f.

²⁵⁶ See W. v. Engelhardt, «Phaetons Sturz - ein Naturereignis?», *Sitzungsberichte der Heidelberger Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Klasse*, 1979, p. 161-199.

“The Annunaki raised the torches,
 to set fire to the land with their frightening shine.
 The deadly silence of Adad covers the sky,
 all that was light turned into darkness.
 The [wide] land broke like a pot,
 for one full day the south storm [raged],
 with fullest speed it blew and [...].
 Like a battle came [over mankind the waters]:
 one cannot see the other,
 men cannot be made out in the rain.
 The gods themselves feared the Flood,
 they shied away and fled to the heaven of Anu.
 The gods are like dogs who lie outside, huddled together.
Ishtar wails like a woman giving birth,
 she screams, the queen of the gods, the sweet-voiced one:
 the former times have forsooth turned to mud,
 because I gave evil commands in the assembly of the gods.
 How could I have ordered evil in the assembly of the gods!
 I myself give birth to my mankind,
 then they fill up like the sea with fish.
 The Annunaki-gods wail with her,
 for six days and seven nights
 there rage the wind, the flood, the storm from the south and bring the land to its
 knees.

When there came the seventh day, the Storm from the South, the Flood retired from the battle,

The sea, which had flailed around itself like a woman giving birth, quieted down, the storm subsided, the Flood stopped.”²⁵⁷

100f.: ²⁵⁷ Compare M. G. Kovacs, *The Epic of Gilgamesh*, Stanford: Stanford University Press, 1989, p.

The Annunaki lifted up the torches;
 setting the land ablaze with their flare
 Stunned shock over Adad's deeds overtook the heavens
 and turned to blackness all that had been light.
 The [...] land shattered like a f...] pot.
 All day long the South Wind blew [...],
 blowing fast, submerging the mountain in water,
 overwhelming the people like an attack.
 No one could see his fellow,
 they could not recognize each other in the torrent.
 The gods were frightened by the Flood,
 retreated, ascending to the heaven of Anu.
 The gods were cowering like dogs, crouching by the outer wall.
 Ishtar shrieked like a woman in childbirth,
 the sweet-voiced Mistress of the Gods wailed:
 The olden days have alas turned to clay,

An hymn to Ishtar should suffice here to underscore her exceptional cataclysmic role in the Ancient Orient:

“Proud queen of the gods of Earth, most exalted among the gods of Heaven,
Loudly thundering storm, which pours its water over all lands and all peoples.
You make the heaven shiver and the Earth quake./

You shine like lightning over the mountains; your torches you fling upon Earth.
Your deafening orders command, they howl like the South winds, they tear
open the highest mountains.

You trample the disobedient like a wild bull: Heaven and Earth shake./

Your frightful roar bellowing from heaven consumes its victims./

Holy Inanna, the banks of the river are inundated by the waves welling from your heart.”²⁵⁸

In Uruk, for instance, the earliest “Inanna-symbols in the form of little animal figures”²⁵⁹ were excavated directly above a destruction level in the Eanna complex and show how intensively the survivors dealt with her. Let’s now have a look (see list page xxx) at the survey of the archaeologically detectable catastrophes of the Bronze Age, in order to then return to the question of how mankind dealt with the cataclysms, i.e. why it produced in response sacrificial cults, temples and priests.

because I said evil things in the Assembly of the Gods!
How could I say evil things in the Assembly of the Gods,
ordering a catastrophe to destroy my people?
No sooner have I given birth to my dear people
than they fill the sea like so many fish!
The gods - those of the Annunaki- were weeping with her,
Six days and seven nights came the wind and flood,
the storm flattening the land. When the seventh day arrived,
the storm was pounding, the flood was a war-
struggling with itself like a woman writhing (in labor).»

Also in German with reference to K. Hecker, W. G. Lambert, G. G. W. Müller, W. v. Soden, A. Ünal, *Texte aus der Umwelt des Alten Testaments. Band III. Lieferung 4: Weisheitstexte, Mythen und Even II*, Gütersloh: Gütersloher Verlagshaus, 1994, p. 732f. As well as H. Gressmann et al. (Ed.), *Altorientalische Texte zum Alten Testament*, Berlin und Leipzig: Walter de Gruyter & Co., 1926, p. 178.

²⁵⁸ Cf. D. Wolkstein, S. N. Kramer, *Inanna: Queen of Heaven and Earth. Her Stories and Hymns from Sumer*, New York et al.: Harper & Row, 1983, p. 95.

Proud Queen of the Earth Gods, Supreme Among the Heaven Gods/Loud Thundering Storm, you pour your rain over all the lands and all the people. You make the heavens tremble and the earth quake. / You flash like lightning over the highlands; you throw your firebrands across the earth. Your deafening command, whistling like the South Wind, splits apart great mountains./You trample the disobedient like a wild bull; heaven and earth tremble. / Your frightful cry descending from the heavens devours its victims. / Holy Inanna, the riverbanks overflow with the Flood-waves of your heart.»

²⁵⁹ See E. Porada, «The Relative Chronology of Mesopotamia. Part I: Seals and Trade (6000-1600 B. C.)», in: R. W. Ehrich (ed.), *Chronologies in Old World Archaeology*, Chicago und London: The University of Chicago Press, 1965, p. 156.

Archaeologically established signs of catastrophes in Bronze Age Mesopotamia.²⁶⁰ (The period here represented is dated according to the dominant research - not entirely accepted by the author - between the late 4. and the late 3.rd Millennium; cf. In order to avoid a chronology debate that is irrelevant at this point to the notes 81 to 128.)

The myth of the dying savior god, of the virgin birth and the Madonna with Child²⁶¹ begins to be popular in the so-called late Sumerian culture.²⁶²

Last destruction level with the collapse of the Ziggurat of Kish (“red stratum”) and the demise of the Old-Akkadian empire.

Bronze Age/Early Dynastic IIIb and Old-Akkadian with iron knives²⁶³ (Chagar Bazar, Tell Asmar)

Flood- or Destruction layer established in Ur and Kish; sterile deposit under limestone temple in Urus.

Bronze Age/Early Dynastic II/IIIa with begin of archaic cuneiform writing.

Flood- or destruction layer established in Ur and Kish.

Bronze Age/Early Dynastic I with continuation of priest-kingship and pictographic writing.

Flood- or Destruction layer established in Ur, Shuruppak (Fara) and Kish.

Bronze Age/Urus period with beginning of temple-terraces and priest-kingship, pictographic writing and Ishtar symbols.

Flood- or Destruction layer established in Ur, Kharabeh Sdhattani and (possibly) Kish.

Chalcolithic/Ubaid (last Stone Age layer, in which seals are employed, but writing and priest-kingship are still missing).

²⁶⁰ Cf. C. F. Schaeffer, *Stratigraphie comparée et Chronologie de l'Asie Occidentale (III^e et II^e millénaires)*, London: Oxford University Press, 1948; M. E. L. Mallowan, «Noah's Flood reconsidered», in: *Iraq*, vol. XXVI, 1964; T. Watkins, «Khara-beh Shattani: An Halaf culture exposure in Northern Iraq», Centre National de la Recherche Scientifique (ed.), *Préhistoire de la Mésopotamie*, Paris: Edition du Centre National de la Recherche Scientifique, 1987, s. 221 ff.; G. Heinsohn, «Destruction Layers in Archaeological Sites: The Stratigraphy of Armageddon», in: M. Zysman, C. Whelton (ed.), *Catastrophism 2000*, Toronto: Heretic Press, 1990, s. 213-247; H. Weiss et al., «The Genesis and Collapse of Third Millennium North Mesopotamian Civilization», in: *Science*, vol. 261, 20. August 1993, p. 995ff. Cf. also N. Dalfes, G. Kukla, H. Weiss (ed.), *Third Millennium BC Climate Change and Old World Social Collapse*, Berlin: Springer, 1997.

²⁶¹ Cf. already A. Jeremias, *Das Alte Testament im Lichte des Alten Orients* völlig erneuerte Auflage, Leipzig: J. C. Hinrichs'sche Buchhandlung, 1930, p.790 ,

²⁶² About possibly earlier appearances of the goddess with infant god, cf. W. Helck, *Betrachtungen zur großen Göttin und den ihr verbundenen Gottheiten*, München und Wien: R. Oldenbourg, 1971, p. 28ff. Cf. M. E. L. Mallowan, «The Early Dynastie Period in Mesopotamia», in: *The Cambridge Ancient History. Third Edition. Volume I. Part 2. Early History of the Middle East* (1971), Cambridge et al.: Cambridge University Press, 1980, p. 305.

²⁶³ Cf. M. E. L. Mallowan, «The Early Dynastie Period in Mesopotamia», in: *The Cambridge Ancient History. Third Edition. Volume I. Part 2. Early History of the Middle East* (1971), Cambridge et al.: Cambridge University Press, 1980, p. 305.

After the Bronze Age, catastrophes of a global extent are no longer to be made out on Earth. The end of the Bronze-Age with its dramatic climatic switch produced by “a sudden and steep increase of CO₁₄ in the atmosphere”²⁶⁴ is dated in one of the most acerbically studied territory in the world - the Netherlands - to 2650 years B.P., therefore, into the 7th century B.P.

According to contemporary documentary evidence, it is only in 1178 A.D. that a cataclysmic event of high magnitude is again observed from Earth, when an asteroid impacted the Moon and possibly created the Giordano Bruno crater in the process.²⁶⁵ In the early 14th century, which after the so-called Small Ice Age (from 1301/1303) fell victim to the Black Death (1348-52) the contemporaries reported, in startling numbers and agreement, of dreadful signs in the heavens. Much more, probably, than the plunging of Earth into the tail of a comet did not happen then. Nevertheless astronomers of renown have attempted to explain the susceptibility to the plague epidemic by chemicals contained in this dust.²⁶⁶

The most recent serious cosmic impact to which Earth was subjected happened in 1908 above the Siberian Tunguska River. A mysterious “shock-wave from an explosion” of the power of twenty hydrogen bombs created by a bolide having intruded into the atmosphere above West China, and which came down 2000km farther to the North-East, had flattened many hundred square kilometers of forest.²⁶⁷ One “contemporary who sat in his veranda in the small industrial town of Wanawara 60km to the South of the impact was ‘thrown several meters away, felt a blow of strong heat and fainted.’”²⁶⁸

Since the beginning of the 1990s, the solar system is systematically searched for asteroids, evtl. for “Doomsday-comets,”²⁶⁹ which might hit the Earth. Such bodies of a diameter of ca one to two kilometers are held to be extremely rare; an impact on

²⁶⁴ Cf. B. van Geel, J. Buurman, H. T. Waterbolk, «Archaeological and Palaeological Indications of an Abrupt Climate Change in the Netherlands, and Evidence for Climatological Telecommunications around 2650 BP», in: *Journal of Quaternary Science*, vol. 11,1996, p. 275.

²⁶⁵ Cf. J. Hartung, «Was the Formation of a 20-km-Diameter Impact Crater on the Moon Observed on June 18,1178?», in: *Meteoritics*, Nr. 11,1976, S. 187

²⁶⁶ See F. Hoyle, N. C. Wickramasinghe, *Diseases from Space*, London et al.: J. M. Dent & Sons, 1979.

²⁶⁷ See J. Ganapathy, «The Tunguska Explosion of 1908: Discovery of Meteoric Debris Near the Explosion Site and at the South Pole», in: *Science*, vol. 220,1983, p. 1158ff.

²⁶⁸ Cf. H. R. Shaw, *Craters, Cosmos and Chronicles. A New Theory of Earth*, Stanford / CA: Stanford University Press, 1994, p. 429; for the quote within the quote cf. E. L. Krinov, «The Tunguska and Sikhote-Alin Meteorites», in: B. M. Middlehurst, G. P. Kuiper (ed.), *The Moon, Meteorites, and Comets*, Chicago: The University of Chicago Press, 1963, p. 210.

²⁶⁹ Cf. D. I. Steel, *Rogue Asteroids and Doomsday Comets*, London: Wiley & Sons, 1995.

Earth is currently expected every 100,000 years. In the years 1991 and 1992 asteroids have passed the earth at a distance of just over 170,000 kilometers which is nevertheless considered to be “a rather close shave.”²⁷⁰ Even without catastrophes, it is estimated that yearly up to 200,000 tons of cosmic material fall on Earth.²⁷¹

Since the impact of Shoemaker-Levy on Jupiter in July 1994 alertness has considerably increased. Considering that this comet had only a diameter of between 500 and 700m yet that it “trailed gigantic fireballs and enormous amounts of dust, which are still [October 1995] are partly visible in Jupiter’s atmosphere,”²⁷² danger-planning has meanwhile be again expanded. The increased attention stems from the fact that bodies of up to 500m diameter occur ten times more frequently than chunks of over one kilometer. Somewhat smaller bodies could impact every 50 or 100 years.²⁷³ Therefore four high resolution observatories are to be positioned all over the world, exclusively dedicated to searching for such impact candidates.²⁷⁴

A propos of the Hale-Bopp comet, the magazine *Science* (28.3.1997, Vol. 275, nr 5308) published seven articles and, together with the *New York Times* (1. 4. 1997, “Gifts of the Comet,” W. Y. Broad) undertook to enlighten the general public with a new vision of Earth. It was no longer an Earth which turned itself inside-out and then miraculously outside-in which accounted all by itself for the creation of geological formations as well as for the creation and mutation of living forms. These had supposedly been accomplished by elements carried by comets, such as water, methanol, carbon monoxide, formaldehyde, hydrogen-cyanide and hydrogen sulfite, as well as silicates and sea salt. Bioastronomy was taking on the place of Biology and Geology. Mavericks such as Keilhack, Penniston or Zynman (see note 247, 248 and 179) advanced overnight to becoming ancestors of a research science freed of ideology.

²⁷⁰ Cf. S. Knight, «Watching Out for Doomsday. An Asteroid Heads Towards the Earth: Sarah Knight Meets the Scientists Who Are Watching the Sky», in: *Elan*, 26.-28. July 1991, p. 16.

²⁷¹ Cf. D. I. Steel, *Rogue Asteroids and Doomsday Comets*, London: Wiley & Sons, 1995, p. 91

²⁷² Cf. N. Hawkes, «How Great Is the Threat from Comets? Danger from Deep Space», in: *The Times*, 2. October, 1995, p. 18.

²⁷³ A. Irwin, «Scientist Calls for Meteor Monitor», in: *The Times Higher Education Supplement*, 6. October 1995.

²⁷⁴ Cf. generally N. Hawkes, «How Great Is the Threat from Comets? Danger from Deep Space», in: *The Times*, 2. October 1995, p. 18.