



CHRONOLOGY & CATASTROPHISM

REVIEW 2015:3

The Usselo Layer, the Global Conflagration and the Vanishing Act by Han Kloosterman

Amalek in Arabia and Egypt, Part II: Amalek in Egypt by Don Mills

The Writings of the Historians of the Roman and Early Medieval Periods and their Relevance to the Chronology of the First Millennium AD Part I by Trevor Palmer

The Mourning Goddess Unveiled by Ev Cochrane

REFLECTIONS ON THE NEWS, The Origin of Loess by Phillip Clapham

BOOK REVIEW - *Meet Me in Atlantis*

Plus **SOCIETY NEWS, LETTERS** and **STUDY GROUP REPORTS**



The thin black "Usselo Layer" at Pitstone in Buckinghamshire, as revealed by the investigations of John Evans during the 1960s.



Society for Interdisciplinary Studies ISSN 0953-0053

CHRONOLOGY & CATASTROPHISM

REVIEW 2015:3

EDITORIAL ADDRESS: prof.trevor.palmer@gmail.com

EDITORIAL TEAM: Trevor Palmer (Editorial Co-ordinator), Daphne Chappell, Phillip Clapham, Laurence Dixon, David Roth.

PRODUCTION: Barry Curnock and Daphne Chappell

MEMBERSHIP: Phillip Clapham, 45 Mary's Mead, Hazlemere, High Wycombe, Bucks, HP15 7DS, UK.

GENERAL ENQUIRIES: Barry Curnock, 27 Rosemount Road, Flax Bourton, Bristol, BS48 1UP, UK.

SIS web-site: www.sis-group.org.uk

CONTENTS

SOCIETY NEWS	2
ARTICLES:	
The Usselo Layer, the Global Conflagration and the Vanishing Act by Han Kloosterman	3
Amalek in Arabia and Egypt, Part II: Amalek in Egypt by Don Mills	10
The Writings of the Historians of the Roman and Early Medieval Periods and their Relevance to the Chronology of the First Millennium AD Part I by Trevor Palmer	23
The Mourning Goddess Unveiled by Ev Cochrane	36
REFLECTIONS ON THE NEWS, The Origin of Loess by Phillip Clapham	46
BOOK REVIEW:	
<i>Meet Me in Atlantis</i> , reviewed by Trevor Palmer.....	47
LETTERS :	
Daphne Chappell, Phillip Clapham	49
Study Group Reports	51

ARTICLES

The Usselo Layer, the Global Conflagration and the Vanishing Act

Han Kloosterman

(This article, written by the Dutch founder of the journal *Catastrophist Geology*, was originally published as ‘De Laag van Usselo, de Wereldbrand en de Verdwintruc’ in *Bres; Onafhankelijk Tijdschrift over Keerpunten in Mens en Cultuur*, 201 (April/May 2000), 63-74, but it has never previously been available in English. Now that Kloosterman’s catastrophist ideas are receiving widespread attention, we are pleased to be able to reproduce his original article, without any change in content, in an English translation produced in 2015 by Rens van der Sluijs.)

The Usselo Layer and the Global Conflagration

The geological discoveries regarding the end of the Cretaceous period have been in the news for the previous two decades: the iridium anomaly at the boundary between the Cretaceous and the Tertiary, discovered in 1980, and the enormous impact crater of that age, discovered in 1991 on Yucatan in southeast Mexico.

But there is a third important date, chronologically the second: 1985. It was then that Wendy Wolbach, chemist at the University of Chicago, together with Roy Lewis and Edward Anders, found the high carbon concentration of the boundary layer. The same layer which exhibits that high iridium content is full of charcoal and soot. The impact produced so much heat that a wave of superheated air rolled around the earth, hot enough and sustained enough to incinerate all forests. The article of Wolbach *et alii*, published in *Science*, stimulated research activities and since 1985 some 25 scientific articles have appeared on the subject.

And so it could happen that the notion of a global conflagration, previously only mentioned in hoary myths and in fire-and-brimstone sermons of fundamentalist preachers, became respectable within the academic community.

A thin (5 to 15 cm) layer rich in charcoal and soot also appears in sediments dating to the end of the last ice age, the ‘Allerød interstadial’, some 12,000 years ago. This layer was first found in 1940, in a sandpit near Usselo, a few kilometres from Enschede, by the archaeologist Cornelis Hijzeler (1902-1982), curator and later director of the Rijksmuseum Twenthe, Enschede.

In 1977, after my polemical input regarding the interpretation of that Allerød charcoal layer in England, I discovered a brochure, *Resten van een Ramp*, on the Usselo Layer in a second-hand book store near the Spui in Amsterdam. In the following winter, early 1978, Hijzeler gave me a guided tour of the Usselo sandpit. It was very apparent that it concerned a single deposit, the result of one giant fire.

Hijzeler had followed the layer through in the Netherlands, Belgium and Germany, from Ostend to Hamburg, and was aware of its existence in northern France, Poland and Belarus; in 1980 I knew of the Netherlands, Germany, Belgium, northern France, England, Belarus and Egypt. To this, Poland, India, South Africa and Australia have since been added, as well as North America and probably Vietnam.

The End of the Hunter Cultures

The end of the last ice age is the time in which the North American and the Scandinavian ice caps rapidly melted and the sea level rose, in which the large circumglacial lakes in North America ruptured and caused large floods, in which in Europe the Late Palaeolithic culture, especially well known from France and northern Spain, suddenly came to an end, just as the Clovis culture did in America, both cultures of big-game hunters. It was also the time of the extinction of the Pleistocene megafauna, the large herbivorous quadrupeds and the predators that preyed on them. The mammoth is the best known; it turned into a symbol of that massive dying, but hundreds of species vanished: the mastodon, the woolly rhinoceros, the American horse, the muskox in Eurasia, the giant sloth, the sabretooth tiger, and many others.

The difference in the rate of cultural change before and after the Allerød is striking, first the Upper Palaeolithic, then the Post-Palaeolithic. The style of the wall-paintings of the Grotte Chauvet, dated to 30,000 years BP, differs less from that

of Lascaux and Altamira, half that age, than the style of Picasso differs from his own style of ten years previously. It was an extraordinarily conservative culture: the people practised art almost like beavers practise hydraulics.

After some catastrophic event, however, probably a comet impact which caused impact quakes, tsunamis, a global conflagration and volcanic eruptions, the rate of development changed radically. The abundance of snail shells, directly above the charcoal layer in southern England, possibly provides the key to what happened next.

The megafauna had become extinct, the smaller animals had almost all died, the biosphere or what was left of it was entirely thrown off balance and a snail epidemic ensued. The few people who had survived the disaster, the Noahs and the Utnapishtims, kept themselves alive with snails because there was nothing else to eat. That lasted long enough for heaps of snail shells, *escargotières*, to form in some places. Subsequently, the menu diversified with mussels, oysters, fish and small game: on all continents we find, dating from the Mesolithic, the resulting midden heaps: *kökkenmöddings*, *kitchenmiddens*, *shell heaps*, *concheros*, *sambaquis*, *kaizukos*. They were seasonal food sources; hunger was suffered in wintertime. At the same time, though, people ate natural grains, which can be preserved for some time: distributed across the earth we find the emergence of centres in which agriculture and husbandry are developed. Humans multiplied again, began to live communally in villages, then cities.

Conclusion: if that catastrophic event had not occurred, we would still be painting mammoths, bisons and rhinoceroses and we would still eat roasted reindeer meat.

Existence in the Shadow of Disaster

Only towards the end of 1998 did I read about the discovery of the Cretaceous/Tertiary fire layer, in Walter Alvarez' book *T.-rex and the Crater of Doom*. Since then, I have spoken with many people about the implications of the existence of that much younger charcoal layer, not 65,000,000, but only 12,000 years old. I encountered a lack of understanding, shrugged shoulders, and even animosity. But there were also people who leapt from their chairs, who quickly grasped matters. One of these, Diógenes de Almeida Campos, palaeontologist at the *Academia Brasileira de Ciências*, put it into words directly: 'But in that case we exist here, the way we exist, entirely because of that disaster!'

A few months later, in May 1999, I found this confirmed by Sir Fred Hoyle, doyen of British astronomy. In his Henry Clay Frick lecture, in 1993 in New York, he stated: 'The entire history of civilisation correlates with the appearance of a giant periodic comet, which crossed paths with the earth some 15,000 years ago.' He composed a diagram that I hereby reproduce, together with mine. The two diagrams are at no point contradictory and must probably be superimposed on each other. Perhaps the second heaviest blow was not the third, as Hoyle proposes, but the sixth, ending the Bronze Age.

If our culture was formed by the trauma and the aftershocks of an enormous comet impact, we will have to rethink many subjects: in geology, palaeontology, evolution theory, ecology, prehistory and archaeology, mythology, cultural history, history of religions, psychology and sociology.

Table 1: Hoyle's scheme

Date	Event
2100 AD	The next comet impact, perhaps of a lower intensity
500 AD	The decline of the Roman Empire and the emergence of Islam
1100 BC	The emergence of Judaism (Joshua)
2700 BC	The end of the Old Kingdom in Egypt and the beginning of pyramid building
4300 BC	The utilisation of melting techniques by man
7500 BC	A second large impact ends the Ice Age
9100 BC	Smaller impacts bring about the extinction of the mammoth
10,700 BC	The impact of an enormous comet fragment causes the ice caps to melt

Fred Hoyle's scheme (1993) of a periodic comet with an orbit of 1600 years. Hoyle postulates that in 10,700 and 7500 years BC (in the text he gives 13,000 and 10,000 years Before Present) enormous fragments impacted onto the earth, bringing about the end of the Ice Age and the extinction of the typical Ice Age fauna, especially the large quadrupeds.

Table 2: Kloosterman's scheme

Lithic culture	Event
Neolithic	Urbanisation, Pyramid building, dolmens, Pottery, Agriculture and husbandry
Mesolithic	Mollusc eaters; the menu is supplemented with fish and natural grains. The food sources are markedly seasonal. <i>Kökkenmöddings, shell heaps, kitchenmiddens, concheros, sambaquis, kaizukos</i> . The large animals, typical of the Ice Age, are extinct, most small animals are dead. Snail epidemic. The few surviving people eat gastropods due to a lack of other food: <i>escargotières</i> .
Upper Palaeolithic	The Usselo layer (c. 12,000 years old), Big-game hunters, Cave paintings of Lascaux, Altamira ice age

Kloosterman's scheme (1999) of the consequences of the first and largest impact, some 12,000 years ago. The periodic repetitions must be superimposed onto this. Perhaps the second most destructive one was not the third, as Hoyle proposed, but the sixth, which ended the Bronze Age.

Geology students are force-fed a minimal amount of history of their subject, a lecture at most, or a few pages in a textbook, and it is all nonsense: most of it is heavily exaggerated, the remainder untrue. In the standard story Georges Cuvier (1769-1832) is the bogeyman and Charles Lyell (1797-1875) the culture hero. The bogeyman defended the historical reality of a series of global catastrophes of which the flood in *Genesis* was the latest one, and the culture hero produced light in that Christian darkness, the light of uniformitarianism, the teaching that everything has happened along lines of gradualism, requiring millions of years for every change. It is added that Cuvier was in favour of the theory of repeated creations, although Cuvier was not in favour of that theory at all and has written as much. Every ten years a geologist reads Cuvier and pens an article in protest, and promptly the next textbook appears with the same nonsensical story, which traces back at least to Haeckel and Buechner in the mid-nineteenth century.

World Views in Collision

The uniformitarianism-*versus*-catastrophism controversy is portrayed as if it merely concerned a row between early nineteenth century geologists, which was quickly resolved in favour of uniformitarianism. Nothing is further from the truth. It is about world views in collision, dynamical *versus* static.

While we are born on a planet which cuts through cosmic space at breakneck speed, spinning and spiralling all the while, a space in which all sorts of dynamical processes take place, 'small-hearted people' (Burnet) keep coming to tell us, and wishing to force us to believe, that all is well and all is quiet at the western front.

In the West it was the Church of Rome which opted for Aristotle and for Ptolemy, a fixed earth in a stationary cosmos, as opposed to Plato's dynamical world and Neo-Platonic heliocentricity.

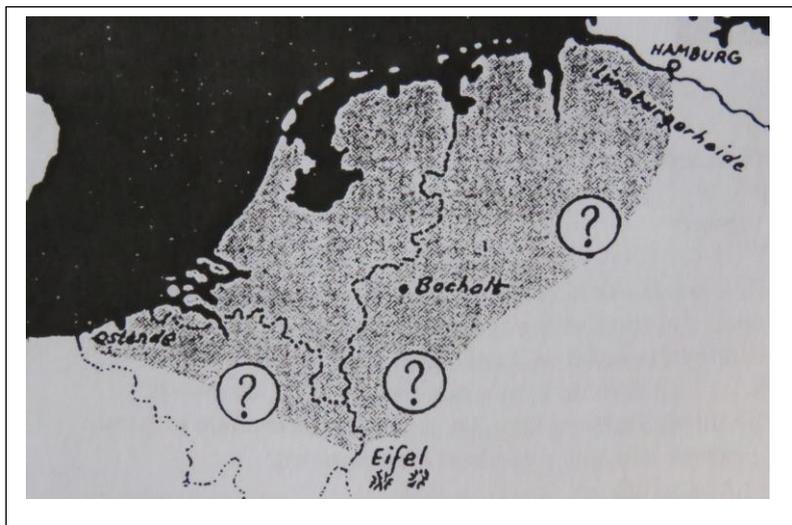
Schematically and simplifyingly we can say: Plato, dynamics and catastrophism on one side, Aristotle, stasis and uniformitarianism on the other. Platonism returned in the Renaissance and its influence remained strong until the end of the Romantic period. But then don't panic, Aristotle appeared once more, in different garb. At school I didn't learn anything about the rationalist *coup d'état* of circa 1860, continuity between Enlightenment and rationalism was suggested to us, while half a century of Romanticism intervened, with an empirical approach in the sciences, which then flourished considerably without lapsing into reductionism. But all of a sudden the materialists/rationalists arrived across the entire political spectrum: Marx and Engels, marxists; Buechner, socialist; Spencer and Comte, liberals; and Haeckel, national-socialist.

Reductionism Overboard

And so we were served up reductionist science, the science of which the native American intellectual Vine Deloria says that for the most part it is best thrown overboard, and preferably as soon as possible. Although there have always been dynamicists who protested (and thus, more often than not, lost their sustenance), an organised counter-movement only appeared after the hippie revolution of the 'sixties. Transpersonal psychology, altered states of consciousness, biofeedback, the holographic paradigm, and so forth.

In geology it only happened in 1980; geologists are a bit sluggish in their thinking. After a dark age of about 120 years some light appeared all of a sudden. Where previously almost fifty hypotheses existed concerning the extinction of the dinosaurs, the ammonites and so forth, at the end of the Cretaceous period, the solution was found by Luis and Walter Alvarez, *pater et filius*: a projectile from cosmic space.

Figure 1: In the post-war years, the archaeologist Dr. Hijszeler found that the Usselo Layer extends from Ostend to Hamburg. From: Actuele Onderwerpen 591, 1955.



By then, American and British astronomers had already concluded, on the basis of space age data, that bombardment from space must have played an important rôle in earth history. In 1982, Victor Clube and William Napier published *The Cosmic Serpent*, and they survived it, Clube in Oxford and Napier at the University of Edinburgh.

Someone making such a claim in The Netherlands would be hanged the next day at Dam Square. Dutch astronomer-catastrophists do exist, Gerrit Verschuur, Tom Gehrels, Pieter Hut, but are safely ensconced in North America.

Sir Fred Hoyle joined the ranks of the British catastrophists in 1993, a group of researchers composed of astronomers, geologists, archaeologists, geographers, biologists, dendrochronologists and prehistorians.

They consider themselves heirs to the Royal Society researchers of three centuries ago, the time of Newton and Halley. A geologically very fruitful time was that, the end of the seventeenth century, when king-stadtholder William III was king of England and rows were taking place between trinitarians and unitarians (not to be confused with uniformitarians), sun worshippers and Christians, orthodox heretics and heretical heretics.

In 1683, Thomas Burnet, Anglican preacher, published a geological work, *Telluris Theoria Sacra*, in which he sought the Paradise-on-Earth not in Mesopotamia or near Ararat, but turned the entire earth into a paradise, a perpetual spring with the earth's axis perpendicular to the ecliptic, a condition which came to an end because of a sudden change in the position of the earth's axis, as a result of which the seasons came into existence. Utterly unorthodox and dangerous was that he let the paradisiacal condition last until the Deluge, but he was only dismissed in 1693, following the publication of a sequel. In that he discussed the myths of many peoples concerning the deluge and the Golden Age preceding it, with the Bible story as only one myth among many others. Exit Burnet.

The Cometary Hypothesis

Partly as a response to Burnet's book, William Whiston published his *A New Theory of the Earth* in 1696, in which he aimed to prove that the geological facts corresponded more closely to the Bible than they appeared to do in Burnet's work. Whiston, assistant and later successor to Newton in Cambridge, launched the cometary hypothesis. An impact on Earth ends the paradisiacal condition and a near-impact causes the deluge. After Burnet, Whiston, too, developed more ideas-of-himself and he was likewise dismissed, in 1710. Now he is on record as the reintroducer of Arianism into England, which had disappeared in AD 496, even though he was not the first to do so.

To me, Burnet and Whiston seem reasonably close to each other, two Neoplatonists who tried to free themselves from their *idées reçues*. That geology did not get off the ground at that time is due to the minuscule Biblical timescale, which caused the superposition of strata to be explained with gravity: heavy below, light above. Only a century afterwards William Smith had an idea of genius, something which seems so obvious now: old below, young above. That idea proved extremely fertile and gave geology, together with Cuvier's anatomy and palaeontology, the impulse that led to the explosive development during the Romantic period.

After the Romantic period, the academic establishment declared Deluge and impact hypothesis anathema. While the latter already made a comeback in the US and in the UK some decades ago, the Dutch remain asleep, Aristotelian, static, uniformitarian.

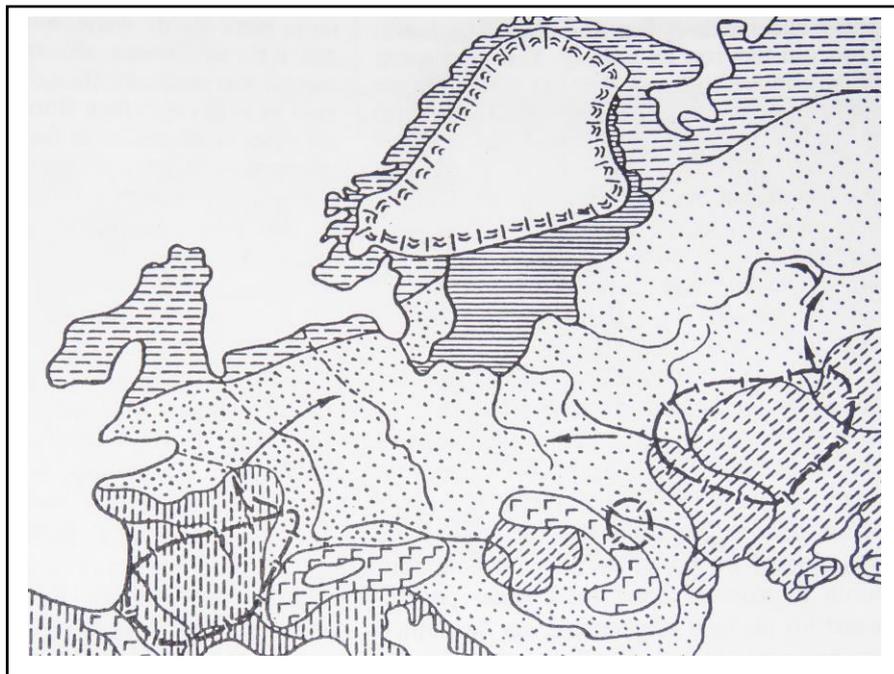
But this Deluge, what about it, surely it went out of fashion? But it did happen, at the end of the last ice age, according to Alexander Tollmann, professor emeritus in geology at the University of Vienna: *die Sintflut gab es doch*. Yes, yes, catastrophists are back again *on the continent* also, albeit few and far between. Tollmann and his wife Edith, palaeontologist, reached the conclusion that the last ice age was terminated by the impact of comet fragments in the ocean, similar to what the British astronomers claim.

The Tollmanns published, in 1993, *Und die Sintflut gab es doch*, translated into Dutch as *De Zondvloed*. Interestingly, they gathered not only geological arguments, but, as Burnet had once done, also mythological ones, something which, during the dark uniformitarian age, was only done by alternative researchers, from Donnelly to Velikovsky. This led the Tollmanns to the Global conflagration; they noticed that many flood myths also mention a devastating fire and wrote that geologists would do well to look for traces of it. They did not know of the Usselo Layer.

The Vanishing Act

After the discovery at Usselo, in 1940, Hijzeler conducted systematic research in the post-war years and published his results in scientific journals and in the press during the 1950s. While excavating a tunnel hole near Velsen, west of Amsterdam, in the mid-1950s, a multidisciplinary team of specialists studied the sediments and the Usselo Layer was found at a depth of eighteen metres, by a supervisor.

Figure 2: Europe at the end of the ice ages



Palaeogeography of Europe during the Allerød period, according to Paul M. Dolukhanov, in: De Sonneville-Bordes D (ed.), 1979: *La Fin des temps glaciaires en Europe*. Paris. Volume 2, p. 871. The currently known sites where the Usselo Layer occurs in Europe, from among others south England to northern Belarus, fall within the coniferous forest zone which extends from south England and Brittany towards the east and towards the Balkan. It seems premature to draw any conclusions from that.

Legend

	Tundra at the edges of the ice cap		Mountain vegetation
	Conifer forest		Boundary of the ice cap
	Mixed conifer and deciduous forests		Frozen Baltic lake
	Deciduous forests		Densely populated areas during the peak of the last ice age
	Steppes		Migration waves during the last ice age

In the published work, *The Excavation at Velsen*, the Usselo Layer is explicitly mentioned, but the word *charcoal* does not appear in it. The vanishing act had commenced. The geologists should have been delighted with the find of a synchronous boundary layer from Ostend to Hamburg, a snapshot in time (in English: *marker horizon*), important for stratigraphy, for ecology, subsidence, prehistory. But no, it troubled them. They themselves knew better, of course, but would others not give it a catastrophist interpretation? Havinga was the most honest, writing about ‘a thin layer of white sand with black speckles’, but Pons at once conceived of the first vanishing strategy: he called the charcoal humus. Charcoal is elementary carbon, humus consists of carbon compounds and if you lack good vision you can tell the difference with a magnifying glass [I was wrong there, it’s not that easy – H. K., 2015]. Pons lamented, with crocodile tears, that the species of humus had not yet been determined.

A second method to spirit that annoying Usselo Layer away is to call it a soil. If soot falls down from the air, together with wind-blown sand, a sediment layer forms, perhaps on top of a soil profile, but it is not a part of that profile.

The third way is the hypothesis of a dry period with an unusually large number of forest fires. That conflicts with the data concerning that period, the Allerød, when the climate was in fact moister than before and after it. The soil profile and the many-wildfires hypotheses can be checked, but that has never been done. Even a child can, at any rate, see from twenty metres away that the layer is homogeneous, the result of one big fire.

The positive exceptions should also be mentioned: Van der Hammen called, at least in the fifties, Usselo Usselo and charcoal charcoal. In addition, the small Usselo Layer appears in the *Grote Winkler Prins* encyclopaedia, the seventh, eighth and ninth editions, 1974, 1983, 1993, and compared to some ‘scientific’ discourses the seventh edition is fairly acceptable, because it is descriptive and not interpretative. But the eighth and ninth editions fall short, rambling about a soil layer, and forest fires in the plural.

Riezebos and Slotboom join the ‘conspiracy of silence’, in 1984. They found the charcoal layer in West Germany, but do not mention the name Usselo – while the German geologists do so routinely: *Der Usselo Horizont*. Van Mourik and Slotboom, in 1995, went much too far – sorcerer’s apprentices who believed they had mastered the vanishing act. Their article is entitled, *The Expression of the Tripartition of the Allerød chronozone in the Lithofacies of Late Glacial polycyclic profiles in Belgium and The Netherlands*. Even I, a geologist, had to read this thrice before I could make sense of it. It means: ‘The tripartition of Allerød sediments in Belgium and The Netherlands.’ The Usselo Layer is never mentioned. Instead the authors speak of *a humic mineral horizon* (what is that?), which is not, however, used for correlation. We can keep sleeping calmly, the carbon has finally dematerialised and may through the fourth dimension perhaps be of use to the followers of Sathya sai Baba. But not here in the West, such horrors! The article is published by the Rijks Geologische Dienst. What do those guys actually do there in Haarlem? I thought their job was to figure out the geological history of The Netherlands.-

‘Small-Hearted People’

To conclude, a few quotations which illustrate that the uniformitarian-*versus*-catastrophist controversy was not limited to the nineteenth century. Bourguet wrote in 1729, a century before Lyell:

Our terrestrial globe may have undergone very considerable changes, but the admirable Laws of the Machinery, founded in the Beginning by the Might and the Wisdom of God, and which have moulded it and maintain it, remain the same today.

It is as if Burnet responds to that, but the following quotation is from 1693, a century before Cuvier:

The second source of the prejudices in the sciences of the Natural and Divine things seems to be the small-heartedness, which cannot conceive anything but a minute scope of times and things: but because nothing is wider, nothing more excellent than Nature and Providence, people of that sort cannot be able judges concerning the contemplations which are made of these things and undertaken.

There is yet another type of small-hearted people, which delight in amusements of words, and pleasing maxims; these are most unsuited to contemplate large things. And should they have any authority, as they often do, they use that to destroy the good name of those who have a more liberal mind.

Three centuries ago Burnet called such people *Small-hearted*. In the year 2000, now that the North Americans possess the money and technology to dispatch a nuclear load towards an incoming bolide, I further call them irresponsible in a scandalous way.

Bibliography

Usselo and Global Conflagration

- Alvarez, W., ‘Towards a Theory of Impact Crises’, *Eos*, 67: 35, 1986, pp. 649-658.
- *T. rex and the Crater of Doom*, Princeton, 1997.
- Asher, D. J. *et al.*, ‘Coherent Catastrophism’, *Vistas in Astron.* 38, 1994, pp. 1-27.
- Clube, S. V. M., ‘Catastrophes and Evolution’, *Brit. Ass. Adv. Sci., Mason Meetings*, Oxford, 1989.
- Clube, S. V. M., Napier, W., *The Cosmic Serpent – a Catastrophist View of Earth History*, London, 1982.
- Emiliani, C., Ager, D. V., Kloosterman, J. B., De Grazia, A., ‘An Allerød Conflagration?’ (a discussion), *Catastr. Geol.* 2:1, 1977, pp. 13-15.
- Hoyle, F., *The Origin of the Universe and the Origin of Religion*, London, 1993.
- Hijzeler, C. C. J. W., ‘De Laag van Usselo’, *Grondboor en Hamer*, 2, 1955, pp. 29-41.
- ‘Resten van een Ramp’, *Actuele Onderwerpen AO-594*, 1955.
- ‘Late Glacial Human Cultures in the Netherland’, *Geol. Mijn.* NS 19, 1957, pp. 288-302.
- Kloosterman, J. B., ‘Apophoreta-2’, *Catastr. Geol.* 1: 2, 1976, p. 57.
- ‘The Usselo Horizon, a Worldwide Charcoal-Rich Layer of Allerød Age’, *Symp. New Scenarios of Solar System Evolution*, Univ. Bergamo, 1999.
- Tollmann, E. en A., ‘Der Sintflut Impakt’, *Mitt. Oesterr. Geol. Ges.* 84, 1992, pp. 1-63.

Verschuur, G. L., *Cosmic Catastrophes*, Reading, 1978.

- *Impact-The Threat of Comets and Asteroids*, New York, 1996.

Wolbach, W. S., Lewis, R. S., Anders, E., 'Cretaceous Extinctions: Evidence for Wildfires and Search for Meteoritic Material', *Science* 230, 1985, pp. 167-179.

The Vanishing Act

Deloria, V., *Red Earth, White Lies*, Golden, CO, 2000.

Hammen, T. van der, 'Late-Glacial Flora and Periglacial Phenomena in the Netherlands', *Leidse Geol. Med.* 17, 1951, pp. 71-183.

- 'The Age of the Usselo Culture', *Geol. Mijnb. NS* 19, 1957, pp. 396-397.

Mourik, J. M. van der, Slotboom, R. T., 'The Expression of the Tripartition of the Allerød Chronozone in the Lithofacies of Late Glacial Polycyclic Profiles in Belgium and the Netherlands', *Rijks Geol. Dienst. Med.* 52, 1995, pp. 441-450.

Pons, L. J., 'Fossiele Bodemprofielen in het Deksand in de Tunnelput van Velsen', *Boor en Spade* 10, 1959, pp. 170-209.

Riezebos, P. A., Slotboom, R. T., 'Threefold Subdivision of the Allerød Chronozone', *Boreas* 13:3, 1984, pp. 347-353.

Straaten, L. M. J. U. van, De Jong, J. D. (eds.), *The Excavation at Velsen: a Detailed Study of Upper-Pleistocene and Holocene Stratigraphy*, *Kon. Ned. Geol. Mijnbk. Genootsch., Verh.*, 17: 2, 1957, pp. 87-218.

Tollmann, A., 'The Flood Impact and its Predecessor at the Pleistocene-Holocene Transition', *Symp. New Scenarios of Solar System Evolution*, Univ. Bergamo, 1999.

Tollmann, A. en E., *Und die Sintflut gab es doch*, München, 1993.

Postscript

Where Are the Trees?

In a sandpit near Usselo, Twenthe, Cornelis Hijzeler, of Rijksmuseum Twenthe at Enschede, found as a part of the fire layer (10 cm white-bleached sand with pieces of charcoal and soot) some thick trunks of pine and birch, which were charred on one side and lay criss-cross (Hijzeler 1955, 1957).

In 1960, Betty Polak, of the Bodemkundig Laboratorium at Wageningen, was able to take some samples of a prehistoric forest (*forest bed*) near Helvoirt in the province of Noord-Brabant, hours before bulldozers destroyed the information. In the layer, which Polak correlated with the Usselo Layer on pollen content, she found a large amount of pine trunks, partly burned or scorched, together with birchwood and bark, and with pine cones which looked as if they had just dropped from the tree.

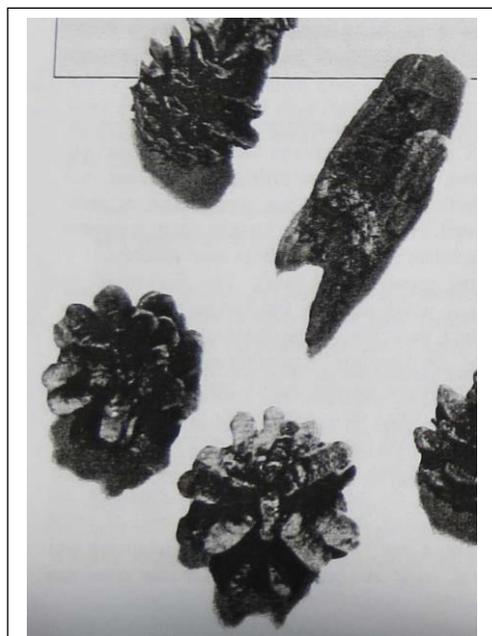
The characteristics of annual tree rings enabled, during the second half of the 20th century, an annual ring calendar which now covers more than 10,000 years, almost into the Allerød period. The annual rings of the tree stumps of Usselo and of Helvoirt can not only be compared between each other, but they can also now be dated using the dendrochronological method.

But where are the stumps?

References:

Hijzeler 1955, 1957 – see Bibliography.

B. Polak, 'A Buried Allerød Pine Forest', *Acta Botanica Neerlandica*. 12: 533-538, 1963.



Pine cones and a piece of charcoal, found in the forest bed near Helvoirt, Noord-Brabant, by Ms. B. Polak