THE APOCALYPSE OF THE YEAR 10,000 BC: MYTH OR REALITY?

In his dictionary ***"Les archives de l'insolite"*** French erudite Jean-Louis Bernard gives the following definition for the article: *"Apocalypse of the year -10,000:"*

> *"A series of catastrophes which took place around the year 9,000 or 10,000 before our era, which affected the whole planet, and about which Tradition and modern science are in agreement. Let's list these cataclysms: in Europe, the end of the last ice age, maybe as a consequence of the shifting of the pole towards its present position in the North; in compensation, a drying up of the Sahara was started or accelerated; probable end of the archipelago of Atlantis; in East Africa, a sudden sur-elevation of mounds, and disappearance of an interior sea (at the sources of the Nile) and of an archipelago (Pount) in the Indian Ocean; possible sur-eleveation of the Andes, with disappearance of archipelagos in the Pacific Ocean (and isolation of the famous Easter Island)..."*

This definition is only partially satisfying for it attempts to group over a short period several catastrophes, some proven some purely hypothetical, belonging in fact to different periods which are spaced out over several thousand years. What we must remember is this date of -10,000 (very much a rounded number, in fact, a simple chronological benchmark), which is a key date in the recent history of earth and of men.

But how sure are we that there was a cataclysm? The opinions have long been divided, in the absence of incontrovertible proofs; the end of the last glaciation is a certainty, with its two main consequences: a warming of the climate and above all, a very important rise (of 100m to 180 m, according to the regions) of the level of oceanic waters; these completely transformed coastal geographics by progressively invading the continental banks. The mini-extinction of the American mega-fauna, which dates from the end of the Pleistocene, has also been verified since work done in the 1940s. The double question which arose for scientists was therefore: What can have brought about such a radical and rapid climatic change? And why did so many animal species disappear in so short a time?

Since the beginning of the XXI. century, a new multidisciplinary theory, which, in the absence of incontrovertible proof, had hitherto remained a hypothesis, and known under the name of **Pleistocene extinctions,** has appeared in the scientific literature. It is connected with the geophysical and climatic event which has been known for a long time under the name of the **Younger Dryas** event.

An important conference which took place in Acapulco in May 2007 was dedicated to an in-depth examination of this theory. It gathered a great number of

scientists from a variety of horizons and specialties, who brought forth new, convincing and compatible contributions. The conference has established the cosmic origins of the extinction of the Pleistocene out as a quasi certainty. The theory has acquired consistency, fed by multiple proofs and often definitive and incontrovertible arguments. Its promoters believes it to be called to a success comparable to the one which has explained the cosmic end of the dinosaurs. It is only a matter of time for it to become established, as has always been the case with a new theory, and an important one, as in the present case. Mentalities often have had a hard time evolving, especially among scientists who do not like see their certainties questioned.

The Younger Dryas Event and Pleistocene extinction

The Acapulco Conference of May 2007

A number of scientists of international rank were invited to participate in this conference organized under the aegis of the American Geophysical union (AGU), to take place at Acapulco, Mexico, from May 22 to 25, 2007. Others invited themselves, believing that they had a contribution to make and not wanting to miss a reunion which they expected to be historic (as it turned out to be, even, according to some, a founding event). As announced, the subject was tempting for many researchers: ***New Insights into Younger Dryas Climatic Instability, Mass Extinction, the Clovis People, and Extraterristrial Impacts.*** The conference conceived of itself as resolutely multidisciplinary, which was the only efficient way to confront diverse points of view and to make knowledge progress.

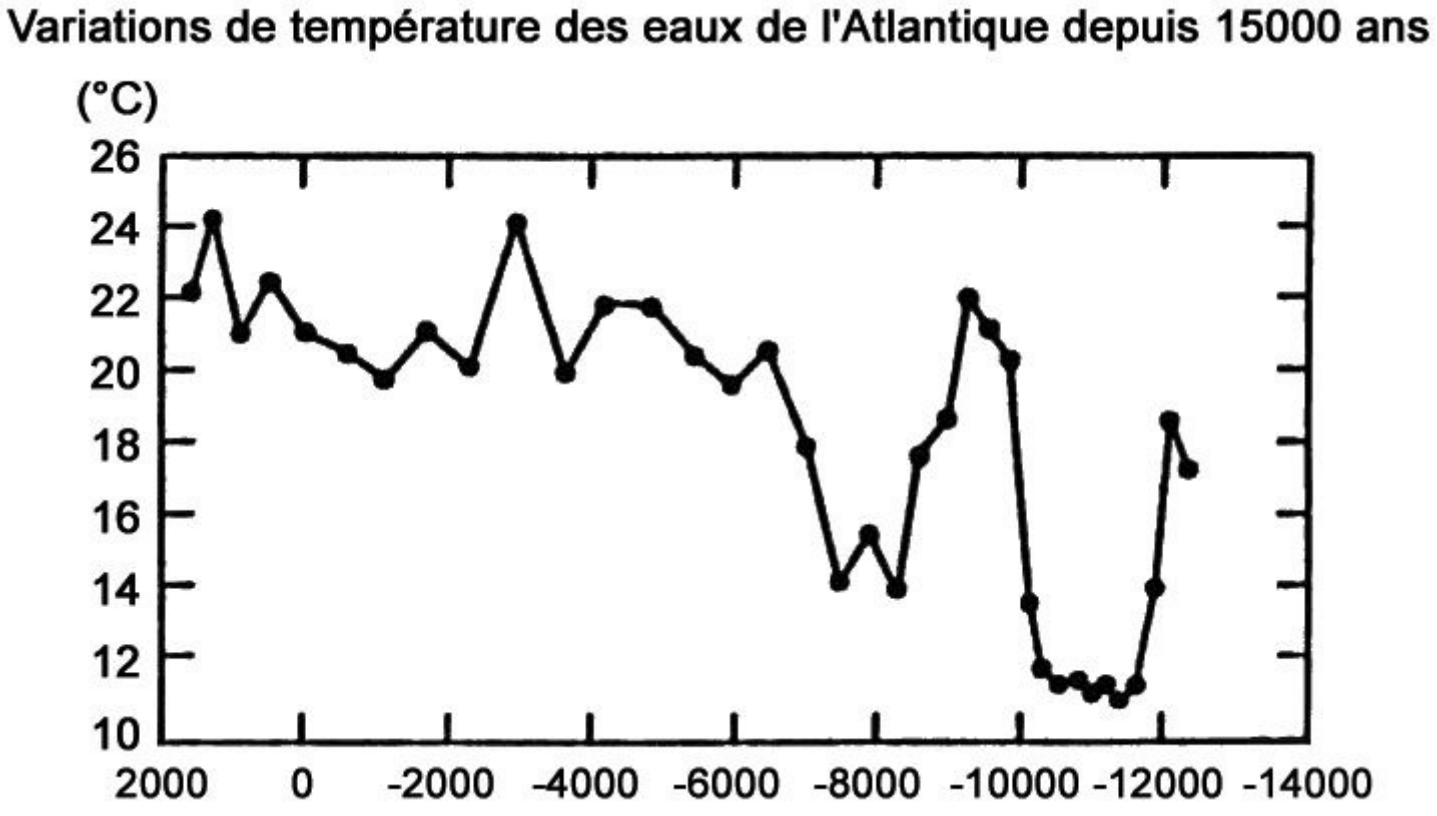
The presentation text of the conference explained notably:

"The deglaciation which followed the last glaciation was brutally and spectacularly interrupted about 12,900 years ago by a widespread cooling down which marks the beginning of the Younger Dryas. Numerous signs show that the Younger Dryas was characterized by sudden changes in the configuration of the ice cap, the sudden drying up of pre-glaciation lakes, the moving of flood patterns from North America towards the North Atlantic, and the reorganization of the circulation of the oceanic waters...

The beginning of the Younger Dryas seems to have coincided with massive changes, widespread and local, in the fauna and in the development of the stone age cultures established in North and South America. It is marked by the most recent of all massive extinctions, the disappearance of the American megafauna, including the mammoths, horses and sloths, and the end of the Clovis culture and of other contemporary human paleolithic cultures...

A new hypothesis has been advanced according to which the cooling down of the Younger Dryas could have been triggered by extraterrestrial impacts which provoked the destabilisation of the ice cap, the rerouting of flood waters, and changes in the oceanic currents. The work in question presents newfound proofs of an impact or of aerial explosions of extra-terrestrial origin some 12,900 years ago, which include sediments of the Clovis period all over North America showing high levels of iridium, magnetic spherules and carbon, glass-like carbon, fullerenes and ratios of exoterrestrial noble gases often associated with carboniferous layers (black carpets) with an unusual biotum..."

The extinction concerning the megafauna of Northern America had been remarked upon as early as the 1940s by the American archaeologist Frank Hibben (1910-2002) following an expedition to Alaska which had deeply impressed him and about which he told in his book ***The Lost Americans.*** He had found in the frozen muck remains of disappeared species like mammoths and mastodons mixed with the bones of animals of other species who had managed to survive, like the bisons and the bears. In his opinion, a cataclysm of enormous amplitude had occurred without doubt but its nature remained totally explained.



Variations of water temperatures in the North Atlantic in the past 15,000 years.
The depression around -11,000 can be explained by the destabilisation of the immense glacier which recovered North America and the empyting out of the glacial Lake Agassiz, consecutively to the impact of a comet. The depression around -8000 can be explained by the overture of the English Channel. For the two events the decrease in water temperatures has been of several degrees. (Document J.-C. Duplessis and P. Morel). The depression centered around -8000 might correspond to the opening of the

passage between the North Sea and the English Channel which brought about a considerable cooling of the waters of the Atlantic Ocean.

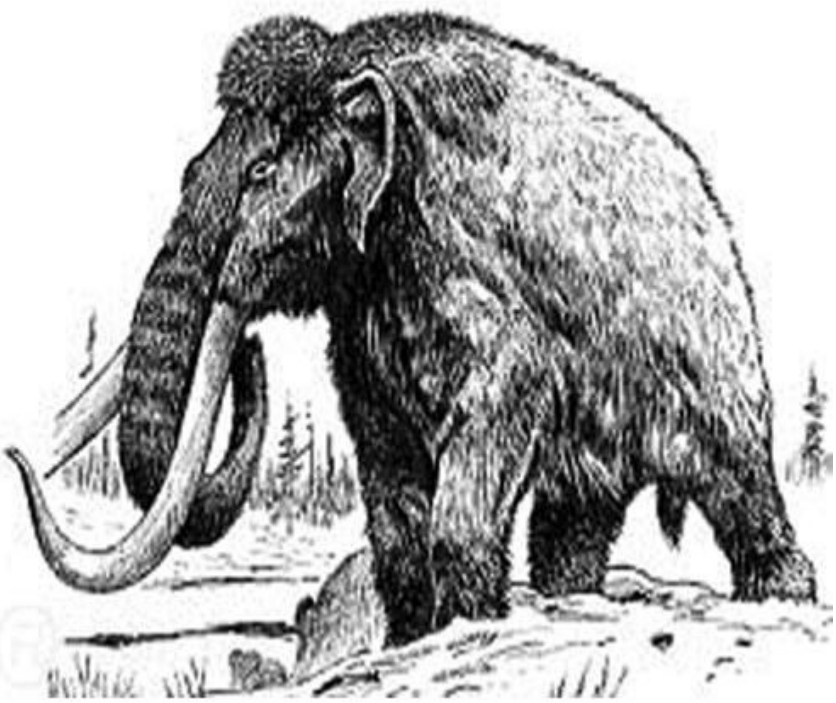
We know that this decimation did not only concern North America but that it manifested itself in Europe as well, in the case of the giant rhinoceros, in Siberia with the mammoths and bisons, and generally in the whole North of the Earth. One talks about the disappearance of 80% of the big mammals and even the total extinction of some species. In its book *Earth in Upheaval,* published in 1955, Velikovsky gave over a hundred citations taken out of books and articles on the subject, which all describe the occurrence and consequences of one and the same event. The causes remained undefined for the majority of the authors who treated the subject. Velikovsky, a convinced catastrophist, wrote clearly about cometary nuclei as being the possible culprits. But he had a dismal image among American scientists after the publication of his first book, *Worlds in Collision,* justly criticized for its erroneous astronomical hypothesis, and nobody seriously listened to him. In the 1950s, catastrophism was decidedly not in fashion!

All the animals found frozen seemed to have been taken by surprise by an unforeseeable and unavoidable event, which did not leave them time to find shelter. In one single day, life was annihilated in numerous places. As soon as the 1940s, all the scientists who studied the diverse debris and the affected terrains were forced to admit that the uniformitarian theory then in favor could not account for the observed effects and that it was necessary to bring into play a cataclysmic event. But which one? Hibben simply wrote: “The Pleistocene period finished in death. It was no ordinary dying out of some vague geological period meeting an uncertain end. This death was catastrophic and global.” But he too spoke for naught.

The participating scientists acknowledge that the Acapulco Conference of 2007 had beneficent effects concerning the global amelioration of knowledge on this subject, as they were able to exchange viewpoints, explain their observations and their data as well as their simulations, and attempt to find a plausible and acceptable explanation for this Younger Dryas Event which has become an astronomical event as well, as the cosmic impact (be it of a comet or an asteroid) no longer leaves place for doubt.

The new theory

Scientists are now contemplating a comet of some 2 or 3km diameter, (some go up to 4km) probably coming from the North-West, which would have fragmented upon entry into the atmosphere above North America. The impact triggered the most important cataclysm that our planet has know in 13,000 years. Its understanding can only be pluridisciplinary, as several sciences are involved.



The Younger Dryas Event.
The map to the **left** shows North America 12,900 years ago. Glaciers still occupy the whole North of the territory. Two impacts are suspected: one in the area of the Great Lakes, the other somewhat farther to the North, in the region of Hudson Bay. A dozen sites where traces of impact have been discovered are indicated on the map. The explosion kindled enormous fires, devastated whole ecosystems and prehistoric cultures of North America. (Document J. Kennett, A. West, R. Firestone et al.) **Right,** a mammoth. It is believed that the mammoths were victims of the Pleistocene extinction or that the latter has considerably destabilized the species so that it could not survive over the next millenium.

The comet (or a major fragment thereof) hit the immense glacier which then covered the region of the Great Lakes. Hudson Bay, somewhat farther to the North, is also considered as a possibility for the impact. The St. Lawrence *inlandsis* would have been practically destabilized, which would have lead to the partial emptying of Lake Agassiz which was the largest glacial lake of North America. It is believed that this lake measured 1,500 km in length and was 1,100 km wide, with an average depth in the order of 200 meters. A great quantity of fresh cold water would have been injected in this way into the North Atlantic, leading to a very important decrease of temperature (up to 5 degrees are considered).

The researchers in the diverse disciplines have analyzed some fifty American archaeological sites related to the so-called Clovis culture. They have found a thin layer rich in carbon dating 12,900 years back with an abnormal concentration of iridium, an element almost always associated with an exoterrestrial event. Nanodiamonds and fullerenes have also been discovered and have yet reinforced the hypothesis of a cosmic origin of the catastrophe.

One can see therefore that the comet was the trigger of a whole series of chain reactions associated with climatic, geologic, palaeontologic events, not to mention the human consequences which must have been appalling, not only in America but in the whole North of the Earth. We think in particular of one or several giant tsunamis which could have swept over the coasts of Europe. Traces of the cosmic cataclysm have been found in Belgium (on the site of Lommel, in the north of the country).

Moreover, the comet hypothesis allows to explain sufficiently well the important cooling of temperatures noted around this time and which would have lasted a good thousand years. The particles issued from the explosion of the comet would have increased considerably the absorption of energy by the sun, a phenomenon which would have accelerated the melting of the glacier.

Some scientists think today that the Carolina Bays of which there exist hundreds of thousands in the East of the United States could have been formed by a blowing effect during this cosmic catastrophe. Trace material (of iridium, notably) have been found in some of the bays which seem to bolster the astronomic hypothesis of their formation. We are aware of the fact that the absence of meteorites and impactites in and around these structures has always put in doubt an exoterrestrial origin for the Carolina Bays, but the fact is that they integrate themselves well in a picture of global cataclysm.

Astronomy offers two other possible solutions to explain this “Apocalypse of the year -10,000,” one asteroidal, one cometary. I am going to say a few words about these.

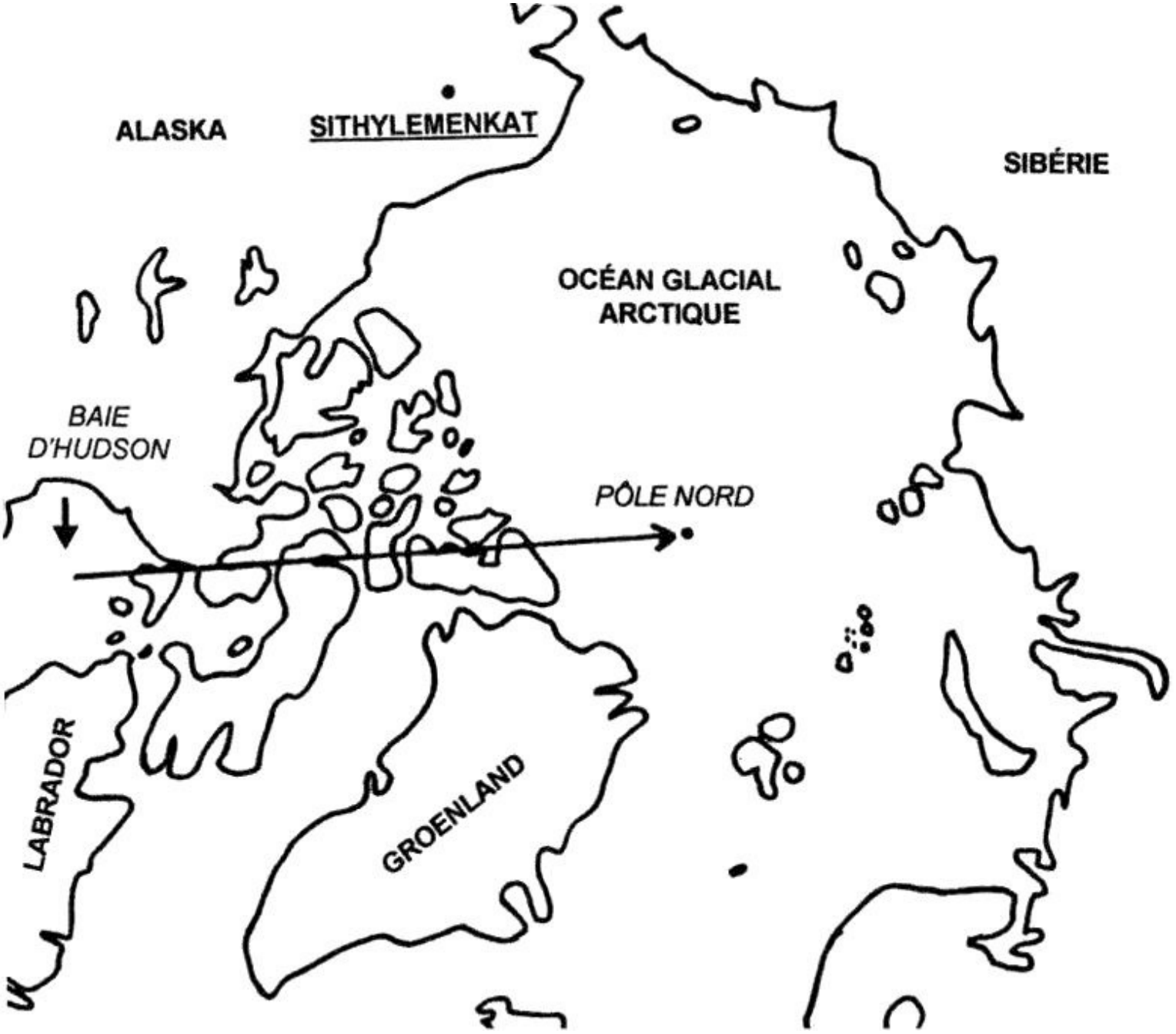
The Sithylemenkat hypothesis

The meteoritic crater Sithylemenkat has been discovered in 1972 by the satellite Landsat 1 in a mountainous and desert area of Alaska. This discovery allows one to contemplate a correlation between the end of the last Ice Age and the approximate age of 12,000 years that has been attributed to this crater.

A first geological and geographic study of the area took place in 1969, even before the meteoritic origins of the crater had been suspected as, seen from the ground, nothing seems to signal its exceptional character. It is a large depression of 12,4 km diameter and a depth of 500 meters. Its name in the local idiom signifies “the lake in the hills,” for at the bottom of the depression there is a lake of ca 3 km in diameter. Samples taken inside the crater revealed an abnormal proportion of nickel which stunned the researchers. The more so that the same strong nickel concentration also evidenced itself in peripheral samples of the depression. Moreover, a magnetic study of the area indicated a negative anomaly associated with this depression, pointing to an intense fracturing of the crater bed, below the impact zone.

If it cannot be recognized from the ground as an impact crater, Sithylemenkat was immediately spotted by the first Landsat, as was the case for several other formations disseminated around the world. Aerial recognizance undertaken in 1976 has shown the presence of fractures in the walls of the crater and its cosmic origin is practically no longer challenged.

The kinetic energy liberated at the time of the Sithylemenkat impact is of the order of $1{,}1 \times 10^{20}$ joules. This value is therefore comparable to the energy released by the two most cataclysmic events of the historical period: the eruption of Tambora in 1815 and the Chilean earthquake in 1960. Still, though the released energy may not be extraordinary in itself, it is not to be excluded that it may have acted as an additional energy which set into motion, or accelerated a sliding of the (rigid) lithosphere onto the (viscous) asthenosphere underneath. This sliding could have lasted a few decades or a few centuries and brought the geographic North Pole to its present location. Some rare scientists believe firmly in these polar migrations, even though their causes, which can be multiple, remain little known to this day.



The last (hypothetical) shifting of the geographic pole.

Despite its being rejected by the quasi-totality of geophysicists, the possibility of a shift of the terrestrial crust 12,000 (or some more) years ago remains credible, inasmuch as some clues speak in its favors and as calculations show that it is possible. This map of the Northern polar region according to Ch. Hapgood, shows the "path of the pole," the ancient location of which would have been in Hudson Bay. The Alaskan crater of Sithylemenkat is mentioned. Its formation could be involved both in a partial deglaciation and as a phenomenon of additional force or acceleration in a sliding process already underway.

But is it really credible that the last suspected shift would have the terrestrial crust moving over nearly 3,000 km, as Charles Hapgood (1904-1982) had it, and bring the geographic North Pole from Hudson Bay to its present location? Despite the fact that this mechanism explains perfectly the sudden end of the glaciation, many researchers prefer to think of a cataclysm of a smaller scope.

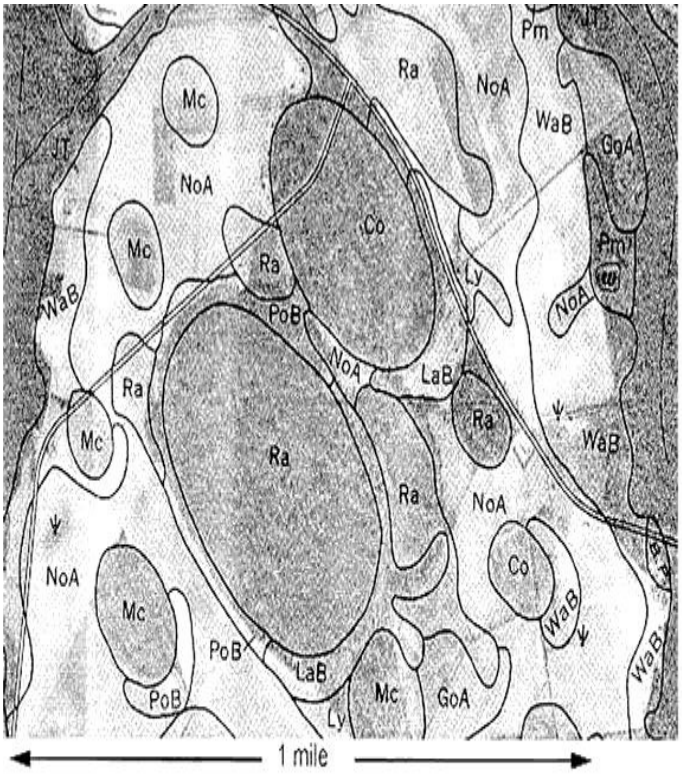
We must keep in mind two things about Sithylemenkat. First, the presence of nickel inside and around the crater signifies necessarily the impact of a siderite or of a siderolith. Which would exclude its being a fragment of Hephaistos, which is a carbonated object of cometary origin. Then one might remark that the simple collision of an EGA (Earth-Grazing Asteroid) of 600 m diameter, as was the case at Sithylemenkat, that is, in a region close to the polar circle, is capable of occasioning severe damage at the level of the cryosphere. The enormous amount of heat released could have perturbed the distribution of the ice over several thousand square kilometers, yet there is an broad margin between acknowledging this and contemplating that it could actually have triggered a general deglaciation.

But the Sithylemenkat hypothesis is not incompatible with the preceding one. It is possible that the impact of the asteroid could have preceded the cometary impact by several thousand years. We know that the curve of climatic variations between 20,000 and 10,000 years shows several hiatuses which a cosmic impact (comet or asteroid) could well explain.

An asteroid impact in the Atlantic?

The hypothesis of an oceanic impact (or partially oceanic if there occurred a disintegration of the object in question in the atmosphere) has already been proposed by several authors, notably by the German engineer and erudite Otto Muck (1892-1956) at the beginning of the 1950s. Like Velikovsky, he discredited himself somewhat by giving too precise a date for the impact of the responsible asteroid: June 5th 8498 BC in the Gregorian calendar, a date which according to him would correspond to Day Zero of the Mayan chronology which, as we know, goes back several thousand years. The day of the impact would also be, according to Muck, the famous day of the sinking of Atlantis (Plato's). He gives multiple reasons and arguments to justify his hypothesis but he was never able to convince the (very conservative) scientific world of his time.

Muck has sensed that the Carolina Bays could be linked to the impact of this cosmic object and that they could have been formed by a blowing effect. This long discredited hypothesis is presently resurfacing and might well be the right one. A hurricane and a tsunami of cosmic origin seem indeed to have taken place.



Carolina Bays in Robeson County, N.C. Note the dark interior of the bays and especially the light-colored rim on the eastern end, From McCachren, 1978.

Co = Coxville loam
GoA = Goldsboro loamy sand (0-2%)
Jt = Johnston Soils
LaB = Lakeland sand (0-6%)
Ly = Lynchburg sandy loam
Mc = McColl loam
NoA = Norfolk sandy loam (0-2%)
Pm = Plummer an Osier Soils
PoB = Pocalla loamy sand (0-3%)
Ra = Rains sand loam
WaB Wagram loamy sand (0-6%)

The Carolina Bays

Several hundred thousand such formations are known in the East of the United States, notably in North Carolina, whence their generic name. It is now believed that they were formed by a blowing effect at the time of the impact of a comet. Indeed, no meteorite or impactite has ever been found associated with one of this formations. On the figure to the **left,** we recognize a dozen of these small formations occurring over a very small portion of territory in North Carolina (Document McCracken). The map to the **right** gives an overview of the location of the Carolina Bays. Muck and other researchers after him believed that they were associated with an important impact of an asteroid in the Atlantic ocean. The two black marks indicate sites of a possible impact. (Document D. McKish).

We must therefore come back to George Cuvier's idea (1769-1832): a giant "wave" which swept over the continents. In fact, the best explanation remains the one of the formation of a tsunami of a cosmic origin, that is to say, consecutive to an important oceanic impact or an impact in a glaciated area which melted instantly. This tsunami, which could have towered above a height of one kilometer according to some simulations, transformed itself into a gigantic wall of water and mud as it rolled across the continents. It would have swept away everything on its passage and it would have destroyed in an instant several populations of the time, especially those who lived in the proximity of the coasts, and would

have set back civilization by several thousand years. We know that the American Clovis culture was practically annihilated then, as was shown by Hibben in the 1940s. The demographic, but also the cultural setback must have been very enormous for the generations following the one which had been the direct victim of the catastrophe.

It is probably this obscure cataclysm which has remained in human memory as the Chaos or even , the Apocalypse, the first original one, which has survived in the human unconscious over the millennia. It could have been accompanied by a period of recession during which man survived miserably, aware of his weakness in face of the formidable cosmic forces, whence the creation of an incredible pantheon of protective deities. But human adventure would soar again irrepressibly towards the Neolithic, when the sequels of the catastrophe dimmed to become only the memory of an apocalypse, transmitted from generation to generation.