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Social Sciences

Progress Report on Evaluation of Hamaker Thesis on Glacial Cycles, CO/2, & Soil Nutrition

FRED BERNARD WOOD (Earth Regeneration Society)

After attending the 50-th Anniversary Reunion of the MIT Radiation Laboratory in 1991, I gave some thought as to how the scientists in 1941 switched from a "search for certainty" to a "drive toward the most probable solution" for the duration of the War. Use of the Regret Matrix from business management theory indicates we may regret that we took no action now, when a few billion people may die of starvation about ten years from now. Since I have followed the developments in ocean bottom sediment core sampling since 1957 and am puzzled why the glacial cycles are not taken more seriously in the IPC Report[1]. It is time that the Hamaker Thesis of 1982 be evaluated more carefully.[2] I have organized an evaluation plan that starts with the evaluation of Hamaker's October 1993 press release,[3] and then proceeds to a more complete evaluation of the 1982 book through the analysis of the following steps: 1) Preparation of an Index. 2) Clasification of report sections under the headings: philosophy, spirituality, science, decision making, engineer-ing, production, and emergency action. 3) Assignment of systems blocks. 4) Preparation of referee list for each section. 5) Evaluation of each block. 6) Computer simulation of each block and the whole system of blocks. The comparative use of Aristotelian logic (TRUE, FALSE) and Fuzzy Logic (TRUE, DONT-KNOW, FALSE) on these questions is being studied.

1. J. T. Houghton, G. J. Jenkins, and J. J. Ephraums, Editors, **CLIMATE CHANGE The IPCC Assessment** (Cambridge, Cambridge University Press, 1990) 365 pages.
2. John Hamaker, **The Survival of Civilization**, (Hamaker-Weaver Publishers, Burlingame, CA, 1982), 218 pages.
3. John Hamaker, "Nature Hasn't Gone Mad; People Have," Press Release, Seymour, MO, 10/27/93, 3 pages.

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Examination of the problem of climate change indicates that there are a number of components of the problem in the following activity areas:
-philosophy spirituality science decision-theory engineering tools&production emergency-action---
In this paper the activity areas of different sections of the paper are indicated by the items of the above two lines that are capitalized. For the next two pages the following applies:

philosophy spirituality SCIENCE decision-theory ENGINEERING tools&production EMERGENCY-ACTION:

NATURE HASN'T GONE MAD; PEOPLE HAVE

John D. Hamaker 10/27/93

In recent years, weather extremes all over the world have added up to rapidly accelerating climatic disasters. In the past year alone, we have seen disasters in the U.S. that have left a trail of record-breaking destruction: brutal floods in the midwest; Hurricane Andrew in Florida; a blizzard on the east coast more violent than any storm since 1888; crop killing droughts across the south. Almost every year, the incidence of tornadoes rises to fearful new heights. Elsewhere, the headlines are the same. Massive earthquakes in China and Brazil. Famine-producing droughts in some countrie; torrential, flooding rains in others.

What's happening? "Life" magazine recently asked, "Why has NATURE gone MAD?" How typical of man to blame nature for the chaos we ourselves create! We blame "nature" - the very entity we have tried so hard to ignore in the name of science.

What have we done to destabilize climate and create deadly weather extremes? First, some background:

THE GLACIAL CLIMATE CYCLE

For about 10,000 years, we have experienced glacial cycles of one-year duration. The snow and cold of winter alternate with a summer sun, which melts off the snow and warms the earth. In the summer season, we have been able to grow crops.

The one-year cycle goes on continuously. But what happens if a blanket of clouds appears over the upper latitudes, thus decreasing the amount of sunlight which reaches the earth? The balance between summer heat and snow melt is upset. Each year, the snow deepens and moves further south. The weight of the deepening snow forces the glaciers to flow downhill to the oceans where they calve icebergs. Also, as the area of land covered with ice increases, the quantity of cold air increases. The result is cold, late springs and early frosts - and for us, growing seasons becoming dangerously shorter. Storms grow bigger, more violent, and there are more of them. Food production is reduced.

The above abbreviated description of why the climate changes from interglacial to glacial is also a description of the present climate condition of the earth.

What causes these glacial cycles? To begin with, all life on earth is manufactured by microorganisms. They get their food from the gases in the air and from the minerals found in the soil and the water. It is these microorganisms that make plant

life possible, providing plant food when the plant roots extract the protoplasm out of the microorganisms. A similar process takes place in the water. Thus, the humble, invisible microorganism makes possible our entire food chain, from the tiniest plant to the largest elephant. Without the microorganisms, we humans would not exist.

If either the gases or the minerals are in short supply, the microorganisms have nothing to eat, and the life system must die off. At the end of the 10,000-year interglacial, it is minerals that are in short supply due to 10,000 years of leaching and erosion. The growth on the land dies; with less plant life to absorb carbon dioxide and other gases, the gases in the air begin to build up. Decomposing organic matter, firewood, volcanic emissions, and the stupid use of fossil fuels have exceeded the ability of the plant life to consume the greenhouse gases.

At the end of a 90,000-year glaciation period, the land and the ocean are loaded with ground gravel dust that is produced by the glaciers. With their food supply replenished, the microorganisms undergo a population explosion. This in turn makes it possible for the plant system to expand and consume more gases from the air, thus dragging the gases down to a low level. With less carbon dioxide in the air, the cloud cover disappears and lets the sun get to the ice and snow.

The glacial process is very simple, and there is no valid reason why just about everyone in the country should not understand it. It should also be apparent that the key to our survival is the removal of gases from the air until the carbon dioxide curve indicator is down to 280 ppm or less.

For several decades, I have been proceeding on the assumption that the fear of death was stronger than love of money. That question has not been answered yet, simply because the major news media are owned by the corporate structure, and because the government has sold itself to the highest bidder. The truth about the crisis we face is known only to a small group of people who do their own thinking.

We are 20 years late in starting a program to prevent glaciation. Now we have to turn back a glaciation already in progress - a much more difficult job. It may require reducing the carbon dioxide to something like 200 ppm.

Here we are, with a government no more capable of stopping the use of fossil fuels than it was 20 years ago. We have a mountain of debt and 250 million people suffering from malnutrition and environmental poisoning. We are burdened with laws which would prevent doing what must be done for a chance to survive.

I see only one way we can hope to survive. If the Clinton administration were to grasp the fact that nature has us on its endangered species list, it might be possible to make a good try for survival. They would have to do two things: Tell the people what the situation is, and then hold a vote with two questions on the ballot: 1) Do you want to try for survival? and 2) In order to survive, will you grant emergency powers to the president to enact the environmental and economic laws outlined in the book, The Survival of Civilization?

When one considers how fast the environment is deteriorating, and how fast the glaciation is advancing, one must conclude that starvation, death and chaos will spread rapidly all over the world before the year 2000.

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-PHILOSOPHY spirituality science decision-theory engineering tools&production emergency-action---

GENERAL SYSTEMS THEORY AND THE MIT RADIATION LABORATORY ZEITGEIST

My objective here is to use a general systems viewpoint of nature in an engineering mode of operation to recapture the spirit or zeitgeist of the MIT Radiation Laboratory of 1940 to 1945. I am using the philosophy of testing scientific hypotheses that I learned in Professor W. K. H. Panofsky's graduate course in the classical theory of electricity and magnetism in 1947 at U.C. Berkeley. My quest is also inspired by some lectures of Professor Gerald Horton of Harvard on thematic hypotheses in the philosophy of science at a AAAS Meeting in 1963. Where I am crossing the boundaries of many fields of science, I am exposed to the danger of making a number of errors. That is the danger a pioneer must take when putting things in gear for a fresh attack on the problems of our human civilization.

In Fig. 1 a hierarchy of levels of phenomena in nature in respect to planet Earth is displayed. The central core of the diagram comes form J. G. Miller's book on living systems.[1] Some of the major problems of our civilization are listed on the left of the diagram with arrows pointing to the appropriate levels of phenomena.

Nutrition forms a major coordinating link between phenomena of different levels. In approximately 10,000 years the depletion of trace minerals from the agricultural soils leads to vegetable products that are deficient in some of the trace minerals, leaving humans more susceptible to new diseases such as Alzheimer's and AIDS. The collapse of the forests from poor nutrition can lead to increasing carbon dioxide that acts as a signal for the Earth to go into glaciation. The normal function of the glaciation is for the glaciers to grind up rocks to a fine powder that forms the basis for remineralizing the Earth so that life can continue on Earth for another 10,000 years. The question we need to attack in regard to climate change is what impact does the cutting of major forests and burning of fossil fuels have in disrupting the normal climate change cycle? This will be discussed later on in this paper in connection with Fig. 4 on the hierarchy of geophysical cycles in the functioning of planet Earth.

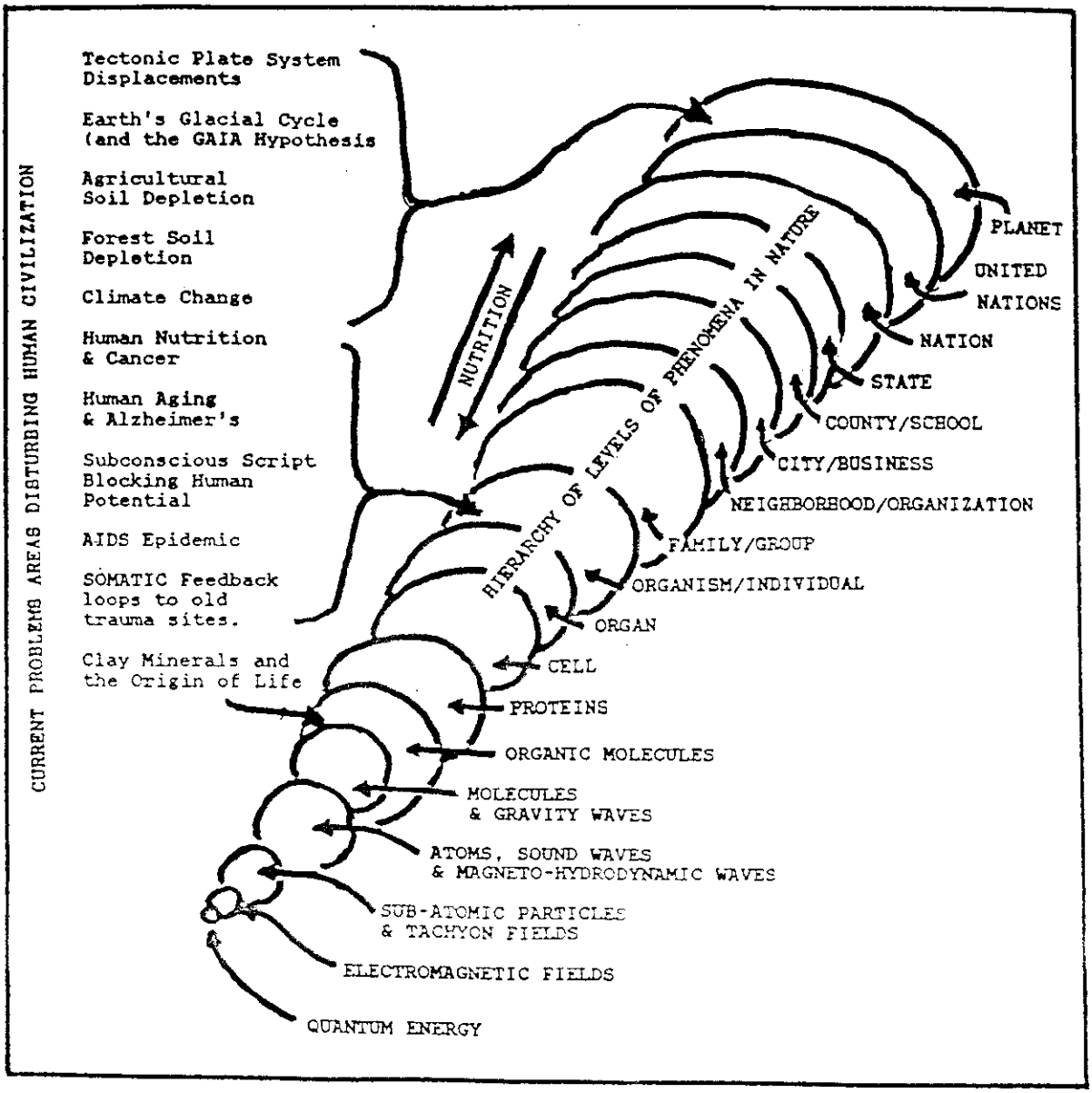

Fig. 1. Hierarchy of Levels of Phenomena in Nature.

LAST 1100 YEARS EUROPEAN TEMPERATURE ANOMOLY

The mean annual temperature anomalies of Iceland are plotted for the last 1100 years as an indicator of European temperatures in Fig. 2. [12] The data of Fig. 2 came from a report commissioned by the C.I.A. in 1974 and is also available in a book by the Impact Team.[13] During periods of warmer climate great creative projects were developed in Europe such at the period of building of great cathedrals from 1000 A.D. through 1200 A.D. During the next warm period from 1285 A.D. to 1550 A.D. Europe experienced a renaissance in the arts and music. During the period 1860 A.D. to the present Europe and in turn the United States of America experienced the Industrial Revolution.

During the colder periods in between Europe experienced the Dark Ages from 1180 A.D. to 1380 A.D., and a series of inquisitions during the Little Ice Age from 1540 A.D. to 1912 A.D. The function of including this figure is to show the general nature of the sociological impact of climate change on the 1000 year range or little ice age range. Later on in connection with Fig. 5 the biological and social impact of the 100,000 year range of climate change will be discussed.

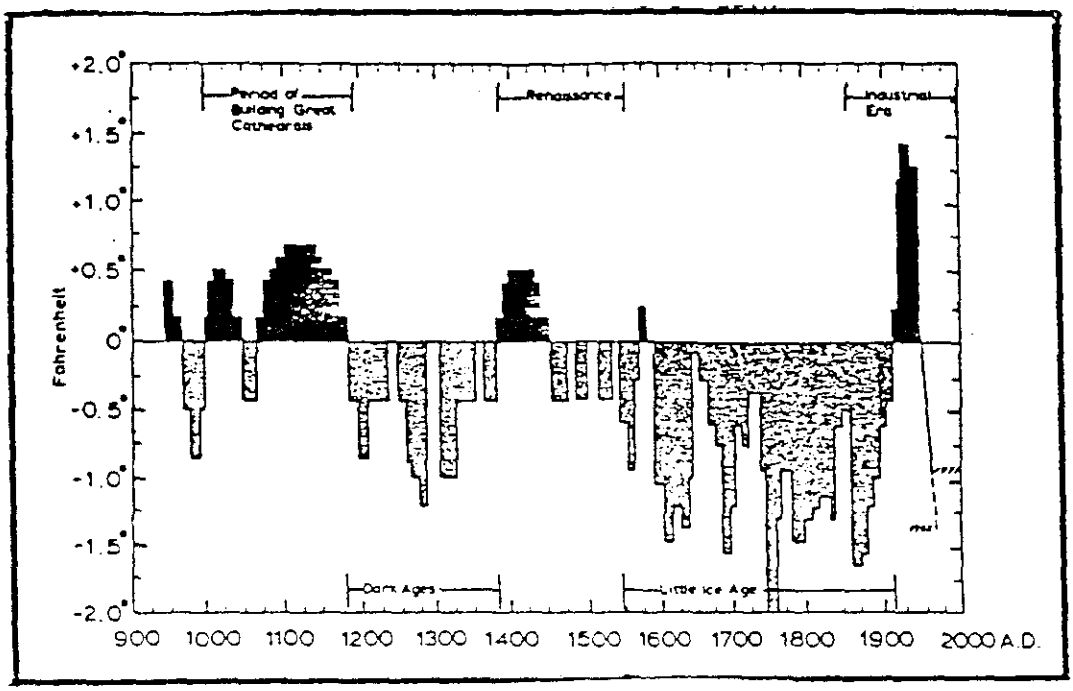

Fig. 2. Temperature Anomalies for Iceland for 1100 Years.

LAST HUNDRED AND TWENTY YEARS OF TEMPERATURE CHANGE

The mean temperature for the Northern Segment of the Northern Hemisphere (22.6 deg N to 90 deg N) is plotted in Fig. 3 from Hansen (1981) (updated to 1987).[14] Hamaker's prediction of warming gradually levelling off to cooling is shown by dashed lines.[15] In this figure the solid curved line is the five-year running mean temperature. The dots are annual mean values. Around 1962 the annual mean temperature values stayed close to the five year running mean. Since 1963 the annual values have jumped erratically around the five-year running mean. The solid straight lines are trend lines to show the time periods when the temperature was rising and the time period when the temperture was going down. The dashed line is Hamaker's projection of the future made in 1984.

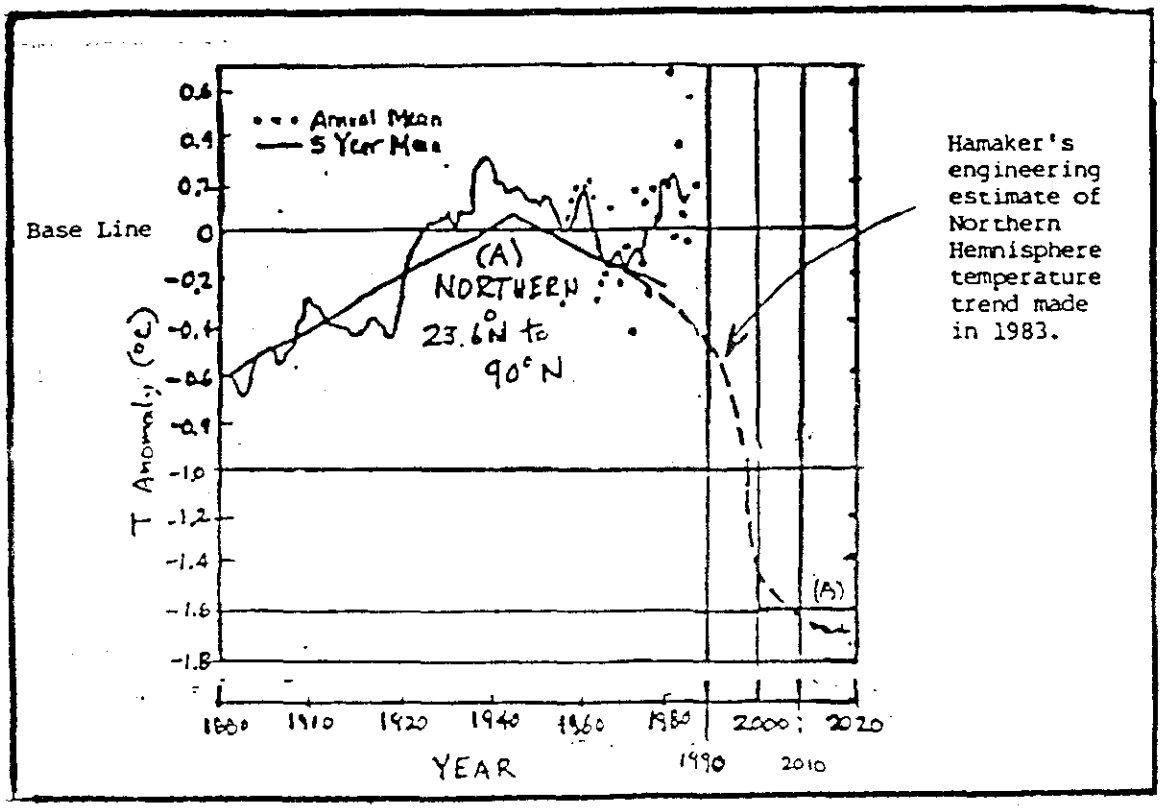

Fig. 3. Last Hundred and Twenty Years of Temperature Change
Northern Latitudes (23.6 N to 90 N)

PREDICTION OF COOLING OR WARMING ?

On this scale the temperature is getting colder in 1982, but plotting mean temperatures for 1880 to 1987 indicates that the temperature is going up now in an erratic oscillating mode that does not confirm either of the major hypotheses. The prevailing prediction appearing in the public newsmedia is that we have a simple greenhouse warming.

In 1982 Hamaker and Weaver published a book predicting that the CO/2 warming would lead to more water being evaporated into the atomosphere which would lead in time to a snow and ice build-up leading to glaciation. [:6] Recently an article by Gifford and de Vernal described the possibility of this current greenhouse warming leading to glaciation. [:7]

To estimate the future trend of the temperature on Earth, we must compare two approaches: (1) extrapolation of the historical cycles of glaciation, and (2) simulation of the atmosphere including both natural sources and human sources of carbon dioxide.

Although the world mean temperature has not followed the curve predicted by Hamaker in 1983, many of the other things predicted by Hamaker are happening now. It is probable that Hamaker predicted the ultimate trend of the temperature curve, but did ot have the precision to correctly predict the time. The streams of water flowing in the stratosphere from the equator to the poles is consistent with Hamaker's thesis. The increased tectonic activity, earthquaqes, and volcanic activity are also consistent with Hamaker's thesis.

WHO IS THE OWNER OF THE CLIMATE CHANGE PROBLEM ?

Then using Peter Checkland's definitions of Client, Decision-Taker, and Owner of a systems problem, we try to find who is the owner of the climate change problem. [:8] To attempt an answer, I review the last 2.4 million years of glacial cycles for regularity of geophysical processes and fragments of sociological consequeces in Fig. 4.

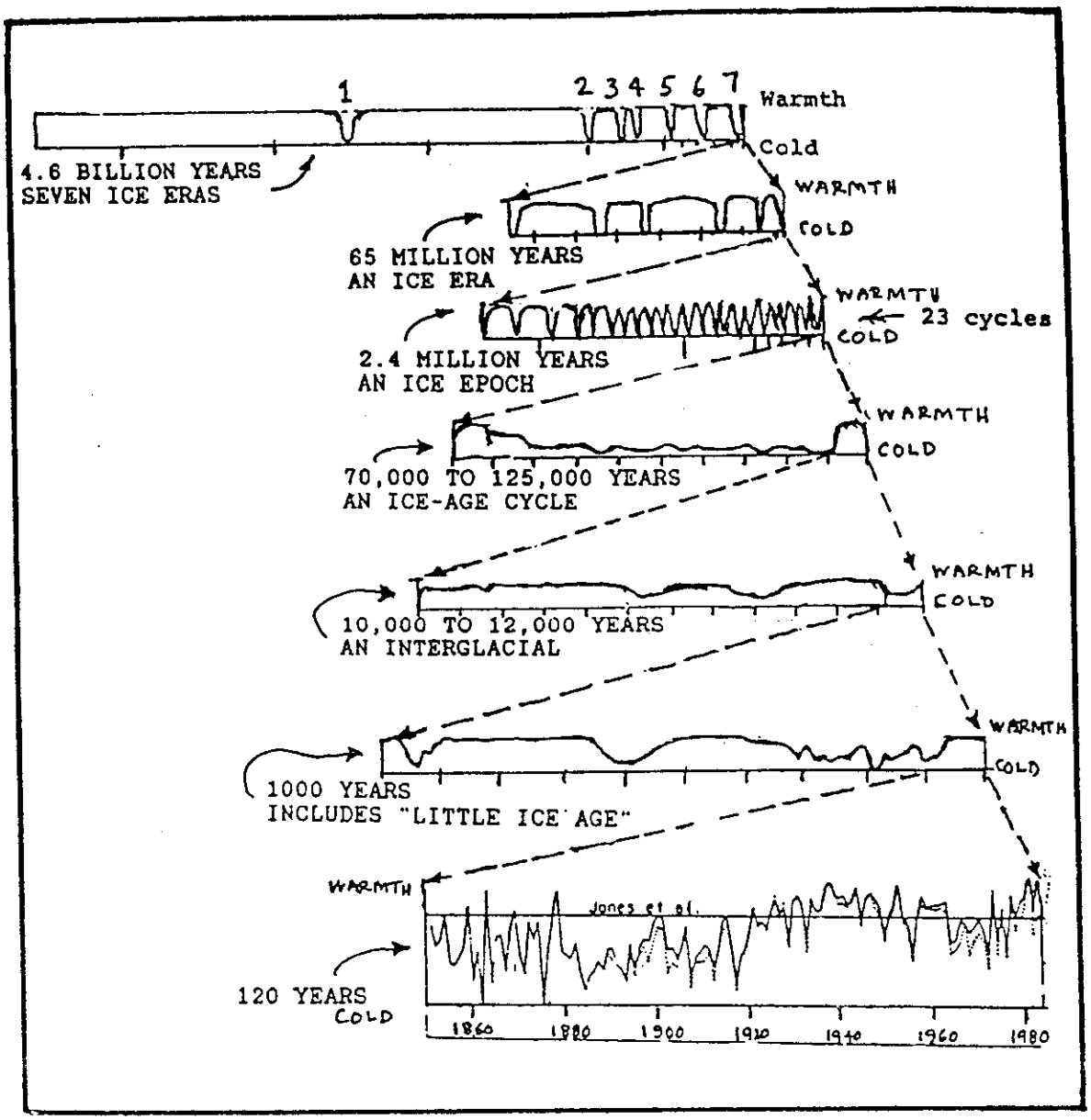

Fig. 4. A series of time charts, each one embracing a fraction of the one before, depicts the swings between cold and warmth that have characterized the climate of the earth for billions of years.

DEVELOPMENT OF HUMAN BRAIN WITH GLACIAL CYCLES

Then the stages in development of the human brain are correlated with the Ice-Age Cycles, and in particular the major changes in human society in the last two cycles (200,000 years) and are tabulated in Fig. 5. The concept of this mode of rapid expansion of the human brain size is attributed to the microbiologist, Willian H. Calvin.[9] This has been explained in a paper by Fred B. Wood, Sr., at the 1991 ISSS Annual Meeting.[10] The start of this Ice Epoch and the verification of earliest man has recently been verified.[11]

-65,000,000 years b.p.		Source of high level of radiation on surface of earth causes major genetic mutations. (probably natural nuclear reactor going critical or impact of asteroid) Same period as extinction of dinosaurs. Our ape-like ancestors lost the ability to synthesize vitamin C. Possibly changed genetic code for clock time for puberty from 6.5 years to 13 years. Genetics code change for increased frequency of sexual intercourse survived. This compensated for loss of vitamin C synthesis capability.
-5,000,000 years b.p.		Separation of homo erectus from ape evolution.
-2,400,000 years b.p.	(0)	Start of current Ice Age Epoch with average of 100,000 years per cycle. Ape cousin's brain size is still 500 cc. Human brain size increased 20 cc every 100,000 years, until it became 1,500 cc. (Bortz, also Calvin)
-2,300,000 years b.p.	(1)	
-2,200,000 years b.p.	(2)	
-2,100,000 years b.p.	(3)	
-2,000,000 years b.p.	(4)	
-1,900,000 years b.p.	(5)	
-1,800,000 years b.p.	(6)	
-1,700,000 years b.p.	(7)	
-1,600,000 years b.p.	(8)	
-1,500,000 years b.p.	(9)	
-1,400,000 years b.p.	(10)	
-1,300,000 years b.p.	(11)	
-1,200,000 years b.p.	(12)	
-1,100,000 years b.p.	(13)	
-1,000,000 years b.p.	(14)	
-900,000 years b.p.	(15)	
-800,000 years b.p.	(16)	
-700,000 years b.p.	(17)	
-600,000 years b.p.	(18)	
-400,000 years b.p.	(19)	
-300,000 years b.p.	(20)	
-200,000 years b.p.	(21)	CroMagnon people (21st echelon)
-100,000 years b.p.	(22)	Neanderthal (22nd echelon)people appear at same time as the completion of conquest of planet by CroMagnon daughters of African Eve with dominant Mitocondria DNA by peaceful sex with other sub-species including Neanderthal except residual groups near edges of glaciers.
-10,000 years b.p.	(22A)	End of 22-nd Ice Age Cycle
-6,000 years b.p.	(22B)	
-5,900 years b.p.	(21.5)	
+0 years b.p.	(23)	End of Interglacial Warm Period.

The glacial cycle of 100,000 years provided the engine and the patriarchal social system organized the implimenting tools for a rapid expansion of human brain size and increasing intelligence.

In the 21st cycle Nature provided a break in the cyclic system through a mutation in the DNA enabling the CroMagnon Daughters of African Eve to spread over the Planet and to support a partnership way of life backed by a feminist ideology with goddesses.

Fig. 5. A Chronology of the Development of the Human Brain run in parallel with the Ice-Cycles of the Present Ice Epoch (-2.4 million years to Present)

INDIGENOUS PEOPLES OWNERS OF CLIMATE CHANGE PROBLEM ON BASIS OF 2.4 MILLION YEAR RANGE

These studies lead to the conclusion that over many cycles the indigenous people of each cycle should be considered the owners of the climate change problem. Julian Burger has identified the indigenous peoples and their problems in the book, The Gaia Atlas of First Peoples.[13]

-PHILOSOPHY SPIRITUALITY science DECISION-THEORY engineering tools&production emergency-action---

WOMEN OWNERS OF CLIMATE CHANGE PROBLEM

The establishment of the patriarchy 6000 years before present (bp) has been documented by Riane Eisler in the book, The Chalice & The Blade. [14] David Loye and Riane Eisler have published a book to help groups of people develop programs to work for a partnership way to supersede the patriarchal system. [15] The current problems of the patriarchal society have been described by Anne Wilson Schaef. [16]

-PHILOSOPHY SPIRITUALITY SCIENCE DECISION-THEORY engineering TOOLS&PRODUCTION EMERGENCY-ACTION ---

OWNERS OF CLIMATE CHANGE PROBLEM NEED GEOPHYSICAL, SOCIAL, AND INDIVIDUAL CONSCIOUSNESS TO PERCEIVE AND FIGHT FOR THEIR RIGHTS

Both the women of the world and the indigenous peoples need to develop a geophysical consciousness to understand what choices we have in changing the Earth's climate cycles, such as remineralizing[17] the soil and reforestation to replace the role of glaciation in this Ice Epoch.

[1.] James G. Miller, 1978, Living Systems. New York: McGraw-Hill Book Co.

[2.] C. Bertrand Schultz and Marian R. Schultz, 1086, "Evidence of Current Glacial Process." In Proceedings of the International Conference on Mental Images, Values, & Reality, (John A. Dillon, Jr., Editor-in-Chief) Society for General Systems Research, 30th Annual Meeting, May 26-30, 1986, Philadelphia.

[3.] The Impact Team, 1977, The Weather Conspiricy. New York: Ballantine Books, p. 217.

[14.] Thomas A. Boden, Paul Kanciruk, and Michael P. Farrell, 1990, TRENDS '90 - A Compendium of Data on Global Change. Oak Ridge, Tennessee: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory. Pages 196-197. Also from :
Hansen, J., and S. Lebedeff, 1987, "Global trends of measured surface air temperatures." Journal of Geophysical Research 92:13345-72.
Hansen, J., and S. Lebedeff, 1988, "Global surface air tempertures: update through 1987." Geophysical Research Letters 15:323-26.

[15.] John Hamaker and Don Weaver, 1986, "The climate cycle, an extract from the Hamaker Thesis on survival." SGSR Annual Meeting, May 1986, Philadelphia, Vol. II, Pages L-31 to L-44.

[16.] John Hamaker and Don Weaver, 1982, The Survival of Civilization. Burlingame, California: Hamaker-Weaver Publishers.

[17.] Gifford H. Miller and Anne de Vernal, 1992, "Will Greenhouse Warming Lead to Northern Hemisphere Ice-Sheet Growth ?" Nature Vol. 355: 244-246, Jan. 16, 1992.

[18.] Peter Checkland, 1981, Systems Thinking, Systems Prctice. Chichester, England: John Wiley & Sons, Appendix 2: A Workbook for Starting Systems Studies, pp. 294-298.

[19.] William H. Calvin, 1991, The Ascent of Mind - Ice Age Climates and the Evolution of Intelligence. New York: Bantam Books.

[10.] Fred B. Wood, Sr., 1991, "What Bioethics Questions Does the Rising Level of Atmospheric Carbon Dioxide Pose for Human Civilization ?" Proceedings of the Annual Meeting of ISSS Ostersund, Sweden, June 14-20, 1991.

[11.] Andrew Hill, Steven Ward, Alan Deino, Garniss Curtis & Robert Drake, 1992, "Earliest Homo." Nature Vol. 355 (20 Feb 1992): 719-722.

[12.] David Anthony, Dimitri Y. Telegin and Dorcas Brown, 1991, "The Origin of Horseback Riding." Scientific American December 1991; 94-100.

[13.] Julian Burger with campaigning groups and native peoples worldwide, 1990, The Gaia Atlas of First Peoples. New York: Anchor Books.

[14.] Riane Eisler, 1987, The Chalice and the Blade. San Francisco: Harper & Row.

[15.] Riane Eisler and David Loye, 1988, The Partnership Way. San Francisco: Harper & Row.

[16.] Anne Wilson Schaef, 1987, When Society Becomes An Addict. New York: HarperSanFrancisco.

[17.] Fred B. Wood, IV and Fred B. Wood, III, 1991, "A Call for Acion (On Soil Remineralization for Sustainable Agriculture and Climate Stabilization)." Remineralize the Earth, 152 South Street, Northampton, MA 0160, Part I in Issue #1, Winter 1991 Northern Hemisphere, pp. 32-35; Part II in Issue #2, Summer Fall 1991, pp. 26-29.

Note on brain sizes listed in Fig. 4.

Only four of the twenty-one echelons of brain size are recognized in anthropology textbooks, but they represent a range of brain sizes, such as 415+/- 35 cc, 700+/-100 cc, and 1500 +/- 500 cc. See Appendix I for illustrations of the major steps in evolution of homo sapiens sapiens.

Australpithecus afarensis: after 4 million years b.p. (380 to 450 cm\3) has an earlier start date than in Fig. 5.

Homo habilis: after 2.5 million years b.p. (600 to 800 cm/3) includes theoretical echelons 6 through 16.

Homo sapiens sapiens after 100,000 years b.p. includes theoretical echelons 13 through 23.

APPENDIX I. BRAIN SIZED LISTED BY ANTHROPOLOGISTS.

From Serge Lathiere, " Qu'est-Ce Que L'Intelligence ?" Science & Vie - Junior - Dossier Hors Serie," Numero 14, Octobre 1993, pp. 70-71.