HOMO SCHIZO I

Human and Cultural Hologenesis

by

Alfred de Grazia

Metron Publications
Princeton, N.J.

Notes on the printed version of this book:

The cover is from Pablo Picasso's Girl before a mirror (in reverse), 1932, the original of which rests with The Museum of Modern Art, New York City, and a photograph of which was lent by the Princeton University, Art Library.

The text was processed by the Princeton University Computer Center, with photo-composition and printing by Princeton University Printing Services by xerography in a limited edition.

Library of Congress Cataloging in Publication Data:
de Grazia, Alfred, 1919-
Homo schizo I: Human and Cultural Hologenesis Includes index
1. Anthropology.
2. Psychology.
3. Evolution.
4. Prehistory

ISBN: 0-940-268-01-9

Copyright © 1983 by Alfred de Grazia
All rights reserved
Printed in the U.S.A. Limited first edition.
Address: Metron Publications, P.O. Box 1213,
Princeton, N.J., 08542, U.S.A.

To

Sebastian

primus inter pares

FOREWORD

Most scholars believe that man has progressed since his original appearance on earth. Probably so, but it has been a strange kind of progress, not well understood, and often showing a negative balance of the "bad" over the "good."

Some scholars believe that man is a rational animal. In limited ways he is, but, again, it is a strange kind of rationality, more ape-like than other traits of humans that are called "non-rational." For, to preview an argument that comes later, man is continually seeking ways to reestablish the uninterrupted instinctive responses of his forebears, and this is the homologue of "rationality." When Descartes wrote of animals as machines, he was obviously unaware that the precise "rationality" of man, which he, of all philosophers, elevated to awesome status, was just this homologue of the machine and animal.

So constrained and confused is whatever is called human rationality, that I prefer to call mankind by the name *homo schizo*, that is, *homo sapiens schizotypus*, rather than *homo sapiens*. Humans were created and are born schizotypical, with a set of traits to be distinguished in this book. They were from the first, and are now, more schizophrenic than otherwise. What is called "rational" is a derivation out of schizotypicality. This line of argument is also pursued in a companion volume, *Homo schizo II: Human Nature and Behavior*, which deals with today's people.

Here we are concerned with the evolution of mankind, a field densely covered with literature, but with many a sprouting mystery and contradiction that has resisted the spray of evolutionary formulas. The field is surprisingly vulnerable to a variety of pests, if iconoclastic views may be termed such. It invited questions. And to these I attempt answers.

By what means did hominid become man? By electrochemical means, and suddenly. Was the change large or small? The change was substantially minute, but profound in its consequences. When did it happen? Recently -- about one

thousand reproductive generations ago, which comes to about 260 memorial generations. What role did great natural forces play? They precipitated and perpetuated the change. Did culture spring up with, or did it lag behind, the human transformation? Culture sprang up with the gestalt of human creation. How many symptoms of mental illness are innate in man? All of them. How many cultures are "sick"? All of them, but the sickness is "normal." Can *homo schizo* aspire to become homo sapiens? One can aspire to a fiction, but cannot achieve it. Occasionally, a person, or even a group, can reach a delicate equilibrium, which can be called "reasonable," thus becoming *homo sapiens schizotypus*. Anything more than that is most uncertain.

The answers are tentative, as must be many scientific propositions. They may appear far-fetched, but rightly so, because they must be brought in from faraway fields. They would be more firm if only a few students of anthropology, linguistics, genetics, psychology, natural history, and early human behavior were disposed to drink deeply from their primeval fountain of self-doubt, and thereafter to re-examine their data.

I regret not being able to credit the full literature and cannot pretend to have slighted nobody. Especially am I concerned about the lurking work which may have quite escaped research, the work that would have bolstered my strained defenses or, for that matter, penetrated them, and which will emerge later, in a recapitulation of the Mendelian scenario. I recall that Mendel's genetic work "was published in 1865, in plenty of time for Darwin to amend his view in later editions of the *Origin*," or so says Julian Huxley. His evolutionary theory badly needed the evidence of mutations in biology. Others, the same Julian Huxley for one, have made excuses for Darwin, and I hope that someone will do the same for me.

Alfred de Grazia

TABLE OF CONTENTS

Ecumenical Culture; American Cultural Origins; Cultural Integration.

VI. Schizoid Institutions

Speech and Language; Graphics; Primordial Language; Group vs Individual; Psychology of Organization; Megaliths and Megalines; Organization and Control; Republic and Monarchy; Authority; Covenant and Contract; Sexual Ramifications; The Compulsion to Repeat Chaos and Creation; Sublimation; Cannibalism; Violence and War.

VII. Psychopathology of History

A Sick Journey; Historism; Schizoid Episodes in Abundance; Hell; Ordinary Mad Times; Nazis, Stalinists, and Democrats; Religion as Custodian of Fear; Utopianism; Darwinian Historism.

VIII. The Hopeful Monster

Real and Psychic Disaster; A Recent Small Sharp Change; The Unredeemable Apeman; Schizotypicality and Homo Sapiens.

CHAPTER ONE

SLIPPERY LADDERS OF EVOLUTION

Scientists tracing the origins of man face an almost impossible task. So little remains of the beginnings that the very dirt around a suspected visit of early man is prized. They must grasp for anything tangible, a fossil bone, a chipped stone, a coprolite. Yet here we are, on the trail of man's most important original trait, self-awareness, an intangible phenomenon that cannot fossilize. Few, even today, would contradict what the geneticist, Ralph Gerard, said in 1959: "I don't think any of us has the remotest idea of why subjective awareness developed." [1]

Self-awareness is the consciousness of self. Practically every human, perhaps everyone, can stand off and look at himself. In fact, he does so normally, does so frequently, does so readily and at so early an age that maybe even the baby must think "I am I." He is self-conscious before he can speak. The physical boundaries of the self, fingers, toes, ears, nose and eyes are matters of interest to the infant who teaches them to himself in a matter of months. Fixing mental boundaries goes on endlessly. Probably he begins the study of himself *in utero*, even though he must wait for his deathbed to conclude it.

Granted we cannot discover directly the appearance of self-consciousness in fossils, we may seek its concomitants. Anything denoting symbolism is a valid clue. Apes use sounds to convey moods, intent, and information; there is no use denying that this is symbolic behavior. So humans have to employ double abstraction to be different: the sign and signal, plus a reference that is not tangible, as for instance a wind, a direction, a ghost, an absent party, a glyph on a tree or rock, a burial, a sign of yesterday, a signal for tomorrow. But what should we do with the chimpanzee 'Congo,' who dabbled in painting, turning out hundreds of compositions in a style typified by bunched and fanned brush strokes [2] ?

A second valid clue to self-awareness is a tool. Sharpening a stone for use shows a sense of the design that may be inherent in a recalcitrant object, and is a valid indicator of human abstraction. Human-seeming animals are almost totally bereft of clubs, spears, pounders, drums, ropes. If they may grasp a twig and poke out ants from a hole, they cast it away when the hunt has ended. They do not improve it or look after it or burden themselves with it for very long.

Does walking on two feet, bipedalism, mark the advent of self-awareness? A baby is self-conscious before it can walk; but, no matter, the different traits need not appear in perfect succession. Congenitally crippled babies become human rapidly; again, the human setting fills the gap. That bipedalism may have preceded self-consciousness is easy to contemplate (perhaps because it is easier to 'sell out' self-awareness than a physical trait). But the mind balks at a four-footed self-conscious creature, even though babies are very human while still in the crawling stage. I think that we must admit that bipedalism may be a precursor or an invention but not a proof of self-awareness.

Fire-making is sometimes accredited as a sign of humanness. Fire may have 'always' been used. Birds and other animals, including primates, play about natural fires and eat roasted vegetable and animal matter consumed by the flames [3]. A natural fire may borrowed preserved for a long time. But any group that could conserve fire was probably able to make it by friction, especially if in the habit of striking rocks together. The humanness of fire-use depends, then, upon how it is obtained and whether it is preserved.

THE HUMAN BRAINCASE

Ultimately we would have to play a trump card: the large brain. Can we not assign the birth of self-awareness to the appearance of the first modern cranium. Thus, typically, a physical anthropologist such as Le Gros Clark will arrange the fossil cranial discoveries in order of time and size. The scale might begin with a chimpanzee of 300 to 600 cubic centimeters of cranial capacity, proceed to an australopithecine of from about 450 to 800 cc, up through homo erectus who might achieve 1280, then through homo neanderthal with an average higher than our own (1300-1610 cc), then back to modern man with 900 to 2300 cc -

- elapsed time being set at four million years. At what point of skull size does the hominid leave off and the human begin? It would beg the question to answer: "when tool-making is associated with the skull." John Buettner-Janusz says properly: "Unfortunately too much anthropological writing has focused on cranial volume when there is no evidence that a critical threshold for cranial volume need be exceeded for such 'higher' activities as tool-making and, by implication, culture."[4]

The conventional answer is that we do not know precisely, but that we can assume that the cerebrum, evolving with the size of the cranium, became ever more clever until it conceived of fire-making, tools, speech, and abstract non-entities. There are reasons to doubt this scenario. We have no place in this book for Julian Huxley's exuberant declaration, that evolution "simply is not just a theory any longer; it is a fact, like the fact that the earth goes around the sun and that the planets do all sorts of things."[5] Nor can we follow naively the theory that as with anatomy, so with culture: culture, too, evolves, as originally with Tylor, Spencer, and Morgan, and still now with many anthropologists [6]. However, we agree with these latter that Boaz and his followers were excessively wrought up to claim, as did B. Laufer, that "the theory of cultural evolution is.. The most inane, pernicious, and sterile theory in the whole realm of science."[7]

A human brain consumes 20% of the energy resources utilized by the person as a whole. At the same time only 2 to 4% of the cerebrum is said to be activated, even at peak periods. Obviously there might be an energy crisis if we could work our brains very hard. One may suspect that the brain grew large without the 'intention' or 'specific purpose' of working, much less thinking.

This seems more plausible when we consider that the bilaterality of the cerebrum is not necessary. The human mind can function well with one hemisphere, if training and acculturation occurs on the basis of just the single hemisphere. Acquiring a single hemisphere would not be 'handicapping,' as would, say, a single eye or leg. The genetic instruction for a double cerebrum is part of the bilateral anatomy that reaches far out among the animal orders. Once again, we have a surplus; it is not persuasive to claim that a second hemisphere is 'good' to

have upon the accidental loss of one hemisphere, and thereupon involve 'natural selection.'

Supposing, however, a single hemisphere and a 400 cc brain -- less than a third of the average human but one-half of the fast learning brain of the one-year-old baby or of homo erectus -- it would appear that, if this were functioning physiologically in a human way, it would be functioning behaviorally, too, in a human way. One would have, if nothing new were added along with size, the same mental and cultural abilities that we have at present. One would operate humanly with less than the brain capacity of australopithecus.

Dwarves with well-proportioned bodies of 2 1/2 ft in height, and with brains weighing one-third (14 ounces) of the ordinary human's brain may be sometimes stupid, but they speak fluently. A high adult I. Q. on the Stanford-Binet intelligence test "is possible with about one-third of the total cerebrum lacking." But "adaptative" intelligence suffers at less than the 30% level. So says one authority [8]. He was perhaps unaware that, at about the same time as he was writing, a hydrocephalic Englishman, with one-tenth of the normal cerebral volume (10%) was doing well socially and in his university studies.

Another disturbing thought occurs: the weight of brain of the australopithecus was probably heavier, in proportion to his body size, than that of the modern human. This would support the idea that australopithecus should have been as clever as ourselves, or conversely, we might well be more stupid than australopithecus, if it were not for -- what? Putting aside the unconvincing though popular view that, point-by-point, evolving man grew in brain size and in adaptative control of the environment, an argument that is part biological and part cultural but in both cases implausible for reasons stated elsewhere, the source of the difference between the stupid hominid (assuming such was the case for the forebear of australopithecus) and the clever human must rest in a specialization of the brain and/or in its electro-chemical state and operations. My opinion here -- and in the accompanying volume -- is that both types of change occurred: specialization and a new electro-chemistry.

F.M. Bergounioux is persuaded that intelligence "is a phenomenon with no connection whatever with the physiological structure that supports it." So it seems, and one can observe hovering in his unusual essay the ultimate resort to teleological creationism such as Teilhard de Chardin developed [9]. The theory of homo sapiens schizotypus may, however, bridge this chasm between the subtlest human behavior and the physiological housing. Something other than brain growth was responsible for humanization.

THE SEARCH FOR A BETTER APE

A book on human origins written in the last century presents the same basic ideas as a book lately published; there is little new of importance in the recent book. The main difference is that about 1900, Mendelian mutations, actual changes in the germ plasma, were accepted by many geneticists as the main factor in the alteration of species. Although it could have been used to rehabilitate catastrophism, this discovery was used to reinforce the shaky foundations of the dominant Darwinian evolutionism.

Whereas the old book asked only modest amounts of time for the human race to develop from the ape, the new book asks for up to five million years. Aided and abetted by modern 'time-telling' techniques, such as the potassium-argon test, the new book can fit many skull-cases, jaw-bones and some extremities that have been uncovered into a long-time frame. Many comparative studies have been made of primates and people, showing, for example, how they walk or what relationship their blood hemoglobin contains. But no old evolutionist ever doubted the cousinship of man and ape: go to the zoo and see for yourself.

Evolutionary theories have to venture in fine detail into what came first. For evolution is uniformitarian, gradual, compounded bit by bit. Thus, a ladder of culture has been assembled. First, crude stone pounders and cutters, then use of fire, then many other developments, partly anatomical and partly cultural: cannibalism, walking upright, right-handedness, premature parturition, improved weaponry, crinkled brains, deft digitry, weak dentition, improved diet, signalling, thinking ahead, fortifications, speech, burial of the dead, and so on [10].

Many disputes have arisen as to priorities among the numerous steps forward in social evolution; no two ladders have the same rungs. If one were to collect a shelf of all major works on human evolution since and including the work of Charles Darwin, and took from each its 'first,' 'truly human,' 'necessary,' 'all-important' steps, and then examined the list, he would feel bemused: each author builds his own ladder; each 'new' trait is the crucial trait that set off man from the ape. Sometimes the rungs are anatomical, at other times cultural; they may also be geological -- events of the rocks, ice, climates, the geomagnetic field, or of geochronometry.

An interesting ladder-scheme, unfortunately not well-developed, is offered by Walter Garre and called *The Psychotic Animal: A Psychiatrist's Study of Human Delusion* [11]. He believes that man, in evolving anatomically over millions of years, developed more and more tools and artifacts. Man was proud of his abilities and became, indeed, increasingly megalomaniac. He began to seek goals in the sky and on earth that he could not possibly obtain until finally he went mad. Vanity, then, is the nemesis of man, and the therapy for the human psychosis is to reconcile man to what is possible. Garre's ladder is amusing and at least more logical than most; his theory is, however, very lightly constructed.

To Freud, writing in 1930, "the upright posture of man was the start of his fateful development."[12] By getting his nose off the ground and putting his genitals up front, man exhibited himself and felt shame. Further, man could never gratify his sexual drive fully and therefore had to seek all kinds of sublimation, "all the cultural developments that are summed up by the word sublimation." Presumably this set of events would have preceded the events that gave him the truly human oedipal complex, the day when he and his brothers killed the old bull father in order to possess sexually the females, and felt ever thereafter an intensification of guilt [13] -- or, to avoid implying that Freud contradicted himself, the great guilt as against the small shame.

In another widely read and more respected treatise, J. Bronowski stresses the development of omnivorous eating habits before other traits, beginning with australopithecus and moving through Neanderthal to modern man:

> The consequences for the evolution of man were far-reaching. He had more time free, and could spend it in more indirect ways, to get food from sources (such as large animals) which could not be tackled by hungry brute force. Evidently that helped to promote (by natural selection) the tendency of all primates to interpose an internal delay in the brain between stimulus and response, until it developed into the full human ability to postpone the gratification of desire [14].

Thus Bronowski momentarily sighted the instinct-delay, but was diverted into adding a rung to the ladder.

Dozens of carpenters and ladders are in the race. But each author has his detractors, who say such things as: 'You cannot eat meat without cooking it,' or 'You can cook but still not be reflective,' or 'Lower animals were omnivorous first.' The most effective way yet found to handle the disputatious crowd is to give everyone time -- one, five, even ten million years. Then every ladder can climb to the same lofty level of modern humans who can do everything. What I propose here may be more effective: remove the ladder and let everyone in through the front door; they are all right, at the same time!

LEGENDS OF CREATION

'Let everyone in -- do you mean even the creationists?' I am not so sure, but let us make a case for the legendary accounts of human origins. It is not impossible to do so. Man has no memory of being a hominid, much less an ape. He insists, however, that he remembers being created. The ready conclusion -- one which has been proposed from the earliest times -- is that mankind was humanized abruptly. This event was universally depicted in theological language as a divine creation. Hence scientists of the past century, in ridding themselves of religious constraints, ceased to consider whether, even without divine intervention, humanization might have occurred in a natural quantavolution. Charles Darwin, to begin with, did not attend, when his disciple, Thomas Huxley, wrote him in 1860 not to be too rigid with the adage, "Nature makes no leap" *(natura non facit saltum).* Darwin repeatedly termed the adage a "canon."

In the historical record from its beginnings, and in the treasured oral records of non-literate peoples of today, mankind is portrayed as a divinely created being. He was fashioned, by beings of a higher order. Homo schizo apparently knew long before Aristotle that an effect had to have a sufficient cause. We may be curious as to why they did not claim eternity, why they did not accept the idea of a world beyond time, why they postulated a chaos followed by a creation. Nor did the earliest cosmologists venture that humans were descended from the lower animals, as much as they may have lived among and respected animals. Yet scholars commonly argue that clever primeval men invented their divine makers because they were not clever enough to imagine how they might otherwise come to exist upon the earth.

Peoples of all types of culture insist, with a unanimity that deafens modern scholars, that they were created, not evolved [15]. The Hopi Indians say that after the world was spun out and nicely formed and enlivened with plants and animals, twin gods made people and gave them speech and wisdom. The Wyot Indians maintain that the first people were furry and talked badly; a universal deluge was visited upon them, and a brother-husband and sister-wife brought forth the good new people.

The Eskimo Creator elicited people out of a scattering of seal bones. The Quiché Mayans proposed that twin gods filled the great void with water and earth; living creatures were made, but their voices could not praise specifically their creators. Whereupon mankind was made of clay, and the clay melted, requiring another attempt. "At first, it spoke, but had no mind." Abandoning clay, the gods resorted to wood. These wooden creatures could not walk properly, nor did they worship their creators. They were annihilated in hurricanes and deluges of black rain. The monkeys are their survivors. Now the gods made fine men, out of corn, so fine that the gods had to cast a mist before their eyes to prevent their knowing too much; and later the gods made them wives who came to them in their sleep.

The Swahili of East Africa adopted Islamic creation theory, which goes back to Judaic theory, which has man created from clay, which is also the Christian belief. One pygmy group of

Zaire has god creating an 'Adam and Eve' and punishing them for violating his commandment, and a second story of the god creating humans as fruit of a special tree of life. The god of the Ngombe of Zaire let his human creations live with him in the sky. Then he exiled a troublesome woman with her son and daughter to earth, and from these came the human race. (But a hairy stranger also mated with the daughter and their offspring brought evil and sorrow to the world.)

To the ancient Mexicans it seemed that the first race of men, created by one of the gods out of ashes, was destroyed by jealous gods in a flood, and the people became fish. Other ages intervened before the present one, "the Fifth Sun." In the fourth age the people were "ape-men" *(tlacaozomatin).* In the fifth age, a god searched the regions of the dead for the bones of a couple of humans. These were found, ground up, and watered by blood from the penis of Quetzalcoatl. Now man, creature of divine self-sacrifice, must sacrifice continuously to keep the world in orderly motion.

Chinese legend has Nu-kua making people of yellow earth patties. Iranian Bundahism recites that man and bull were fashioned of the soil, and that the seed of life, made from the sky's light, was planted in their bodies. Various Greek nations claimed that the earth gave birth to their ancestors; for instance, the Thebans were born from the dragon's teeth sown by Cadmus. A Sumerian story conveys that Enki, the great god, ordered Mami, the mother goddess, to mix clay with the blood and flesh of a lesser god killed by the other gods. So it was done. As usual, the earth was thriving beforehand. And so it was when Elohim created Adam and Eve, the former out of clay, the latter out of a rib of Adam. The Egyptians believed man to be divinely fashioned of clay, too.

In Plato's dialogue, *Timaeus,* a didactic myth presents the fault-less creator Demiurge, using the planets, including Earth, as factory sites, making human souls out of less pure materials than that of which the universe is made; and then "he distributed them, assigning each soul to its several star."[16]

The Skidi Pawnee of the Great Plains recited, "Our people were made by the stars; when the time comes for all things to end our

people will turn into small stars and will fly to the South Star where they belong."[17]

But clay seems to be a favored material: "made of common clay." So also says Ovid, at the beginning of this era, but he adds "maybe." His *Metamorphoses* tells many a gruesome tale of people turning into monsters at the will of the gods, nor can we dismiss the idea that Ovid may have been trying to recount times of great radiation and mutation [18].

MEMORIAL GENERATIONS

What could in fact the ancients remember, if anything? Oral traditions can survive for exceedingly long periods, at least some thousands of years. In the case of modern isolated tribes, and even in the case of the Hebrew and Indo-European Sumerian tradition, what reason do we give for our confidence that these stories cannot go back to the first stories of the first 'time-factored,' that is, remembering or historical, mankind? Can any force change the roots of a myth? Through how many memorial generations of man do the roots of myth penetrate?

The statistical reports of groups exhumed from cemeteries and analyzed for age show average ages of death below 40 until recent times, but also persons who lived to advanced ages. (In a Bushman people numbering 248, living as marginally constrained hunter-gathers, 8% were from 60 to 80 years old) [19]. If one memorial generation is the age difference between an old oral historian and a young child of a tribe, it may average fifty years. Ten thousand years gives only 200 careful sacred recitations; twenty thousand years gives 400. If all the peoples of the world pay sacred respects to what amounts to a story of the sudden appearance of humanity, this fact would seem to support the idea of a continuous story from the beginning of man.

Suppose that a psychologist and anthropologist, supported generously by the U.S. National Science Foundation and Institutes of Health, were to set up a chain of 800 story-tellers, sixty-year olds alternating with ten-year olds, and told the first person in the chain the Eskimo creation story. Would the 800th person repeat the essential story, granting such changes as 'seal bones' becoming bones of another animal? Let an awesome authority

warn that the story must be retold with perfect accuracy, "lest you die."

A much more sophisticated study design is possible; my purpose here is to position the problem for intuitive comprehension. There are grounds for believing that a basic legend can go back even 100,000 years, an age conventionally assigned to homo sapiens, if it conveys a fundamental truth.

If the story goes back that far, or even if it does not, how does it happen that fine legends are not spun about the evolution of man from the animals? Or of his eternal existence? With ages of religious prejudice behind us, we must of course be contemptuous of descent from lower animals. Yet can we believe that the earliest men had to invent gods because they were so disgusted with their similarities to animals? Even when men lived close to animals, endowed them with human characters, and worshiped them as totems? And, too, the earliest stories and depictions around the world reveal, for instance, bulls and women in sacred copulation, not to mention snakes and swans. T. Dobzhansky is therefore probably reasoning *ad hoc* when he says: "Infinity is a notion which most people find hard to conceive of. Creation myths were accordingly constructed to show that man and the universe did have a beginning."[20]

The thrust of legends, when scientifically considered, is directed at humanization as a discrete kind of event, remembered by a mind that recalls not what happened beforehand to itself but what happened then and ever thereafter -- a new kind of memory. And, we guess, this was and remained a fearfully composed memory, compulsively and obsessively recollecting itself. Somehow a barrier was suddenly thrust up between humans and animals.

Hans Bellamy alludes to the "remarkable fact that the mythologist, though he knows an immense number of creation myths, cannot point to a single one whose report starts right at the beginning of things... Almost everywhere we find the ordering of a chaotic muddle of pre-existing things, a formation or a reformation on an improved plan, a recreation rather than a creation in the primary sense of the term."[21] The Earth is fashioned out of the body of a vanquished monster, or fished

out of the primordial sea, or created by the word of a demiurge, this last a favorite of later priests, so that, for instance, the creator gods assembled, and called "Earth!" and the Earth arose from the waters. As St. John said, "In the beginning was the word; the word pervaded God; the word was God." Afterwards man was created, as earlier stated. 'Of course,' it can be argued, 'these are typical schizophrenic delusions, having no basis in reality.' Very well -- although it is rather early in the book to accept our thesis that man was born schizophrenic and has always been schizotypical. Can we not also suggest here that man was striving in manifold ways to recall a hologenesis of mind and culture? And that he must have been a true human at the time of the events at issue?

It is in this connection, too, that we can address the extensive work of Mircea Eliade on *The Myth of the Eternal Return* [22]. For he finds everywhere in the world, and displaced onto all of the functions of life, such as farming and sex, a compulsion to conduct anniversaries and rites to commemorate the first great days of human existence, insisting that 'this is the way things were in the beginning,' *illo tempore*. Eliade does not analyze the causes of this universal human behavior; he rests with the facts, uncovered with so much toil. Here we take what seems to be the necessary step beyond, asserting that humans may remember their origins.

Now, if this is so, then the cultural, or 'intrinsic', memory of man must be extremely long, or the time allocated to human origins must be far too long. Probably the moment has not yet arrived for calling into question the estimates of the duration of human becoming. We still have not heard the stories -- we shall not call them legend -- told by the scientists who have worked with the rocks, the bones, and the artifacts composing the under-ground history of mankind.

NATURAL SELECTION

Doubts about the efficacy of a ladder of evolution begin with questions about the means of constructing the ladder, that is, the machine of natural selection. Charles Darwin titled his influential work *The Origin of Species by Natural Selection*. Although his mentor, the geologist Charles Lyell, had employed the word "evolution" since 1832, Darwin did not use

the term in his own book that came 27 years later. An "unfolding" of new traits was certainly implied, in biology as in geology, especially since Darwin thought (rather vaguely, it seems) that new traits emerged from within individuals as they competed for survival within their species and with representatives of other species.

On the other hand, Darwin used the term "natural selection" 414 times, and "selected" or "selection" an additional hundred times. The heavy employment of the term suggests that he was using it not only as a referent, but also as an active substitute for real natural operations and in place of non-existent evidence.

In general, darwinism has provided a century of confused thought about natural selection. Looking back from today, it is difficult to understand how the idea could so have captured the minds of scientists, granted that its public appeal was large. We should not forget that Darwin (and Wallace, whose ideas on natural selection paralleled his own) received the idea behind natural selection upon reading Malthus who in turn was keen on justifying the laissez-faire notion of a struggle for survival in economic affairs. He demonstrated persuasively that, while the means of subsistence were growing arithmetically, population was growing by geometrical progression, with an ultimate resolution only through famine, disease, and war. It is surprising that even the marxists, who were so suspicious of bourgeois ideology, should have overlooked the import of this connection, when adopting the idea of evolution by natural selection. Marx did associate Darwinism with liberal English economics, but did not insist upon following through the consequences of his surmise.

One may allude to Darwin's inattention to Gregor Mendel's studies of plant genetics. Why on the other hand, would he have taken the first opportunity to put down Mivart's work (1871), which argued that evolution could only be explained as a series of saltations [23]. It seems that Darwin was bent upon taking his inspiration from a hard-headed economic realist rather than from other biologists, perhaps only to guard his idea of natural selection, but perhaps also because he realized that sudden leaps in evolution would, when it came to the journey from ape to man, open the door once more to the religious creationists.

Most cases advanced to illustrate the concept of natural selection turn out to be Lamarckian environmentalism or question-begging. The pattern was set by Darwin himself. He was even capable of statements "that mutilations occasionally produce an inherited effect."[24] More recently, we have Washburn and Howell declaring that "it was altered selection pressures of the new technical-social life which gave the brain its peculiar size and form."[25] Elsewhere, Washburn has it that, "In a very real sense, tools created homo sapiens."[26] So Buettner-Janusz, claiming that culture put severe demands upon the brain, causing it to evolve [27].

That is, man is a kind of self-fulfilling prophecy, governing his own evolution in some of its most critical aspects such as brain size and specialized brain areas, arguments that verge beyond the Lamarckian toward several other hazy theories on the fringes of scientific discussion -- teleological explanations, inherent Platonic forms seeking their realization, etc. Where does all this evolutionary sap come from that now causes the mind to burgeon and then again fashions the tool for the mind to use? But such has been a common form of arguing around the weakness of natural selection in its stark logical definition.

More often, natural selection is proven by a kind of question-begging. Thus, a trait of a species, one not found in a fossil relative, is given an ex post facto justification by natural selection. A common formulation reduces to this: a species which did whatever was done tended to survive in greater numbers. But no proof is offered. Both natural selection and mutation theory abound with the stated or implied premise that whatever changed must have changed because the change helped the species to survive.

A typical problem occurs with asymmetrical brain organization in the human, which accompanies, but not necessarily in a mutually causative relation, handedness -- righthandedness in about 87% of the species. Left-handed people are more brain-bilateral, both anatomically and functionally. Their left and right crania exhibit less asymmetry and their speech areas are less centralized in their dominant hemisphere.

There occur thereupon the typical rationalizations of brain asymmetry and handedness: these 'help the species to survive by promoting dexterity;' and 'the left hemisphere, with an accomplished right hand, can carry out its dominating wishes and calculations.'

In acute brain lesions of the dominant hemisphere, left-handed persons suffer less speech loss than right-handed persons. "If the majority of the LH (approximately 70%) have bilateral representation of speech, this atypical organization would spare them from the more severe and prolonged effects of a unilateral lesion that would be seen in the RH person whose speech mechanisms are more laterally differentiated."[28] Now, if enough clubs smashed enough skulls in the billions of fights during the ascent of man, and if speech were important after the battles ended, and if other variables were not present, then man should by now be left-handed and retrogressed to bilaterality.

However, apart from these particular 'if's,' there occur scores of additional 'iffy' variables. For instances, left-handers are considered wrongheaded by most people, and maybe inferior, so might they not be exterminated? Also, might not left-handed club-wielders be more surprising and effective in battle and therefore reduce the right-handers with evolutionarily significant frequency? Or be employed by right-handers to fight and disproportionately die, while the right-handers remained home to breed?

And might not the right-handers, being more asymmetrical, be also more schizoid, and being more schizoid, be more paranoid, assertive and socially dominant over the left-handers; but schizotypicality is fostered, too, by invidious cultural discrimination, so should not the left-handers like Leonardo da Vinci more than hold their own in the evolution of the species. So do we not have a statistical stand-off, what evolutionists might gratefully refer to as 'an evolutionary equilibrium of 70 and 30 proportions resulting from the operations of natural selection'? This line of thought could go on almost indefinitely, with every question begged by the interposition of the magical term "natural selection."

GRADUALISM

Charles Darwin felt committed to the view that man must have arisen from lower primate forms to his present eminence by a ladder of incremental changes. In *The Descent of Man*, he conceived of "a series of forms graduating insensibly from some ape-like creature to man as he now exists" so that "it would be impossible to fix on any definite point when the term 'man' ought to be used."[29] (He used the terms "gradations" and "gradual" some sixty times in *the Origin of Species*.)

The history of fossil anthropology has seen many attempts to prove Darwin's insensible gradations to be the correct scenario for human development. Thus, a century later, LeGros Clark, the authoritative physical anthropologist referred to earlier, thought "it is evident that a closely graded morphological series linked *Australopithecus* through homo erectus with our own species homo sapiens."[30]

A prominent zoologist, Ernst Mayr, could in 1951 set forth a fine case for cultural elaboration being attendant upon brain enlargement [31]. A decade later he might say the same of all speciation, but only by leaving out careful considerations of time, of the mathematics of permutations and combinations, of the earliest actual origin of the rich intraspecies gene pool being called upon the allow remarkable adaptation, and by skirting the edges of Lamarckian environmentalism even while denying it [32].

In considering the advent of homo sapiens, alert scepticism about the language of natural selection and mutation theory will send many a popular view crashing to the ground. There is little in the known history of human evolution that can be called upon to show that natural selection, adaptation, the survival of the fittest, or even 'mutation as an aid to natural selection,' has played any part in the present constitution of mankind. But, to question-begging, evolutionary discourse adds a ping-pong game in which a frustrated natural selection explanation bats the ball to mutation theory, which, frustrated in turn, bats the ball back to natural selection.

Moreover, the same scepticism may be indulged regarding the mania for extending time backwards to great lengths. A theory of natural selection, plus point-by-point mutation, plus an unchanging or very slowly changing natural environment are going to require very much time to effect the multitude of alterations distinguishing the human being from its imagined primate archetype. The ladder of evolution has to be very long.

However, we may not use the long ladder to prove that time is long, even though time must have been long in order to build such a ladder. Time has to be proven long by independent criteria and tests. The scientific world has conveniently forgotten that Darwin conceived of natural selection as having originated and developed all species of life to their present state within a time span which, by present standards that move toward two or more billion years, would make of him a rapid evolutionist. Relative to a small span of time, the years allocable to the ascent of man were negligible by contemporary guesses; even then time was short, no doubt explaining some of the exasperation of gentlemen of the day, who could feel the hot apish breath of their ancestors on the back of their necks.

The ideology still prevails, suffusing the field of study with three hypotheses: that one fossil form has progressed to another very gradually, that the elapsed time has been long, and that the culture traits have budded upon the branches of anatomical changes. But also (see Washburn, above) the brain can bud on the branches of culture; thus, tools excite brain growth.

What are we allowed to think of the evidence if we disrobe our minds of the ideology of darwinism for a moment? Humanoid types have been dispersed over most of the Earth. Different types lived at the same time and even in the same places. There are no provably transitional types. Stone tools and artificial dwellings have characterized the earliest bipedal large-brained types. "Stone tools are *prima facie* evidence that there was sufficient neurological material for culture."[33] But can culture (that is, humanization) be potentiated for three or more million years without realizing a breakthrough somewhere? Can the measures of time be wrong? With all this, must we not begin to consider whether there occurred some quantavolution, some saltation, as opposed to a gradual evolution?

Must we take a position on the duration of humanizing evolution in order to develop the theory of homo schizo? Suppose that we accept a 5-million-year evolution from hominidal ancestors to modern man. Can we then say that man has changed bit by bit over this period of time and very gradually became the schizoid type that we know today? And, to address C. Darwin, could we then speculate that, at some point near the end of this period, this changing anatomy finally produced an outburst of cerebration and culture?

Also, did man lose his instinctive behavior bit by bit, with blunting and delay occurring in one after another case, until finally he became modern? Was he, incipiently, and then more and more, self-aware and was he more and more frightened and anxious as time went on, until finally he achieved full self-consciousness?

If so, what brought on this gradual change? Was it a series of mutations, all leading in the same direction ('directed evolution') or a continuous process of natural selection breeding a creature more effective at survival? But it is not possible for mutations to work so rapidly under present and recent natural conditions. Nor, considering how many changes would be required and that these changes had to be transferred in a set of successive 'chain reactions' to the species wherever its habitat, has there been time for natural selection.

SEVERE LIMITS TO NATURAL SELECTION

And what is natural selection? We come back to the question. Darwin complains, "I cannot... understand how it is that Mr. [Alfred] Wallace maintains, that 'natural selection could only have endowed the savage with a brain a little superior to that of an ape.'"[34] It may be that natural selection, if it makes sense at all, is capable only of ensuring survival. The fittest may survive, but to be 'fittest' means only fitter than the next individual of one's species, and being a member of a species that is reproductively fitter than whatever species at the moment may be cutting into this reproductivity. Natural selection is a measure of the influence, at a given moment, of a life form. It is the interaction of life forms and their living and inorganic environment favors the genetic descent of certain forms and the extinction of others, whether of the same or of different species.

From this, it is logical that an individual life form that is favored tends to expand in numbers.

But if the environment at Time 'X' changes erratically or quantavolutes, then the changes within an individual and species that have occurred up to Tx can promptly lose their merits as factors in natural selection. What helps for survival this year may hurt survival next year. So it is that natural selection is a more persuasive idea if one is a uniformitarian, believing processes in nature have always been as they are now.

Persuasive it may be, but still not statistically probable. As soon as all the variables are emplaced in the correlation matrix, the likelihood of natural selection collapses. For, what uniformitarian evolution provides in the way of infinite chances of 'advance' must be provided as infinite chances to ‘retreat,’ hence infinite contradictions. The general reliability of natural selection in producing an 'advance' must be close to zero.

The environment which effects species selection is so changeable even under uniformitarian conditions that no 'line of evolution' can be credible as an effect of natural selection. One moment a virus, the next a drought, the next an elimination of a competing species by other causes than direct competition, then a chance mutation then a hundred other selective forces play upon the situation of a species. And, of course, the holistic structure and function of an organism, where thousands of interdependencies interact with each ongoing moment, are utterly beyond the selective capacities of nature, as these are presently construed. And, if one flees to time for protection, they are quite beyond the capabilities of the longest time.

When a gathering was convoked at the University of Chicago in 1959 to celebrate a hundred years of *On the Origin of Species by Natural Selection*, and after much wisdom was spoken and the final discussions ensued, there occurred within minutes a blurting of confessions and hopes [35]. Ernst Mayr was concerned with evolutionary outbursts along some lines after many millions of years of stability, and wondered how so many extinctions occurred, considering "the extreme sensitivity of natural selection, doing the most incredible and impossible things." Emerson said that he himself was of the opinion that "We need much more precise information on the evolutionary

time dimension within all the biological sciences -- behavior and development and so on," and A.J. Nicholson regretted that whereas much attention had been given to the disappearance of unfit forms, little attention had been given to the "replacement of unfit forms."

Such research specifications have, needless to say, gone unfulfilled for another twenty years. David Raup ventured to say that "we have even fewer examples of evolutionary transition than we had in Darwin's time,"[36] and a conference held in 1981 at his institution, the Field Museum, in Chicago, focused entirely upon the possibility of macroevolutionary periods, without facing squarely the non-uniformitarian mechanisms that might have produced them, such as catastrophes [37].

I shall not argue that a busy god exists: but I would point out that hard-headed materialists of the evolutionist camp, who are quick to cite the human stupidity which can treasure a religious delusion for thousands of years, should not have trouble in recognizing that they, too, have been laboring under a delusion, that of natural selection, for 150 years. God is not the only ideological delusion making the rounds of humanity.

If modern man has taken a long time to evolve and if the changes were on the ladder, say, of ramapithecus -- australopithecus -- pithecanthropus -- homo, there should have occurred a great many intermediate types, each with some distinctly 'progressive' concatenation of bones and behavior. These have been claimed; they had to be claimed. But, as we shall see, the known types are several at most. Also, it is unlikely that more than one or two additional types will be found.

Generally, the prevailing modes of thought act to suppress this kind of observation, and let presumptuous expressions such as that of Le Gros Clark pass without serious criticism. As evidenced by the Piltdown Man fraud, whenever a missing link or transitional type seems to emerge, it is eagerly seized upon [38]. In any event, should not such types have survived, even the several known fossil hominids? Up to the present, man has not been able to exterminate his primate relatives, and presumably the hominids would have been more clever and elusive than the apes and monkeys.

Very recently (May 2, 1981) a commentator in the *New Scientist* could sloganize the controversy as 'lucky survivors' versus natural selection. Species do not arise by any provable natural selection but only on occasion flourish thereby or decline, and even then almost always by happenstance that has practically nothing to do with "survival of the fittest" as a selective mechanism. Mutation is the seemingly general mode of creating new species and perhaps of destroying many, but then mutation is another matter, an electro-chemical event offering advantageous or disadvantageous possibilities in a given environment. Many a 'hopelessly inept species' lives on and there are many 'marvelously adapted' fossils of extinct species. Millions fewer of extinct fossil forms are found than 'should be found,' if one is to judge by the number of existing species.

Exponential reproducibility is a *prima facie* case versus the refined general theory of natural selection. Natural selection by any means whatsoever, except general catastrophe, reduces to its largest component, exponential reproducibility. Clever little wings, a nose that sniffs better, and all the thousands of alterations of species and individuals designed as 'improvements by natural selection,' are as nothing compared with the formidable propensity of every species to reproduce in infinite numbers.

Seen in this light, the fact that should be astonishing, but seems to impress few, that the simplest virus or bacterium survives as well or better than the most complex species, can only mean that catastrophe and reproducibility determine natural selection. For the rest, natural selection has been a fol-de-rol, diverting developmental biology from more important business. Darwin prepared an epitaph for his main concept when, in expounding gradualism, he predicted, "so will natural selection, if it be a true principle, banish the belief of a continued creation of new organic beings, or of any great and sudden modification in their structure."

"WAVES OF EVOLUTION"

Scholars generally believe that four waves of evolution have occurred in the ascent of man. The first was of pro-human apes, all fossils now, such as Aegyptopithecus, Dryopithecus, and

Ramapithecus, who inhabited Old World locations from 34 to 8 million years ago (so it is said). "There are, in fact, no ape fossils from anywhere after about eight million," notes Johanson [39]. These extinct beasts were without sign of human culture despite a fairly large brain. That they could have behaved in 'stupid' human ways or could have had descendants, also extinct, that might have done so, is not impossible. Adrian Desmond [40] illustrates well how modern apes are hovering upon the brink of self-awareness and of varied deliberate activities. Such intimations of humanity, which may be enhanced by future paleontological discoveries and modern experiments, are in line with our general theory here, as they are with conventional evolution. The mechanics of humanization, to be discussed in the next chapter, may have altered primate behavior in the same directions of ego-fracture and or delayed instinct response as they did in ourselves.

The second wave was australopithecine. Estimates of their age vary up to a million years in the case of individual finds and extend from a half-million to several million years within the group of finds. Some 243 to 285 of these hominids are represented in fossil discoveries in Africa and Asia. The most famous come from Olduvai Gorge near Nairobi and the Afar Depression ("Lucy"). Some were discovered earlier and others are being uncovered. The brain of australopithecus could achieve 800 cubic centimeters, especially large in view of his small size; his ratio of brain to body bulk was greater that of modern man, 1/42 as opposed to 1/47 by one calculation [41]. His neck was proportionally longer too. He was completely adapted to bipedalism [42]. He was right-handed. His physique varied from "gracile" to "robust;" he weighed perhaps 32 to 39 kilograms, and resembled in musculature a modern Bushman of the same area [43].

The third wave was pithecanthropus or homo erectus, who also spread out over Africa and Asia. He is found so close to australopithecus in certain excavations, as at Olduvai Gorge, that he probably lived at the same time. The most famous is Peking man from China. His brain attained 1200 cc., large also in relation to his stature. His time is guessed at anywhere from 100,000 to millions of years (or this whole range of time).

Other finds of homo erectus are adjudged in the same range. Homer Rainey reports Johanson's estimates of 3 to 4 million years for the Afar Depression *homo* of 1975 an 2 to 6 million years for the R. Leakey rift finds of 1972 and says that "several manlike and other *Homo* species were contemporary in very ancient times. Moreover they were toolmakers."[44] Soviet excavators at Azhch (near Erivan) have discovered remains, tools, and incised bear skulls, dated at 450,000 years.

Then came the proto-homo sapiens, who differ little from modern homo sapiens in anatomy. Often they are called homo erectus, with little reason save their arguable old ages. I doubt that the earliest of these would be considered non-human if their age were unknown. There came, too, the Neanderthal (316 specimen individuals) who was long considered sub-human until discovered co-habitating with our kind in Palestine. He is now given homo sapiens status, but not quite admitted to the club of homo sapiens *sapiens*. By then, and even before then, modern types were flourishing, so that some 400,000 years is an arguable age of full man in current anthropological circles.

There are three main cultural periods to attach to these four waves. All of the creatures except the pro-human apes have worked tools, the most tangible signs of a culture. The Paleolithic is divided unsurprisingly into Lower, Middle, and Upper, the Lower going back to the earliest tools, which may be anywhere from 500,000 to 5m/y old by conventional reckoning; in geological time this would be Middle Pleistocene to Pliocene.

After describing the habitual bi-pedalism of australopithecus, Wolpoff points out that the canine teeth of australopithecus do not differ significantly from those of homo erectus. He then describes the tool kit of australopithecus, saying, "Indeed, some of the australopithecine industries are surprisingly advanced. The Sterkfontein and Natron industries have been called Acheulian."[45]

Alberto Blanc helped rehabilitate Neanderthal man, accrediting him with ritual mutilation of skulls going back 250,000 years, in a style close to that employed in Bronze Age Germany and present-day mutilation practices in Borneo and Melanesia. Further, he pointed out that homo erectus (Pecking man) was

available in fragments of forty individual skulls; only one piece was entirely missing from all forty, the base or foramen magnum, signifying probable mutilation, and therefore a possible connection running all the way from homo erectus through Neanderthal to modern man.

> The reconstructed skull of Sinanthropus offers, therefore, an astonishing resemblance to the mutilated skulls of the "early" and "late" Neanderthals and to the skulls mutilated for the purpose of practicing ritual cannibalism in the Bronze Age of Germany and by the present head-hunters from Borneo and New Guinea [46].

It is also probable that ritual skull mutilation signifies ritual cannibalism. He mentions the famous figure, "obviously the figure of the god or genius of the hunting people," of the Cave des Trois-Frères in Ariège, with the horns of a deer, paws of a bear, eyes of an owl, and tail of a wolf or horse. There is no reason to doubt his word that "the constant complexity of human beliefs is valid and abundantly proved, at least since the Upper Paleolithic."[47]

F. Bordes, among others, lumps together the Lower and Middle Paleolithic, does not find them in America, and attributes to the long period an Acheulian and a Mousterian style. But he speaks of overlapping: "Prehistory is now at a point where we have to accept the idea of contemporaneity not only of different culture variants, but also of different cultures, and this not only in different provinces, but also in interstratification in the same region."[48] Acheulian and Mousterian have been noted to overlap, by Mellars and others. The Mousterian culture is also found in connection with Aurignacian Upper Paleolithic remains. The same type of person made both types of artifacts, or two types of people made both, thus being equally human.

J.E. Weckler writes, "it is no longer possible to maintain the idea that biface cores were the work of homo sapiens and flake tools the product of Neanderthal; for we know that generally in the Europe-Africa-India range the Levallois flakes and biface cores were made by one and the same people as parts of unified cultural assemblies."[49]

The Upper Paleolithic and Mesolithic are joined, too, in America as well as in the rest of the world. A report from Russia carries a shoe-print of an Upper Paleolithic hunter with evidence that the type worse trousers [50]. The modern races are probably present in the Upper Paleolithic. Australians go back now 100,000 years, according to a 1980 news report. Further, australoid types have been found in South Africa and Ecuador. North American Amer-Indian types have been pushed back into the Upper Paleolithic. The major Asian, Sinese or Mongolian types are on hand, and the Caucasians are amply present in the Mediterranean and Europe. Neanderthal probably merged with the caucasoids, rumors of extermination to the contrary notwithstanding. If the rock drawings of the Sahara and Southwest Africa are Upper Paleolithic, as their style might indicate, would their artists be negroid or caucasian, or mixed assemblages of types? The answer is still unknown, but that they were religious is undoubted.

Little time is required for human types to diffuse around the world. As if to confirm this conjecture, a recent dispatch carries the claim of Alan Thorne of Australian National University to have discovered fossil remains of Chinese humans in North Australia which date to at least 10,000 years [51]. That humans, ecumenically cultured, split off in early natural disasters, and that a land platform prevailed until about 6000 years ago during which they might move around in the Southeast Pacific, is considered in this book and in *Chaos and Creation.*

J.D. Birdsell thought Australia might have been settled within 720 years by pioneering negritos from Timor but places the date at 32,000 years ago, which I must regard as too long a time. He guessed that the australopithecines moved thousands of miles from South Africa to Southeast Asia in 23,000 years. This, too, seemed swift to him and to others: "Pleistocene man when spreading into unoccupied territory could have saturated it to carrying capacity... in amazingly short elapsed time."[52]

Yet Americanists long believed that men crossing the frozen arctic Bering Straits reached practically to Antarctica in 12,000 years. Now man is thought to be older in the Americas. I would maintain that man is as old in the Americas as anywhere else, but in any event his velocity of diffusion was much greater everywhere. No hominid or homo need have more than a few

centuries to stretch around the globe. And, if hominids and homo were contemporary, and especially if all were "human," the occupation of the world by mankind need have consumed no more than a thousand years. (I would maintain this whether the world was land-covered -- see my *Chaos and Creation* -- or fragmented.) Furthermore, present racial differences are such as may have occurred in brief periods of isolation, followed by bursts of regional expansion of new types. The mechanism of such quantavolutions in the hominid sphere, as in the biosphere generally, is quantavolution in the natural sphere, catastrophes such as I depicted in *Chaos and Creation.*

The Neolithic period brought practically everybody everywhere to the stage where most people still are, except for some use of metal now in many parts around the world. Pottery, farming, domestication of animals, religion and many other cultural features are present everywhere. Yet, nowhere, strangely, is it claimed that the Neolithic is more than a few thousand years old, six to twelve thousand being the normal estimated range.

We need not consider this Neolithic Period here. No hominid or proto-homo-sapiens emerges during it. Also, as indicated above, nothing basically important seems to have distinguished the Upper Paleolithic from the Mesolithic. So far as human development is concerned, the cultural level of the Upper Paleolithic approaches that of the Neolithic (later on, I shall offer my evidence to this point). So the temporal question is whether homo schizo originated then, or in the Middle or Lower Paleolithic, bearing in mind that by Lower Paleolithic we must mean Early Pleistocene, with this period in turn moving back into what was once thought to be Pliocene, and perhaps even into the so-called Cretaceous.

The time problem is tied in with the manner of genesis. Did this human being originate in steps or by quantavolution, that is, all at once? Did his culture originate promptly with his physical origins, that is, hologenetically? In answering these questions, we shall be solving the problem of time. A quantavolution of human genetics and culture implies human hologenesis, and both imply a collapse of time scales. If timescales are deprived of anthropological, archeological, and legendary support, they must subsist upon geology and geochemistry. And if they cannot do so, they must be radically adjusted.

Notes (Chapter 1: Slippery Ladders of Evolution)

1. On p.188, of Volume III, *Issues in Evolution*, Sol Tax and Charles Callendar, eds., of *Evolution After Darwin*, Chicago: University of Chicago, 1960, hereafter cited as ED.

2. D. Morris, "Primate's Aesthetics," 70 *Natural History* (1961), 22-9.

3. E.V. Komarek, Sr., "Fire and the Ecology of Man," Tall Timbers Foundation, Tallahassee (Florida), March 1967, 151-3.

4. *Origins of Man*, N.Y.: Wiley, 1966.

5. III *ED* 265, also 107.

6. As with Marshall D. Shalins, Elman R. Service, eds., *Evolution and Culture*, with papers also by D. Kaplan, T.G. Harding, and Leslie A. White, Ann Arbor: University of Michigan, 1960.

7. *Ibid, v.*

8. Ward C. Halstead, "Brain and Intelligence," in L.A. Jeffress, ed. *Cerebral Mechanisms in Behavior*, N.Y.: Wiley, 1951, 251.

9. "Notes on the Mentality of Primitive Man," in S.L. Washburn, ed., *Social Life of Early Man*, Chicago: Aldine, 1-64, 11.

10. *Cf. inter alia* J.N. Spuhler, et al., *The Evolution of Man's Capacity for Culture*, Detroit: Wayne U., 1959, chap. I., and S.L. Washburn and R. Moore, *Ape into Man*, Boston: Little, Brown, 1973.

11. N.Y.: Human Sciences Press, 1976.

12. *Civilization and Its Discontents*, 1930, NY: W.W. Norton, 1950, 46.

13. *Totem and Taboo*, 1913, trans. 1950, N.Y.: W.W. Norton, 140ff.

14. *The Ascent of Man*, Boston: Little, Brown, 1973, 44-5.

15. A number of the cases comes from Barbara C. Sproul, *Primal Myths: Creating the World*, N.Y.: Harper and Row, 1979.

16. Giorgio de Santillana and Hertha von Dechend, *Hamlet's Mill*, Boston: Gambit, 1969, 306.

17. *Ibid*., 309.

18. *Ibid*., 252, 118.

19. John E. Pfeiffer, *The Emergence of Man*, N.Y.: Harper and Row, 1972, 391.

20. *Mankind Evolving*, 1962, N.Y.: Bantam, 1970, 1-2.

21. *Moons, Myths and Man*, London: Faber and Faber, 1936, 165.

22. Princeton University Press, 1964.

23. Ernst Mayr, "The Emergence of Evolutionary Novelties," I. *ED*. 354ff; St. George Mivart, *Genesis of Species*, London: Macmillan, 1871.

24. *Descent of Man*, 1871, 1883, 440, *cf*.435.

25. "Human Evolution and Culture," II *ED* 52.

26. Spuhler, *op. cit.*, p31.

27. *Op. cit*., 352.

28. Paul Satz, "A Test of Some Models of Hemispheric Speech Organization in the Left- and Right-Handed," 203 *Science*, 16 March 1979, 1133.

29. Page 541.

30. *The Antecedents of Man*, Chicago: Quadrangle, 1971, 359.

31. "Taxonomic Categories in Fossil Hominids," 15 Cold Spring Harbor *Symposium on Quantitative Biology* (1951), 109-17.

32. I. *ED*. 354ff.

33. Buettner-Janusz, *op. cit*., 349.

34. *Descent of Man*, 432.

35. III. *ED*. 141-2. *Cf*. Steven M. Stanley, *The New Evolutionary Timetable*, N.Y.: Basic Books, 1981; Francis Hitching, *The Neck of the Giraffe*, N.Y.: Mentor, 1982; T.M. Schopf, ed., *Models in Paleontology*, San Francisco: Freeman, 1972.

36. "Conflicts between Darwin and Paleontology," quoted by L.R. Godfrey in *Natural History*, June 1981, 9.

37. Roger Lewin, "Evolutionary Theory Under Fire," 210 *Science* Nov. 1980, 883-7.

38. J.S. Weiner et al., *The Piltdown Forgery*, London: Oxford, 1955; *Nature*, 2 Nov. 1978.

39. Donald Johanson and Maitland Edey, *Lucy*, New York: Simon and Shuster, 1981, 363. Washburn and Moore, *op. cit*. Buettner-Janusz, *op. cit*.; NY Times, Feb. 7, 1980 on new Aegyptopithecus discoveries by Elwyn Simone.

40. *The Ape's Reflexion*, N.Y.: Dial, 1979.

41. Buettner-Janusz, 146, 350-1, *et passim*.

42. C.O. Lovejoy, "The Locomotor Skeleton of Basal Pleistocene Hominids," IX *Proceedings*, Congress, UISPP, 14 Sept. 1976, 157.

43. Alan Mann, "Australopithecine Demography," *Ibid*. 181.

44. *Encyclopedia Britannica Yearbook*, 1976, 260.

45. Milford H. Wolpoff, "Competitive Exclusion Among Lower Pleistocene Hominids: The Single Species Hypothesis," 6 *Man* 4 (1971), 606.

46. "Some Evidence for the Ideologies of Early Man," in S.C. Washburn, ed., *Social Life of Early Man*, 133.

47. *Ibid*. 121.

48. "Chronology of Paleolithic Cultures in France," in Renfrew, ed., *The Explanation of Culture Change: Models in Prehistory*, Pittsburgh, U. of Pitt., 1973. F. Ameghino, in several works at the turn of the century, claimed an Acheulian culture of the Lower Paleolithic in South America.

49. "The Relationships between Neanderthal Man and *Homo Sapiens*," 56 *Amer. Anthro*. (1954) 1011.

50. Peter Kolosimo, *Spaceships in Prehistory*, Secaucus, N.J.: University Books, 1979, source not cited.

51. "Chinese 'First to Australia,'" *Melbourne Sun*, Aug. 14, 1982.

52. "Some Population Problems involving Pleistocene Man," 22 *Cold Spring Harbor Symposium of Quant. Biol*. 1957, 67-8.

CHAPTER TWO

HOMINIDS IN HOLOGENESIS

Might all types of known hominids and proto-humans have been of the species homo sapiens (schizotypus) in physiology and culture? Might these and all modern races have appeared during the past 14,000 years? Might man have originated hologenetically in the holocene period, by quantavolution? Such is the line of questioning and argument to be followed here; outrageous as it may be to conventional theory, it may be also productive.

We have already noted that australopithecus had certain human qualities. We can pick up the analysis again. He was adequately supplied with cranial matter. Specimens exceeding the minimal brain size known for normal humans have been discovered. His brain-body build proportions were modern. His size was that of many millions of modern people. His dentition was close to modern man's, far removed from the apes. He was bi-pedal and held his head high (higher than we do, said Louis Leakey). He was social. He used tools. He built enclosures. He was right-handed. It appears that his brain was hemispherically asymmetric, which introduces additional human potentials. McKinley, Wolpoff says, "demonstrated that Australopithecus (gracile and robust) followed a 'human' model of short birth spacing," and Mann showed that "the rate of australopithecine development and maturation were delayed, as in modern man, rather than accelerated, as in modern chimpanzees." (Based upon the timing of molar eruption.) There are no signs yet of his having had speech, but no evidence to the contrary; Louis Leakey thought he had a human palate. There have been few indications yet of his having been religious and artistic. There are signs of his having used fire.

He was connected with homo erectus in time and with the Acheulian-Chellean culture at Olduvai, which culture extends into the Terrafine of North Africa and is found also at Swanscombe and Steinheim, with practically modern man.

Opposing the theory that australopithecus was human stands largely the thesis that he is anatomically too different from modern man. To the forgoing response may be added the following: we do not know what are the limits of variation within the single species or how the principal distinction employed -- that interbreeding be impossible -- would apply here. It is of significance that Johanson had persistent doubts about classifying his fossil hominid, "Lucy." He argued that she might be called homo, but relented at the prospect, then, that all australopithecines would logically have to be regarded as of the homo line. Where would we go to find our hominid ancestors? The search for the missing link would begin again.

While at the University of Chicago, Charles Oxnard compared fossil australopithecines with living apes and men by fine measurements of the foot, pelvis, fingers and other bones, transferring the measures to computer tapes for multivariate analysis [1]. "Geometrically this is the equivalent of constructing and viewing from one position a three-dimensional model of the swarms (of points measuring similar objects) and then rotating and viewing the model from a new position that best separates the swarms." His studies suggest that the australopithecine bones are uniquely different from both man and the chimpanzee and gorilla.

Applying stress analysis to the bones supports his comparisons derived from the computer analysis in that the finger bones of man are incompetent for both knuckle-walking and hanging-climbing, whereas those of the Olduvai australopithecines are poor for knucklewalking, but adapted for hanging-climbing. Oxnard believes also that australopithecus might have been better equipped to run than to stride bipedally. One wonders when the Olduvai "creature of the savannahs" stopped walking on his knuckles, how he used his hanging-climbing faculty, and why his hands were not scuppered for scooping fish from the successive "Lakes of Olduvai." Kamala, the Indian wolf-girl, went on all fours and could not stand, until after years of coaching; her hands were described as very strong and rough; she could run, rising on her digits. Her anatomy was normal for homo sapiens. The races of mankind are distinguishable as skeletons, but are one species; so the "hanging-climbing" hands

of Olduvai man may be of minor importance if he were otherwise human.

Australopithecus may be a branch of the human line that habitually clung and climbed. Better yet, he may have maintained an ancestral feature that was finally bred out. It may be suggested, also, that he originated wherever homo emerged, and that the quantavolution was so open-ended as to provide a remarkable diversity of human types in the beginning, followed by a diffusion of these types around the world. Soon the types would double back, and merge with, or exterminate each other.

There is much diversity among the australopithecines themselves to fuel controversy; several attempts have been made to call new specimens by new species names. Generally, anthropologists have wanted to join them together as a single species, if only to avoid barren disputation and to make it easier to sum up the primordial situation in textbooks.

Charles Oxnard points out that a recent finding at East Rudolph, by Richard Leakey, of the keystone of a foot arch (talus) has been dated as the same age as, or older than, the Olduvai australopithecine. Yet the new find is much larger, more similar to that of modern men, according to the multi-variate analysis of Bernard Wood. Richard Leakey found also a skull dated from two to three million years of age with an endocranial volume of 800 cubic centimers (the australopithecine volume being generally much less), showing an overlapping of cranial capacities with homo erectus. Then, too, an arm bone fragment from Kanapoi, dated at four million years, "has already been shown... to be very similar to that of modern man." In this phrase, "very similar," we can read within the range of variation of modern man.

The various pieces of evidence, according to Oxnard, add up to meaning that perhaps as long as 5,000,000 years ago (and the possibility is not lost that future finds may place this further back in time) there may well have been creatures living that were generally similar to homo erectus and therefore classifiable as man in a way that we must deny to any australopithecine (whether named *H. habilis, H. africanus* or whatever else)." That is, we should say, erectus was even more modern in anatomy than australopithecus. But probably present

anatomical differences between the pygmies of the Congo and their tall black neighbors are as great as between australopithecus and homo erectus; they discourse in the same language (pygmies adapt and use neighboring languages), intermarry, have continuous commercial dealings, and in fact are symbiotic.

HOMO ERECTUS

Now it is homo erectus who comes to mind, and we would like to know whether he, too, might be human. If so, how did he come to be created? And when was he created? And if five million years old, or three, or one, or one-half, or one-tenth -- to cite various estimates -- why then should he have evolved so slowly until the Upper Paleolithic, which is variously reckoned at from 50,000 to 10,000 years ago?

Homo erectus cannot be dismissed from the motley ranks of modern man. He had large supraorbital ridges but so have some modern individuals and so, too, Neanderthal man, who had a cranium larger than modern man and a culture. Home erectus had a low skull, yet possessed the cranial capacity of the smaller skulls found among ourselves. And amongst ourselves, cranial size has little or no relationship to average intelligence and competence, or perhaps even to extreme intelligence.

Le Gros Clark, seeking to prove gradual evolution, wrote that by "the end of the Middle Pleistocene, the hominid skull had attained a degree of development very similar to modern man; indeed, except for the rather strongly developed supraorbital ridges, some of the cranial remains of this date are hardly to be distinguished from modern man."[2] His "Middle Pleistocene" was about 500,000 years ago, and in cultural terms might now be termed Lower Paleolithic, because well-developed stone age cultures dated at 250,000 years ago have been uncovered, as in Tadshik, U.S.S.R. Björn Kurten alludes to modern humans with a brain case of 1400 cc and using fire, discovered in Hungary at Varteszöllös in the 1960's and dated at 400,000 years ago [3]. Probably homo erectus and homo sapiens were contemporaries. Inasmuch as fire making was also assigned to Peking man, homo erectus whether 400,000 or four million years ago, it would seem that humans have been allowed an inordinately long time to sit around fires in a mental funk.

> In 1975, field work at Koobi Fora in northern Kenya resulted in the demonstration of contemporaneity between KNM-ER 3733, an unequivocal homo erectus cranium, and KNM-ER 406, an obvious robust australopithecine. This was dramatic confirmation of earlier interpretations that suggested the existence of two distinct hominid lineages in the African early Pleistocene [4].

In Java, homo erectus and meganthropus were living side by side in the Middle Pleistocene [5].

Presently, radiometric dating, particularly the Potassium-Argon test, is determining the ages of hominids, and this test is applied ordinarily to volcanic issue. The stretching of the time of hominids has gone on regardless of definitions of boundaries, and little attention is given to traditional geochronology. If the volcanic ashes imbedding a bone are adjudged to be two million years old, that is usually the end of age reckoning. So the hominids have gone back beyond the Pleistocene well into the Pliocene.

How baffling the time element can be is suggested in an incident. A skull of homo erectus was discovered in Kenya by Bernard Ngeneo, working under Richard Leakey. It was dated at 1.5 million years. Peking man, a prototype of homo erectus had been dated by non-radiometric methods at 0.5 million years or less. Leakey said, "this raises questions about the true age of Peking Man. The Chinese must develop a new, different way to date their sites for more accuracy. Upon re-examination, they'll probably find these fossils to be a million years older than now dated."[6]

In effect, the 40K-40A dating method is giving very old and by implication "good" results, and should be the sole method of plotting man's ascent! If so, some dates of hominid and *homo* fossils that were estimated before radiometric methods were employed may be useless. Or else these types lived for millions of years on Earth. As I stated earlier, modern types are now being found aged in the millions of years, not only skulls of modern volume but also modern bones, and now modern footprints.

PEKING MAN

Sinanthropus, the Chinese version of homo erectus, from Choukoutien [7], probably had a cerebral mechanism for speech. He was also righthanded as judged by cerebral asymmetry and the way he made and used tools. His occlusal trough was the same as ours and he chewed the same way. His two lateral upper incisors "display a crown morphology quite typical for this region in various races of modern man." The upper central incisors were longer than in the Northern Chinese today. The lower molars were of a "generalized and progressive type... one whose slight modification in a given direction may readily produce a condition dominant in modern hominids" (The experts who say this make a comment that should be borne in mind when comparing ancient and modern man: that the most distinctive peculiarities of modern man are "degenerative in origin.")

Sinanthropus built fires and made artifacts of quartz; layers of ashes were uncovered and thousands of pieces of worked quartz. We will treat this matter when we discuss cultural hologenesis, but it may be worthwhile to mention here that the "Choukoutien formation must be considered as a perfectly homogeneous and distinct stratigraphical unit." To our view, this signals the possibility that the Choukoutien scenario was brief, not enduring for a hundred centuries or a thousand centuries.

An archaelogical columnar section illustrates the distribution of prehistoric culture in relation to deposits of North China, as known to Black and his collaborators half a century ago. I have tabulated it here. Note how crowded the holocene period is in relation to the Pleistocene and Pliocene sections, and yet how heavy its cultural development. So much time is allotted to the earlier periods because convention so dictates, i.e., such is the ruling paradigm of evolutionary time. But inspection of the contents of the column reveals plainly that practically all of its material could have been deposited in weeks, years, or centuries. The deposits are precisely of the type that occur in floods and storms: sandy lacustrine deposits, loams, loess, and gravel. (In *The Lately Tortured Earth*, I examine evidence of an extraterrestrial origin of the loess.) It is unlikely that hundreds

of thousands of years elapsed, as the report declares. This idea is especially poignant because the Choukoutien fossils and artifacts were found in lenses of deposits that were swept into a rock cleft, fissure, or large cave, filling it up, until, in our day, they were come upon in the course of quarrying.

That the total setting is recent is attested to by occasional unsuspecting sentences in the reports: the fissure contains such a wide range of fauna from Late Pliocene and Upper Pleistocene (at least 1 myr) "that it is not easy to decide to which of them it stands more closely related," so it is placed as Lower Pleistocene.

> The fossils... constitute a curious and heterogenous collection of types... Such forms as the marmot, the camel, the antelope and the ostrich seem rather out of their due place. Possibly they were accidental wanderers along the plain, unless we admit that the plain itself was the steppe, then elevated considerably above the present flood plain level.

Also

> Though these pioneers probably arrived with a knowledge that crude stones could be used in a variety of useful ways, it would seem probable that the lithic industry of Choukoutien was largely if not wholly a slow autochronous development; that the latter in any case was indeed an extraordinarily slow one, is witnessed by the relatively insignificant advances made in technique over the many, many centuries during which the *Sinanthropus* community must have occupied the great cave of Choukoutien...

The climate was mild. "Curiously enough, however, a generally effective faunal barrier seems to have existed then just as now, between the Yangtze and Hoangho basins." Just as now! Why not now?

There are some Mousterian (Neanderthal) cultural affinities: "As a matter of fact most of the... quartz specimens would seem to be indistinguishable from the major part of the quartz artifacts which have been collected in some of the Mousterian caves in France." Then: "There also occur throughout the deposit vast numbers of burnt and fragmented bones." Further, much of the deposit is of ashy and burnt clay of different colors,

possibly of a great many fires, but also possibly of wind and water transported ashes. Almost nothing but cranial parts of Sinanthropus was found in the deposits, despite the abundance of mammalian bones in the thousands of cubic meters of debris examined. Could the skulls alone have been buried in the pit (a possible Mousterian practice)? Or washed in from a nearby settlement? One can conclude that more direct evidence supports a short-time life of the cave than a long-term history.

Yet pressure is exerted on the curators of the site of 'Peking Man' to redate it to carry it backwards in time from 200,000 years to over a million years, so as to match East African specimens of homo erectus, which in turn has been found in association with australopithecus, and this extends backwards by another two million years, all based upon the validity of potassium-argon radiodating which is suspect. It is not beyond reason that this whole dating scheme will soon collapse and the hominids will be carried forward in time, leap-frogging the geochronological conventions of the 1920's, to the very edge of the holocene, a dozen thousand years ago.

FOOTPRINTS

At a site, G. Laetoli, Tanzania, the fossil imprints of three individuals, thought to be gracile australopithecines, were discovered in a consolidated tuff of volcanic ash dated by the K-A method at 3.6 to 3.75 million years. A stereometric camera was used to compare the footprints of these two individuals with modern footprints. The contour patterns are similar. The impression of the heel, ball, arch and big toe are similar. "The pattern of weight and force transference through the foot... also seem to be very similar."[8]

A lucid description of the K-A dating technique is to be found in *Lucy* (187-207). Johanson and his collaborators worked hard on Lucy's K-A dating of three million years to reduce the "margin of error" from 200,000 to 50,000 years. Then, on the basis of new information coming from paleomagnetic matching of rocks here and elsewhere and matching of dated fossil pigs found in rock strata of the same type elsewhere (biostratigraphy), they discarded the 3m/y date for a new older date of 3.75 m/y. Lucy became 750,000 years older.

One can scarcely be surprised if the reader, at first awfully impressed by radiochronometric machines, becomes now disenchanted when these are abandoned for divination from pig bones. Perhaps Lucy is a million or two years on the younger side and was gassed with her friends in a recent volcanic oven. And maybe the footprints at Laetoli were made by the Leakey family on an outing, before they had their first foundation grants. But this we know cannot be, for Mrs. Leakey would remember whether the volcano was then active.

The age of Lucy did not long stand where Johanson had placed it. In 1982 Boaz and others made new faunal comparisons that younged her and her earlier Afar associates by half a million years, and F.H. Brown compared volcanic tufts and likewise found Lucy much younger than she had seemed to be; a basalt testing at 3.6 m/y lay above a tuft of 3.2 m/y, the basalt test, less reliable, was superseded [9].

Johanson could recognize his shoeprints and a cigarette package in the wadi where he had worked two years before, for there had been no rain. Yet "we surveyed the 333 site. A good deal of sandstone had crumbled down from the overburden above. It was now scattered in large blocks and smaller chunks over the hillside that had been so carefully screened for fossils two years before." Two years and 3.75 million years: close to two million times that amount of debris might have been dumped in the area since Lucy's days, even with a uniform climate (which he claims) and no natural disasters to muck it up (but 10 volcanos were active thereabouts in Lucy's days).

Old or young, the hominid and *homo* types have overlapped in time and habitat, as well as in numerous traits. Michael H. Day writes:

> It has been pointed out by a number of workers that the approximately contemporaneous Ternifine mandibles (jawbones) of Algeria and the Peking mandibles of China show extreme similarities; the great similarities between the Peking femurs (thighbones) and the Olduvai Hominid 28 femur have also been noted. A reasonable explanation of this similarity is that migratory hunting patterns had brought many groups of Homo erectus into contact and that exogamous (marrying outside the tribal group) breeding patterns had resulted in the widespread occurrence of

> certain traits. These similarities are very likely too great and consistent to have resulted from separate evolution along parallel lines in isolation; and, indeed, the degree of similarity seen in the available material makes it extremely unlikely that long-term isolation was a factor in human evolution after the early middle Pleistocene [10].

Ashley Montagu long ago pointed out that Swanscombe man, who was quite modern, preceded Neanderthal, and that a Swanscombe type was found at Quinzano, Italy and placed in the Middle Paleolithic. Also before Neanderthal came Fontechevade man, with cultural remains, and he "would appear in all respects a modern type of man."[11] He alludes to Louis Leakey's Kanam and Kanjara discoveries as modern but Middle or Lower Pleistocene.

AMEGHINO'S ARGENTINE HOMINIDS

The extensive works of Fiorentino Ameghino, the Argentine paleontologist and archaeologist, are due a review in the light of recent oceanography, paleontology, and anthropology. During his lifetime he was attacked and ridiculed; he lost his university position for his ideas; nor has his fame been restored to this day. Several of his claims, apart from the many new species of extinct animals that are accredited to him, are beginning to ring true.

He proposed, on the basis of numerous explorations and excavations, that man had existed, with an Acheulian culture, in the Pliocene period and earlier, an age that only now is being invaded by East African hominidal discoveries. He found human remains, tools, and habitats associated with the giant fauna that were extirpated at the end of the Pleistocene. He found carapaces of giant turtles, with diameters around 1.5 meters, that could house dwellers of the plain, and inside of them, flint tools and selected bones; man, he thought, used these carapace homes on the treeless plains to avoid the giant animals of the age. He could not but believe that the association of man and great animals stretched far back into the Pliocene, even into the Miocene, and possibly the Eocene.

He argued vehemently for the existence until recently of land bridges between South America and Africa, actually in the time

of man. No doubt that he would have welcomed the theory of continental drift in vogue today, although he followed a theory with other well-known writers, that the land between the continents had sunk, rather than split up and drifted.

His most shocking hypothesis was that mankind had originated in the pampas of southern South America and had moved North and East across continental connections. He called the Central Atlantic bridge the "Guyana-Senegal" connection. This is also the Antilles-Mediterranean link, which Suess, Lapparent, and other geologists and paleontologists perceived to exist in the Tertiary period [12].

"I believe," he wrote, "that one can regard as susceptible to nearly rigorous proof the following facts: 1. The American population is not a unique and homogenous race but the product of crossings of different races. 2. One finds individuals and tribes representing races of the Old World, but the mass of people is distinctly different... 5. Emigrations from the Old World always found the Americas peopled by natives... 7. While Europe was still peopled with savages, America possessed very advanced peoples living in great cities and constructing grandiose monuments. 8. At different periods, new emigrations took place toward the Old World... 10. The most ancient peoples of Europe, Africa and America were in communication. 11. The communications were facilitated by land, today disappeared. 12. The existence of this land can be demonstrated by tradition, prehistory, archaeology, ethnology, linguistics, philology, anthropology, botany, zoology, paleontology, and geology. 13. Up to now, science has not been able to determine in what corner of the globe man or his precursor made his appearance for the first time."

Ameghino describes skeletal material and crania from the Canyon of Moro (North of Necochea)[13] as of a people rather over four feet tall, long-headed, prognathic, small-brained, small-toothed, and generally exhibiting bone-structures foreign to modern man. He called this group of "hominids" *Homo sinemento.*

In another paper, Ameghino and his brother describe an apparently incised Protorotherium jawbone that they discovered. This would place Patagonian man over thirty

million years ago, in the Eocene age, far earlier than the most radical of present-day datings which range up to five million years, and then only hypothetically. Two famous anthropologists from the United States visited the site, Ales Hrdlicka and Bailey Willis; neither accepted Ameghino's early datings of man or even the presence of a hominid in the Western Hemisphere, much less the four races of hominid that Ameghino claimed to have discovered.

Since the present author has not studied the problem extensively or at first hand, and indeed the materials for such a study may no longer exist for specialists to investigate, one can only remain in a state of mystification, hoping that the search for primordial humans in South America will be vigorously pursued.

METHODOLOGICAL POSSIBILITIES

Oxnard's statistical, computer-assisted techniques of comparative anatomy might well be applied to test new hypotheses. They are especially adapted for logical operations in which time should be squeezed out. Pearl computed coefficients of variations in the human species, along seventy dimensions. G. Simpson deemed the results to show a not unusual variability in comparison with other mammal species [14]. The data, he thought, indicated that man was changing rapidly. If modern man is so variable in physical structure, it can be assumed that fossil men (hominids included) will also be at least as internally deviant, and in fact they are, even if the australopithecines and homo erectus are examined separately.

But now let us group Neanderthals and proto-modern types with modern man, and australopithecus with homo erectus. The number of parameters of difference within the two groupings will probably remain the same - the aforesaid seventy perhaps. The variations or values within each grouping will increase. What are the two sets of coefficients of variations? What are their means and extremes? Are all of these indices equal within the two groups?

Then plot the ancient aggregate against the modern aggregate on every parameter, and on the means and extremes. Calculate all the differences and principal sets of differences and express

them statistically. Test then the following hypotheses: a) The internal differences of the ancient group are of the same mean and range values as those of the modern group. b) The differences between all individual values and sets of values of the ancient and modern groups are not significantly greater than the internal differences found in each of the two groups.

Both hypotheses are deemed to be supported if the differences trend toward their confirmation. If the hypotheses are largely confirmed, elapsed time between ancient and modern man must be presumed to approach zero time.

The conclusions thus derived are subject to attack from 1) Independent measures of time by geochronology and any evidence of an independent archaeological kind such as aberrational cultural developments, as well as by 2) Independent knowledge from evolutionary genetics, from evolution by other means such as natural selection, and from paleontology concerning the length of time that the traits under examination require to reach their extreme parameters. If neither kind of independent control is valid and reliable, beyond the limits to which the aforesaid tests of the hypotheses are valid or reliable, then the hypotheses may be maintained: The groupings of ancient and modern man are internally homogeneous; elapsed time between ancient and modern man must be very short. Since little of this proposed work has been performed, however, the value of the hypotheses must be temporarily judged on the basis of such logic and evidence as are otherwise presented in this chapter and book.

TIME UNNEEDED FOR CULTURE

Oxnard is impressed by the uses to which a long history of mankind might be put:

> knowing as we do the enormously greater speed of psycho-social evolution as compared with the slow rate of biological evolution, then a larger absolute time span of, say, 5,000,000 years, may allow an even greater amount of relative evolutionary time for the evolution of the behavioral, cultural and intellectual qualities that stamp man as unique from any animal [15].

But whoever said so much time was needed for cultural evolution? We shall soon be arguing that culture was practically instantaneous.

Some old evolutionists gave 50,000 years as the age of modern man. They were thinking in physical, not cultural, terms. That splendid hoax, Piltdown man, was expertly placed at 500,000 years and then a few years later just as expertly placed 50,000; finally, of course, he achieved the surreal, a timeless mockery of scientoid pretense. By the newest estimates, mankind would have had one hundred times as long as these 50,000 years to rise from some non-human level to its present state.

To insist that very old fossils of modern physical type must have had a culture provides a sword that cuts both ways against time. The physical as well as the mental traits of the homo species, if deemed to imply each other, might be dated very recently. Homo sapiens might be born within hailing distance of 14,000 B.P., a basepoint that I have developed in *Chaos and Creation* for the Holocene age.

To allow quantavolution in a short time, one must agree that some part of evolution might be systemic, that is, permit a set of crucial human changes to occur together in the same moment and perhaps by the same instant mutation. The issue has been hotly argued. A plurality of biologist are point-by-point evolutionists; very few are saltationists, quantavolutionists or systemists; many are puzzled over the great variety of points to be covered over time, no matter how long, and yet unready to accept "successful monsters" as the answer.

There is no way of soothing the bafflement and frustration concerning measures of time. I have mentioned traditional geochronology and potassium-argon radiochronometry as the bulwarks of long time reckoning. Probably I must say more of them here inasmuch as they are accepted with little question by some of the foremost paleoanthropologists.

Traditional geochronology needs to be considered mainly because it offers a fall-back position, should radiochronometry be deemed invalid. The major drawback of geochronology in regard to fossil man is that time is measured by evolution; the

time scale follows the fossil record of the sequence from "lower" to "higher forms."

The defensive positions of a century ago are irreparably in disrepair, however. At that time the age of the Earth itself was being argued in the highest scientific circles in the neighborhood of thirty to ninety million years, which would on today's hominid reckoning give perhaps one-tenth of all earth-time for the development of man [16]. But then man was still hovering in the five figure bracket of 20,000 to 90,000 years. Certainly, were it not for radioactive dating methods, evolutionary theory would be at an impasse for lack of time for mutation and for natural selection to transform the biosphere.

Like question-begging is the plague of natural selection, circular reasoning is the plague of traditional geochronology. "The rocks do date the fossils, but the fossils date the rocks more accurately... circularity is inherent in the derivation of time scales."[17] There are neither transition fossils in any number to mark the important fossil stages, nor complete fossil columns showing the evolutionary sequence; nor is evolution a hard set of facts. Yet index fossils with a doctrinaire chronology are imposed on the rocks and the rocks assigned dates. Then rocks of comparable type, though lacking fossils, are dated accordingly, and many of the strata and formations surrounding them, too.

Velikovsky has ingeniously displayed, using Blanckenhorn's study of the Syrian-Palestinian rift valley, through which pass the Jordan River and Dead Sea, that the old geochronology, before radiochronometry, could properly formulate for it a history of a few thousand years, rather than many millions of years [18]. He further used proto-historical evidence, that of Biblical sources, to strengthen the theory of short duration for the rifting of the area. The older methods of geochronology are often too flexible to engender confidence.

We must bring time into a new order. So long as it is the tool of the old vision of a point-by-point development of humanity, time will stretch out of bounds. The Holocene-Pleistocene boundary is not fixed upon an event, unless it be an end of the ice ages. But the ice ages are still going on, and it is doubtful that they played much of a role in the humanization and diffusion of man, except for imposing sometimes rather obvious

limits upon settlement. The Pleistocene-Pliocene boundary was set by the International Geological Congress of 1950 on the basis of late Cenozoic stratigraphy in Italy, more precisely on the entrance of northern marine invertebrates into the Mediterranean. This boundary, too, is scarcely useful, and should be ignored in reckoning the origins of man in time. The Pleistocene record is always discontinuous and fragmentary, especially in glaciated areas. The task of scholars "would have been incomparably easier if some stratigraphic section covering the entire Pleistocene were available, showing, for instance a complete sequence of alternating tills and soils. Unfortunately, such a section seems to be available nowhere in the glaciated areas."[19]

We note, too, how geological time-reckoning expands as we go back in history. The Upper Paleolithic artistic period was dated back 30,000 years by French scholars and geologists, working on remains in caves and rock shelters. Estimates of sedimentation rates of deposits into which artifacts were sandwiched, gave such duration. But the dating of the Upper Paleolithic artists is more a working consensus that an absolutely tested fix. Pergrony and Caslis give us an age of 4500 years ago for metals, a Neolithic lasting 5000 years before then, a Mesolithic of 2500 years, an Upper Paleolithic of 30,000 years, a Middle Paleolithic of 80,000 years and Lower Paleolithic of from 800,000 to 1,500,000 years [20]. As we have pointed out, this last figure is now verging upon five million years.

The Upper Paleolithic period falls between the claimed periods of competence of radiocarbon dating and potassium-argon dating. The most careful work on this period is therefore dependent on sedimentary dating in large part, and this cannot get around the possibilities of periods of flood and torrents, laying down blanket after blanket of clay and gravel to create illusions, in today's peaceful landscape, of the passage of much time. This is no new problem. For instance, when Alfred Wallace was writing his studies of the distribution of animal life in the nineteenth century, he had to confess to the great difficulty of judging sedimentary deposits [21]. In repeated discussions at the Dordogne cave and shelter sites with French scientists who have excavated and are responsible for them, I

have been unable to accept their meticulous reconstructions as valid.

In the end, they rely nowadays upon carbondating, which although it often upsets their expectations, at least keeps them in the Paleolithic period rather than moving them into more recent times. That radiocarbondating which is based upon measuring a ratio involving the diminishing amount of carbon-14 isotopes discoverable in organic remains, can be erratic, owing to atmospheric, species, and soil transformations, has already been the subject of investigation. Recently, changes in the Earth's geomagnetic field have been added to the several conditions that alter radiocarbon dating. Unfortunately, the usefulness of radiocarbon dating decreases exponentially as we move into the periods of the neolithic and beyond, when the need for a dating instrument becomes increasingly acute [22].

Geologists bought evolutionary time to preserve themselves from alternative catastrophic hypotheses. Whereupon the biologists and anthropologists, together with the geologists, were persuaded of radiochronometry by geo-physicists. The Potassium-Argon test claims validity over a time span of a billion years and more, beginning at 100,000 years or less before the present. Its favorite rock for testing is erupted volcanic material, ashes and lava. It establishes a constant rate of decay of the isotope potassium-40 into the isotope argon-40 (40K to 40A). Then it measures the amount of 40K and 40A in a rock sample and, by the proportion of the two, determines the 'age' of the rock, hence of fossils embedded in the rock. A high proportion of Argon-40 signifies an old age.

Unfortunately for its validity, and despite the brilliant technical theory and achievements represented in its applications, the 40K ug 40A test suffers from a defect common to radioactive elements in nature. The elements migrate. In consequence, the proportions change, giving illusory ages. Rocks can both acquire and lose both elements or either alone.

Moreover, one cannot rely upon a temporal sequence that appears nicely to show older strata succeeded by younger strata as a proof that the sequence occurred smoothly and without disturbance. For the whole sequence may have been laid down in short order during a turbulent period that is accompanied by

high argon deposition, or the eruptive sequence of a volcanic source can lay down deposits, first heavier, then lighter, in Argon-40, owing to a tendency of such trace materials to migrate from heavier to lighter rock. It may not be necessary to disbelieve absolutely in the validity of 40K ug 40A dating to maintain a quantavolutionary opinion of the process of humanization. However, it is more difficult to explain certain critical fossil data and the mechanics of humanization while adhering to a long time perspective. Vast stretches of non-eventful time have to be accepted between the occasions of significant changes, such as bipedalism, large brain, tools, and language; or else the finest, minutes, multitudinous ladder rungs or steps are forced upon one, leaving one again in baffling contradictions and a need to search for a meaning behind evolution such that every bit of change requires every subsequent bit of change, connecting intelligence with depilation, and so, on, thus accounting for the confusion of ladder-rung-labelling, with now one trait, then another being given priority.

OLDUVAI GORGE

Homo erectus bones and artifacts, which may even be australo-pithecine, have lately been discovered in the Syrian-Palestinian rift valley that we have already claimed to be of recent origin. In a letter of October 15, 1981, Professor Ernst Wreschner of the Department of Anthropology, University of Haifa, wrote me that at Ubeidiya, "together with an industry of pebble tools, spheroids and primitive handaxes they found a skull fragment and a tooth. Not enough to say *Australopithecus* or Homo erectus. I tend towards the latter. Supposed time: *ca* 800,000 years. Because of the similarity with Olduvai 3 it became designated: Israel-Olduvai. The Ubeidiya site, the time of its occupation *ca* 800,000 years ago and till about 250,000 ago, was a lake-side camp, before the tectonic tilting. The living floor is now tilted *ca* 43 degrees. " (Dating was by 40K-40A of underlying and intermediate basalt (lava) layers, thus similar to E. African practice generally.)

But, now this tool-strewn "Ubeidiya" hominid site of Israel has been reevaluated with respect to homo erectus in Africa and moved from 700,000 years ago to 2 million years or more,

placing it alongside or possibly older than any early Acheulian finds of Africa [23].

> Here we evaluate fossil mammals from Ubeidiya, which are stratigraphically and directly associated with Early Acheulian artefacts, and find no substantial reason for considering the locality younger than 2 Myr, and possibly as much as 500,000 yr older than any record of Early Acheulian artefacts or Homo erectus in Africa.

In this book, I am suggesting that the Rift finds generally should be deemed contemporaneous, so that the new placement is welcome in one sense. However I also suggest reconsidering both homo erectus and australopithecus as quite young, that is, moving the Acheulian to the beginning of the Holocene period. In other books (*The Lately Tortured Earth* and *Chaos and Creation*) I ask, too, that geological dating methods be revised so as to allow the drastic younging of the strata in which all hominids and homo erectus are found.

These discoveries bear ominously upon the famous centerpiece of current paleo-anthropology, the Olduvai Gorge. The narrow floor and steep sides of Olduvai Gorge in Tanzania are a typical element of the East fork of the Great African Rift, which cuts from at least South-eastern Africa to the Red Sea. The problem of Olduvai man and culture is part of a complex world wide geological history that I have outlined in *Chaos and Creation*. I appreciate that I cannot here reproduce these materials, nor bring to bear more extensive materials analyzing the particular setting and criticizing the methods of radiochronometry employed.

I can only state the nature of the problem and alert the reader to the ultimate surprises that may be awaiting historical anthropology in this setting. To do so, I quote here from an exchange of letters with Dr. Melvin A. Cook, a geophysicist, recipient of a special Nobel prize for his studies of explosives, and author of *Prehistory and Earth Models*. (1966). On March 10, 1976, I wrote Dr. Cook the following:

> ... Presently I am perusing the three volumes of reports by the Leakeys and others on the Olduvai Gorge. Here I think is a main intellectual battle front, and one that calls especially for your attention. Here the conventional

> paleontologists, geologists, radiochronometricians, and evolutionists are lined up in force. All the discoveries are squarely upon the Great African Rift, the bottom of the deposits is an igneous basalt, and from then on up for 300 feet are layer upon layer of tuff, clay, marl, Bonneville-like type 'sediments' and scanty soilroot elements, with earliest fragments of *australopithecus* and *pithecanthropus* interlarded at 'living' sites, and with abundant mammalian and lake fauna including very large and modern species both extant and extinct. Hominid and faunal transitions are indistinct from bottom to top, similarly the abundant scattered artifacts. The discoveries are eroding off the walls of the rift and are also found by digging back from the walls. The whole is dated after some controversy from 2 million years at the bottom to about 300 thousand at the top, using K40-A40. Everyone is proud of this showcase of many disciplines.
>
> On the other hand, I cannot but perceive a quite different solution, that is, the initiation of a heavy cone and fissure volcanism, the uplifting of the great plateau, a watered depression, successive floodings and lava flows and fall-outs of ash and dense material from the many nearby centers of volcanism, repeated incursions of hominid and faunal species, and finally the rifting as a forking from the world global fracture. Several cultures, from Asia to Kenya, 'remember' the upheaval of the rift, Hebrews, Arabs, and Blacks...
>
> If you would look at the excavation profiles in Vol. III, you will note an average of about 30 levels, most or all of which are probably turbulence deposits.

In his reply, dated May 5, 1976, Dr. Cook said, *inter alia*:

> Interestingly enough, just a day before your letter of April 29 arrived, my son Krehl returned from Kenya and a visit to the Olduvai Gorge and Great African Rift valleys with a large group of geographers and geologists. He gave me his vivid first-hand impressions of the geology of this region and the occurrences of fossils. It coincided very well indeed with your descriptions. After his extensive study of the region of the Olduvai Gorge and the surrounding area, he said he is completely convinced that it should be understood in terms of a catastrophic continental drift with great global overthrusts and subsequent catastrophic readjustments that have really been the facts that have shaped the region...

> The global extent of the great rifts, their obvious relationship one to another, the sort of chaotic geology found in and around the rifts throughout the world - not merely those in Kenya, and the excessive fragmentation of fossil skulls and bones (human and animal) in these regions are the sorts of information that to us prove that the great rifts were created all at once, i.e., catastrophically...
>
> Your reconstruction of the situation in the Great African Rift and Olduvai Gorge is very plausible...
>
> One *must* handle K-A dating, consistent with all the facts dealing with it, by simply dismissing it as unscientific and completely unreliable, indeed absurd. They simply don't publish the sort of facts they know about that would kill K-A dating once and for all if they are known. For example, I have heard that year-old volcanism in Hawaii can yield K-A 'ages' of several million years...
>
> As I pointed out in PEM *[Prehistory and Earth Models]*, the A^{40} found in igneous rock is largely *nonradiogenic* contamination. Leakage of rare gases from the crust is too great to permit any reliable dating. Moreover, leakage can both deplete and enrich. For example, leakage of A^{40} along such vast outscrapings as occur in the Great African Rift can concentrate
> A^{40} inventory of the earth even if the earth were five billion years old...

Should the hypothesis of the recency of Olduvai history become adopted, the theory of homo schizo would be strengthened. Should it not be acceptable, mysteries, contradictions, anomalies and confusion would persist, such as the astonishing million-year retardation of human implement development that I stress in these pages and that Sonia Cole, among others, refers to [24]. In such a case, the theory of homo schizo would need to retreat to a position asserting that the true human was born recently out of catastrophic events which allowed a further climactic mutation and/or chemico-physiological transformation. We would have to abandon australopithecus and homo erectus throughout the Old World, with all of their humanlike traits, to live out very long existences sub-humanly.

A SURPRISING COLLAPSE OF TIME

But nothing stands in the way of objectively and empirically explaining the whole set of fossil hominids that rift excavations

extending from Syria to Southeast Africa have produced as a short-term occurrence under catastrophic conditions. The same is true of Peking Man (see Index) and of all other hominid and protohuman finds, except perhaps certain 'anomalies' (to borrow the excuse of the opposition). The Olduvai Gorge hominids and homo can be readily brought into the Holocene period.

Consider how rapidly man changes, physiologically and culturally, under present-day observation and from our earliest direct knowledge, which is Upper Paleolithic and Neolithic. To thereupon add five million years (or 100,000 'memorial' fifty-year generations) of mental and cultural evolution to a substantially completed anatomical structure would reduce to absurdity the uniformitarian theory of the evolution of modern mankind. Or else man would have evolved, and been destroyed, time and time again, never being extinguished. (But of course this would be another form of universal catastrophic theory).

So much time is not needed, if man is evolving on a consistent anatomical base. More time is now defeating to evolutionary theory; the evolutionists do not yet appreciate that they have crawled out farther and farther on a limb which may suddenly and soon break off at the trunk. For instance, could humans and hominids have lived for millions of years without having reached the Americas, where elephants, camels, horses and other mammals abounded? Would they have waited until 100,000 years ago to descend upon Australia?

Nor can evolutionists cease to stretch time and beat retreat to shortened time. If the time is drastically shortened for paleoanthropology, the radio-dating techniques collapse. Then all which depends upon the techniques -- prehistory, paleontology, geophysics, geology, climatology, etc. -- will come under revolutionary assault.

Against the background of this stupendous reversal in prospect, other conclusions about fossil man pale. The australopithecines existed alongside homo erectus and other types of man, as well as many kinds of ape. The vanished hominids were destroyed by or adapted to a dominant strain of the human race, in conjunction with natural catastrophes. We shall consistently maintain that homo sapiens schizotypus (catastrophized *homo sapiens*) reduced his live, physiologically compatible brethren,

whether australopithecus, or homo erectus, or homo sapiens, to subjection, or he exterminated them.

CHARDIN'S ORTHOGENETICS

By now it should be clear that we are heading implacably toward a theory of biological quantavolution, an eventful scene in natural history, where a hominid walked upon the stage and a human walked off. This hovers upon creationism, in the theological sense. But it is not such. Nor do we need to employ here orthogenesis such as Teilhard de Chardin calls upon, a divine or even natural penchant of the soma of a species to transmute into a phylum crowned by a mysterious *noos [*25]. It is not that we want to, or can, or must take away from humankind all the glories that we claim for it. But this matter is not germane, and there has always been an abundance of literature exclaiming upon the incomparable and marvelous capabilities of homo sapiens sapiens. We say that humanization is a brief episode, accomplished by a set of minor alterations, and followed by a mighty effect.

De Chardin was close to such significant events of fossil anthropology as the fraud of Piltdown Man and the excavation of the caves of Choukoutien in China that gave up the skulls of Peking man (sinanthropus); he was a Jesuit and a social philosopher, playing a role rather like that of Loren Eisely in America. He accepted uniformitarianism but yet conceived of teleology in evolution. He thought that the Peking skulls, that were found throughout the whole fifty meters' depth of a filled fissure of breccia, ashes, and clay, along with many extinct animals, were of thinking humans. He saw evidences, as did others, of fire-making and deliberately chipped stones. The time of occupation was estimated, by himself and others, at between 100,000 and over one million years. Two fatal observations, that are conveniently evaded in most discussions of Peking man these days, are that the assembled material may have been catastrophically collected and impacted in a short time and that the skulls may have originated elsewhere.

Peking man, later identified with a widespread group of hominids of the homo erectus designation, was part of "the trajectory of a humanity moving persistently towards ever higher states of individual and affective consciousness."[26]

However, it seemed to him that this hominid group died out in the Middle Pleistocene, then estimated at some 200,000 years ago, as did the more primitive but possibly also pebble-chipping australopithecines, which have also been found over half the Old World.

De Chardin found himself trapped between microevolution, point-by-point changes, which he nevertheless calls quantum jumps at one place [27] no matter how small they may be, and macroevolution, a large quantum leap. But he could not imagine the form of the leap except that it might be "a simple chromosomatic mutation" and that the gap between the human and the australopithecine "has not necessarily been greater, in size, than that ordinarily observed or stimulated, beneath our eyes, in animal or vegetable populations at present living. In the case of man, we seem to have an example of mega-evolution governed by chromosomatic play of a perfectly normal type." Yet the germplasm is orthogenetically prepared for "the great leap of hominization" and cerebration.

This is *ex post facto* reasoning of a dubious kind, made necessary because Chardin feels he must have a marvelous (teleological) cause. Ultimately he would then argue for *noos* or spiritual intelligence, and soul, detouring around all that is known about the brainwork and central nervous system, not to mention the behavior of humankind.

DOBZHANSKY, SIMPSON AND QUANTUM EVOLUTION

Theodosius Dobzhansky picks up the problem of the quick leap, too, in two sentences of his masterful treatise on *Mankind Evolving*. But he perceives the leap as involving many quick successive changes. "Quantum evolution, emergence of novel adaptative design, may involve breaks in the evolutionary continuity when the differences between the ancestors and the descendents increase so rapidly that they are perceived as differences in kind."[28] He passes on to other matters, missing the chance, as does Teilhard de Chardin, of launching into a quite new paradigm.

After discussing, as if they were successive, a set of evolutionary are at least behavioral changes in prehominids, he raises the question

> as to whether upright stance, tools, monogamous family, change in food habits, or relaxation [sic] of male aggressiveness came first. Obviously we cannot answer with certainty, but it is most likely that these changes went together, with mutual reinforcement. What we are dealing with is the emergence of a whole new evolutionary pattern, a transition to a novel way of life which is human rather than animal. This is an example of an infrequent type of evolutionary change, which Simpson (1944, 1953) has called 'quantum evolution.' Evolutionary alternatives in general, and especially those in quantum evolution, are unlikely to involve changes of one trait at a time. The whole genotype and the whole phenotype are reconstructed to reach a new adaptative balance [29].

This passage is remarkable in that, whereas Dobzhansky's work as a whole epitomizes the conventional uniformitarian and long-term evolutionary approach to the origins of human nature, here he is practically giving away the show to quantavolution. Any being that can perform all of these operations can and must perform all other human operations; man is born.

At one place he says that pre-man separated from apes "no less than 11 million years" ago [30]. He places the proto-homo sapiens at perhaps a quarter of a million years ago. Presumably long periods of evolutional impetus occurred, or thousands of other changes took place before the sudden transformation. Then why is the great leap needed?

So it was Simpson who had originally muddied the still waters of uniformitarianism. What had he said? Reluctantly, with a step backward for every step forward, Simpson applied the term "quantum evolution" to the relatively rapid shift of a biotic population in disequilibrium to an equilibrium distinctly unlike an ancestral condition [31]. However, "the genetic processes involved do not permit making the step with a single leap." Agreeing with earlier work of Dobzhansky [32], "the accumulation of small mutations is not only adequate to permit rapid evolution, such as involved in quantum evolution, but also the best substantiated mechanism for this."

The "small mutations" of a rapid type he accounts for by the availability of unoccupied ecological niches and the break-up of

sub-groupings of a species into isolated pockets, so that one, which is preadapted, can change swiftly to exploit the niche, while the other groups often die out. Thus, some horses grow big, strong teeth while browsing, without needing them, but then, before the big toothed horses, isolated and with browsing overdone, could become extinct, the new form begins to use the teeth to graze rough grasses, then expands to fill the new niche. Simpson grants that his examples were not on large changes that bring in families, sub-orders, and orders, but thought that a process like this could cause the large changes.

Indeed it was because of the continuous puzzle of large-scale extinction followed by fully developed new species, mega-evolution, that he felt the need for a new concept. The hot breath of quantavolution was on his neck, but never could be let himself turn and face the concept. Nor could Dobzhansky or Chardin. They resorted to equivocation, denial and evasion.

When, later on, reports accumulated, that characterized the boundary-periods between extinctions and new species as times of natural catastrophes, Simpson resisted attempts to take up and enlarge his idea. He says in one place, "Since the groups involved in the major, more or less revolutionary episodes are highly varied in structure, physiology, and ecology, it seems unlikely that the intensified factors are the same for all of them."[33]

And then, farther along, he writes, "The real point is simply that a modified, relatively mild and gradualistic form of revolutionism is in accord with our present knowledge of biohistory, but that neocatastrophism is not." He likes 'neorevolutionism'. Perhaps this was because the notion of catastrophe, when fully realized as in the theory of quantavolution, affects seriously the theories of evolution, natural selection, and long-time natural history.

We can allude to a final example, one from primate history, based on a chart which can be found in Buettner-Janusz's *Origins of Man* [34]. The families of primates have clearly boundaried histories, with little overlapping from one age to another. Six out of seven boundaries are sharply defined by extinctions. Of course, the families may have quantavoluted at

these points, rater than extinguished. If so, so much the better for our theory.

Where the boundaries of the geological ages are not clear -- such being actually the case -- the primate families themselves delineate by their careers the period boundaries, without the help of other fossils and rock strata. We note also that most of the living taxa have fossil relatives who became apparently extinct (or did they hide themselves somewhere?) eons ago. Quantavolution is manifested throughout the ages, but perhaps the ages are not so far gone either, and quantavolutions have been frequent.

Under the circumstances, a close look at the mechanisms that might produce humanization is justified. Time, period boundaries, evolution, culture, geological strata and types of humanoids -- all have begun to whirl about in our minds and we begin to wonder when the skies, too, will begin to whirl, and wish that we might have a theory -- even if quantavolutionary -- to stabilize the scene.

Notes (Chapter 2: Hominids in Hologenesis)

1. *Uniqueness and Diversity in Human Evolution,* Chicago: U. of C. Press, 1976, 169 *et passim*.

2. *Op. cit*., 608.

3. R.S. David, et al., "Early Man in Soviet Central Asia," *Sci. Amer*., 130-7; Björn Kurten, p.113

4. D.C. Johanson and T.D. White, "A Systematic Assessment of Early African Hominids," 203 *Science* (26 Jan. 1979), 326.

5. R. Sartonon, "The Javanese Pleistocene Hominids," *Proceedings,* IX Congress UISPP, 14 Sept. 1976, 462, using fluorine tests.

6. *New York Times*, March 9, 1976, 14, news conference.

7. Davidson Black, Teilhard de Chardin, C.C. Young, W.C. Pei and Wong Wen Hao, *Fossil Man in China*, Series A, Noll, Geological Memoirs, Geological Survey of China, Peiping, May 1933, repr., AMS press, New York, 1973.

8. M.H. Day and E.H. Wickens, "Laetoli-Pliocene Hominid footprints and bipedalism," 286 *Natur*e (24 July 1980) 386-7; R.L. Hay and Mary D. Leakey, "The Fossil Footprints of Laetoli," *Sci. Am.*, Jan. 1982, 50-7; and on Lucy's new age.

9. See Boaz in 300 *Nature* (1982) 633, Brown, *ibid*., 631.

10. *Guide to Fossil Man*, 1956.

11. "Time, Morphology, and Neoteny in the Evolution of Man," 57 *Amer. Anthrop.* (1955), 15ff.

12. "L'homme préhistorique dans la Plata," and "L'âge des formations sédimentaires tertiares de l' Argentine en relation avec l' antiquité de l'homme," in *Obras Completas* 24 vols., (Buenos Aires 1912-36), vol 2.

13. "Descubrimento de dos esqueletos humanos fosiles en la Pompeano inferior del Moro," *op. cit.*

14. *The Major Features of Evolution*, N.Y.: Columbia U. Press, 1953, 78.

15. *Op. cit.*, p.122.

16. E.G.J. Joly measured the runoff of sodium into the oceans to get "An Estimate of the Geological Age of the Earth," of 89 million years. Smithsonian Institution, Annual Report, 1898-9, 247-88. Melvin Cook, *Prehistory and Earth Models*, London: Parrish, 1966 criticizes a number of such techniques. Also A. de Grazia, *Chaos and Creation*, Princeton: Metron Publications, 1981, ch.III.

17. J.E. O'Rourke, "Pragmatism versus Materialism in Stratigraphy," 276 *Am. J. Sci*. (Jan.1976), 51; H.M. Morris, "Circular Reasoning in Evolutionary Geology," Institute for Creation Research, no 48, June 1977, iv.

18. "The Destruction of Sodom and Gomorrah," VI *Kronos* 4, 1981,

19. C. Emiliani, "Dating Human Evolution," in ii *ED*. 59.

20. *Notions de Prehistoire*, Perigeaux, 1975, 11

21. *Geographical Distribution of Animals*, N.Y.: Harper, 1876, I, ch 1.

22. M. Barbetti and K. Flude, "Geomagnetic Variation during the late Pleistocene period and changes in the radiocarbon time scale," 279 *Nature* (17 May 1979), 202-5. See *Chaos and Creation*, ch.3.

23. C.A. Repenning and O. Fejfar, 299 *Nature* (1982), 344.

24. *The Prehistory of East Africa*, London: Weidenfeld and Nicolson, 1964, 130.

25. *The Appearance of Man*, N.Y. Harper and Row, 1956; *The Future of Man*, *ibid*, 1964.

26. *Appearance*, 123.

27. *Ibid*., 136-7.

28. *Op. cit*., 213.

29. *Ibid*., 209-10.

30. *Ibid*., 183.

31. G.G. Simpson, *Tempo and Mode in Evolution*, N.Y.: Columbia U. Press, 1944, 206ff.

32. "Biological Adaptation," 55 *Sci. Mon*. (1972), 391-402.

33. In Albritton, ed., *Essays in Evolution and Genetics*, 291.

34. *Op. cit.*, Figs 7.1, 7.2, pp101-2.

CHAPTER THREE

MECHANICS OF HUMANIZATION

If time were collapsed into a short span, cultural traces now deemed hominidal would appear human. Since footprints and bones that are deviously connected with the artifacts are also now considered close to modern man's, we may suspect that homo erectus and australopithecus, if not human themselves, of having had some human cousin living up North, say. This homo schizo would send his relatives fleeing east and south from the common ancestral home, which might be at the junction of Europe and Africa. After consolidating his position -- mainly defining his proto-mind and proto-organization -- he would reach out to contact them.

Then he would extirpate or interbreed with them, and come to dominate the *homo* line and promptly diffuse to the geographical limits of the world. Only the docile and miscegenable would be spared. Even today, several strains of homo schizo are in danger of extermination -- the pygmies, negritos, numerous Amazonian tribes as well as other Amer-Indians, and the Eskimos, for example.

If homo erectus and australopithecus were human, which we deem likely, then we should look for a hominid (X) as our ancestor. This 'X' might be much like man or a surprisingly different type. Granted that the probability is low, because he still has to appear alongside the fossil australopithecines, even modern man -- to all physical appearances -- might be his own ancestor. But, too, 'X' might be an unseemly anthropoid. Eugenics cannot say how great a change of type can occur under special conditions nor whether certain species are more capable of quantavolution than others. We note how often in the fossil record, some species change while others remain the same. And we have already been startled into the realization that the change from hominid to human may have been anatomically slight.

Since we have little evidence to suggest who 'X' might be, we might leave the search for him in more knowledgeable hands, and assign ourselves the task of determining theoretically how such a hominid could become human.

We have already ruled out most of the traits that scholars have joined to the ladder of evolution -- skeletal, muscular, sensory, alimentary, sexual and lingualpharyngal mutations --as the crux of humanization. We have ruled out as well the growth of the cranium. We should also rule out the piling up of reinforced primate experience in a growing storage-box brain that would eventually begin to expel human products.

One need only contrast the races of mankind to see how little difference so many changes do make in psychology and behavior. With skin color from black to pink, hairiness from hirsute to hairless bodies, height from the very tall Watusi to the neighboring Pygmy, nose from flat to hooked, head from broad to long, cranial capacity from 830 to 2000° cc., differences of dentition, of blood groups, and so on, homo schizo has nevertheless come to possess a similar array of psychological qualities whatever his outward appearances.

We should look most closely for signs of self-awareness, of a split ego, for from this, we believe, and only from this, would come the flood of fear, the insatiable demand for self-control, and the outward movement of this need to control, taking the form of showers of displacements that would be transformable into human conduct. Symbolism would be the necessary external manifestation of the inward symbolizing needed to tie together the ego that had been split asunder. We would expect our newly quantavoluted person to behave recognizably as an imaginary Hominid 'X', close to the chimpanzee, in that his basic needs would be the same. Much of his behavior, too, might appear instinctive.

What would become quickly a critical difference would be an unending stream of delayed and unrecognizable stimuli in great numbers. He could be interpreted as an animal trying in amazing ways to consummate a new kind of stimulus-response, where the responses were delayed, as much as he might try to

speed them up. He would be an action-delayed, hence decision-craving creature.

Whatever its cause, the character of the mutation may have been quite simple, confounding high-flown speculations that have adorned debate about human nature over the centuries. It may have been what Dobzhansky called a polygene mutation, carried over into many chromosomes, providing a slight quantitative, not 'qualitative' change, but yet a change with great effects. A systemic delay of microseconds in overall signal transmission in the brain might act as a suppressant of instinctual response, set up an echo of the self, and excite perennial hyperendocrinalism. The gestalt of creation (treated in the next chapter) would promptly take effect.

Besides mutation, it is conceivable that an environmental constant may have changed, provoking a human response that must continue as long as the constant remains unchanged. Further the human mind may have quantavoluted culturally because of experiences so intense and memorable that a new kind of creature emerged from them. We must look into these possibilities more closely. But before we do so, I ought to stress the importance of natural catastrophes as a background and source of quantavolutions in biology.

ANCIENT CATASTROPHES

Legends everywhere carry stories of great numbers of people reduced to a few survivors. They are obsessive tales, repeated continuously over thousands of years. Psychiatrists will readily deem them to be founded upon strong memories, a possibility that most historical scholars are loath to admit. The English prehistorian Childe says that the population of England in paleolithic times numbered only in the hundreds, during neolithic times in some thousands. Were then all the people of England mustered to drag the neolithic megaliths of Stonehenge into position, and then reassembled in Ireland and Brittany for the same tasks?

Mircea Eliade, whose research on myths worldwide is justly renowned, is most impressed by the obsession of all peoples with the earliest times of creation, by the permeation of the totality of their cultures with the same obsession that great and terrible

events occurred; yet he has not ventured to say that anything at all happened then. Are the legends mere fantasies of primeval poets, primordial Dante's, whose plots no later poet could ever improve upon?

Dobzhansky, of whom we have spoken, takes one sentence in a large book on human evolution to dismiss obsessions of creation as a 'natural' reluctance of people to conceive of infinity. Are peoples, (using his own perspective) supposed to recall their lives as apes? He and many others arrogate to an illuminated modern mind the right to conjecture and endorse ideologically the concept that humans long were few and became many with extreme gradualness. For all the other people who have ever lived, and who claim by a kind of culturally transmitted history that their ancestors arose in large numbers and were wiped out in cycles of catastrophes and revival, no place is to be reserved in science.

The Holocene period itself embraces many more fundamental natural events than were once accredited to it, as the latest edition of the *Encyclopedia Britannica* points out. A start has been made in assigning quantavolutions to it, but the major allocations cannot occur until chronological methods are criticized and reformed. Even though their character as ages is not yet defined, the occurrences of catastrophes of continental, if not global, scope may have occurred in half a dozen sections of the Holocene period -- approximately 2700, 3400, 4400, 5700, 11500, and 14000 years ago. I have attempted to order and designate these epochs in the book, *Chaos and Creation*, Chapter Four. Intervening catastrophes of less global scope were common. Plato, Boulanger, Carli-Rubbi, Cuvier, Velikovsky, Schaeffer, Hapgood, Kugler, Schindewolf, M. Cook, Kondratov, Patten, Bass, Juergens, and other scholars of times past and present have exposed the revolutionary character of natural events in such ages.

For the moment, and so that argument may proceed along its main line, the extent of catastrophism of the past fourteen thousand years can be barely sketched. It would help conceptually to regard all expressions of natural forces of a destructive character witnessed by modern humanity as but the flattened tails of negatively exponential curves of catastrophism. These natural forces of the past worked through

explosions of the legendary elements of "earth, air, fire and water."

Catastrophic action and effects were manifested over the whole globe. Their intensity was such that the potential destructive force of deviations in the motions of celestial bodies must be introduced into the equation. Legends (oral history, amnesiac fragments, and sublimated tales) assert abundantly the priority of heavenly forces as destroyers of the world on successive occasions. The locations of large meteoritic explosions are discovered in increasing numbers. Increasingly, geologists such as Ager slip from the grasp of earth-bound uniformitarianism, and astrophysicists such as John A. Simpson conceive of their realm as explosive and disorderly.

It can be asserted and defended that in the past fourteen thousand years, a disorder befell the solar system that terrorized and transmutated the sensible biosphere, changed the atmosphere, cleaved and ravaged the crust of the earth, altered drastically the sky and surface waters and destroyed or severely damaged every civilization up to the seventh century before the present era. During these fourteen thousand years, it can be argued, human groups spent one-third of their time in an environment of natural and social chaos and suffered intense physical and mental stress. Again I refer to the book, *Chaos and Creation*.

Continents were fractured; mountain ranges rose; crustal material was exploded into space; cataclysms of water, ashes, oils, gases, and fire rained from the skies; ice ages came quickly and avalanched, not melted, into oblivion. Oceans were created; seas were drained; floods raged in every direction up to the very mouths of highly placed caves; climate altered in a day and the atmosphere was deprived, enriched, and poisoned on numerous occasions.

No single mile of the surface of the world can be bored for its actual stratigraphic column without discovering it to be at some points a catastrophic column. No matter what part of the destruction can be assigned to the ages before man, some part of it has to be attributed to the ages of man. Settlements and civilizations everywhere, from the Arctic Sea to the Tropics, from Spitzbergen to Tiahuanacu, are now, upon exhumation, shown to have been the victims of such events [1].

Beginning with the larger part of its surface that is below the oceans, the earth is a scene of global disaster, punctuated by habitable oases. Scientists have known so all along but, in good conscience, have refused obsessively to reveal the fact. Whether one observes the ash and debris of hundreds of ancient settlements which, as C. Schaeffer has said, are studiously ignored or whether one reports on the ashes of primeval human sites, where, comments H.T. Lewis critically, ash lenses in places like Shanidar are offhandedly treated as "ash middens" or hearths, the 'conspiracy of silence' governs the authorities. The Sahara, the Great Salt Lake (Bonneville) area, the Gobi desert, the arctic tundra, the sub-glacial Arctic and Antarctic regions, East Africa, Southwest Africa, and so on to many smaller locales are signs that what happened to Mars almost happened to Earth. Practically all species that became extinct, and whose careers might be followed by fossil evidence, became extinct suddenly, as for example, some three-quarters of all large animals at the end of the Pleistocene, fully within the time of man's cultural flowering.

It appears, therefore, that every hypothesis trying to explain the means of humanization must be developed within the historical bounds of natural catastrophe.

THE HUMANIZING FACTOR

The closest that we can come to distinguishing a key factor in humanization is an instinct-delay system operating in the brain but serviced by the body's electrical and hormonal system. This could be called the humanizing factor. In baseball language, the animal in us has been forced to touch base several times before completing the circuit and scoring, and so the human ball game is on. A close investigation of instinct-delay (see *Homo schizo II*) emerged with the theory that it is an effect of the specialization of the brain, with consequent transmission delays in coordination of the total brain and organism, and that there is an overcrowding of consciousness because of a spillover of repeatedly insistent messages taking alternative routes for delivery or ending up in functional *cul de sac*.

I shall try to formulate the process of instinct delay here in a manner that will assist in seeking the mechanism of

humanization. Instinct-delay (D) is a function or ratio of the product of the mass of the brain tissue requiring service (M), and the specialization thereof (S), to the product of access facilities (the number of receptors or docks and the number of routes pursued by messages) (A), the input of electro-chemical signals (E), and the velocity of the work of transmission (V). That is, D = f(MS/AEV). When all other variables are held constant:

1. If the mass of the brain increases, instinct-delay (D) will usually increase.

2. If specialization of the brain increases, D will usually increase.

3. If the number of message docks and the number of routes to them increase, D will usually decrease.

4. If the input of electro-chemical signals increases, D will usually decrease.

5. If the signals move faster, with less impedence, D will usually decrease.

However, the variables are not entirely independent, although we do not know the extend of their interdependence. Thus, an increase in brain tissue may not bring a proportional increase in docks and routes available to supply the tissue. Nor will the larger brain necessarily be supplied by an increased input of hormones, which come from several places, or electrical charges, to transport messages. Nor do we know whether the electric and chemical signals will carry on with their former speed or will move less rapidly, unless some other factor increases their speed (which may, for example, be an electromagnetic change in the state of the environment).

That is, we cannot identify precisely the agents, nor the cause of their behavior. All that we can feel confident of, at this point, is that there are here the rudiments of an explanation for instinct-delay, hence self-awareness, hence humanization. We believe, too, that such a system is capable of empirical verification and modification. Further, it seems to answer a need in science for a concept that will go along with most of what is known of

human development and human nature, and will not lead us astray as we seek to understand how mutation and other mechanisms could have occurred. Finally the concept will pay a large profit when it correlates with the mental and cultural behavior of the human during and after humanization.

QUANTAVOLUTION VS. EVOLUTION

We return to the contention that mentation and culture have developed by small increments over millions of years. We find in it a subtle ideological attempt at cutting change into such fine bits that it will simply blow away and nothing will be left to explain. Let us address it nonetheless.

The human is compelled to behave humanly in both mind and culture. Once granted that self-awareness was a quantavolution rather than very slow evolution, mentation and culture must originate at once. So one should ask whether self-awareness came at once.

Self-awareness is a trait that varies quantitatively among humans; some people are apparently unselfconscious, until closely observed -- then time, space, gods, rituals, discipline, and anxiety appear, until it is obvious that their 'unawareness of self' is a catatonic suppression. In any human group, we invariably discover a capacity to be taught self-awareness among practically everyone. Even the hominids among us, if there are such, know how to 'put on a good act.'

But let us speak of the past. Could the self-awareness of the human species as a whole, regardless of whether homo schizo ultimately emerged, and granting that he did, be a matter of slow accretion, slightly self-aware four million years ago, more so three million years ago, even more so two million years ago, practically modern a half million years ago, modern 30,000 years ago? Whereupon, would not developments that require less self-awareness take less time, and inventions demanding more self-awareness take more time? The use of the right hand, for instance, might long precede the invention of tools for the right hand, and then another long period would be allowed for language and even this divided into words for sensible things, and later words for abstractions, then drawings, then domestication of animals, and so on.

All of this is not impossible. It is widely believed that some hundreds of physical and cultural changes were laid upon Hominid 'X' gradually over millions of years, and that the "flowering" of culture occurred among Upper Paleolithic man and then again in neolithic times, and then again in the iron age, and once more in the recent centuries of science -- these "flowerings" being expected as accumulative, branching effects.

However, the external environment and the internal tensions of homo schizo, the ones who were fully self-aware, would immediately have stressed the whole community to maximize self-awareness. The drive is socially contagious, and irresistible. It comes from the fear of itself and the need to control itself. It is not dealt out by a third party. It is excited by itself. Therefore it cannot emerge piecemeal. It must emerge for all it is worth as soon as it exists. A homo schizo in a group of Hominid 'X' would dominate or die.

But might the self-aware have been precisely those who gradually became such? No. Unless a guiding hand to physical evolution were present, we cannot expect this trait to have emerged in ever-increasing quantities by successive mentations, like a turning of the screw, each turn producing a higher level of self-awareness with a consequent output of new ideas, fabrication, and social inventions. Indeed, evolutionists teach us to avoid such pathetic notions. Who advocates such a guiding hand? The psychosomatic Lamarckians probably, and I may sympathize with them. But why should a beast will for himself a small increment of self-awareness, and then another and another, especially when the psychological effects of self-awareness are not at all comfortable, not even tolerable, so that, if man had the ability to choose, he would, like a volunteer soldier caught in a battle, renounce his original enlistment gladly. Neurotics are notoriously fond of dumb animals.

Conventional evolutionary theory does not provide for an intelligence that would direct mutations toward every-increasing self-consciousness. Isolation and inbreeding among a slightly more schizoid band would be counted upon to produce a type that would, given the chance, venture forth and shove aside less able hominids, or, later on, humans. But this cannot go on for

long, unless there is a mutated element present in the germ plasm allowing ultimately the full exercise of self-awareness.

Here is an area where evolutionary thought is especially self-contradictory and, consequently, slippery and evasive. It can only get from one small change to the next but cannot get from the beginning to the end; it can explain some intra-species changes, like horse-breeding and the Beltsville turkey, but it cannot explain a major development. No known mechanism directs a long string of slight modifications in the germ plasm. Even if we were to concede that the jump from hominid to human were only apparently large but was biologically small, human genesis would admittedly be a hologenetic occurrence; when it occurred, hominid life changed drastically; it speciated.

BRAIN SPECIALIZATION

Nor can humanization wait upon a slowly evolving culture, no more than the bee was anatomically created and then evolved the basic elements of its social system over millions of years. Even though he does not draw the consequences -- hologenesis -- we can agree with Robin Fox when he writes: "The nature of order is part of the order of nature. It is not that man is as culture does but that culture does as man is."[2]

Recent researches into the differing behaviors prompted by the separate hemispheres of the brain can also be considered. Hominid 'X' may or may not have had a large brain before he was humanized, that is, before he became schizotypical. The fibrous conjunction (corpus callosum) bridging the left and right hemispheres of the brain may be playing an effective role in conditioning humans for schizotypical behavior, even if it is not indeed the physical location of the genetic factor that so many are searching for.

In his treatise on *The Ghost in the Machine* [3], Arthur Koestler has placed the origins of human 'mis-behavior' in a malfunctioning relation of the limbic system to the cerebral region. The basic reptilian and mammalian control and response systems are located below and behind the cerebrum, which is grossly 'over-developed' in man. The rational and constructive inclinations of the uniquely human cerebrum, he thinks, may be frustrated all too often by the more instinctive, unconscious,

and irrational animal systems. Human behavior, as a result, is prone to contradictions, rage and aggressiveness, destructiveness, and madness.

Even while admitting that a specialization is occurring here in the human central nervous system that can bring about schizoid behavior from a lack of perfect coordination, we must say that the problem is incorrectly stated and may explain why Koestler did not arrive at the focal center of human nature. The problem is not one of 'mis-behavior' but simply of behavior, both 'bad' and 'good,' 'normal' and 'abnormal.' *Pari passu*, there is no 'malfunctioning,' but only 'functioning.' We do not turn off a spigot marked 'rational' and turn on the spigot labeled 'irrational.'

Once we brush aside this specious and decrepit Aristotelianism and scholasticism, Koestler's work becomes valuable. For now it becomes possible to seek a mechanism of delayed instinct between the automatic and cognitive specialization of the brain, which, in conjunction with other sources of delayed, diffused, and over-loaded responses, may explain the self-awareness, existential fear, and profuse displacements of the human being.

The bilateral structure of the brain, providing two hemispheres, had been fashioned long before the advent of humans, probably one some quantavolutionary occasion between two ages. A division of functions between the hemispheres may have come only with the origination of mankind. The skullcase tends to warp to conform to the concentration of functions in the brain; and external asymmetry conforms to the internal asymmetry. Such asymmetry, implying human specialization, may characterize most or all hominids. Ornstein asserts that hemispheric specialization (asymmetry, that is) appears to be unique to humans [4]. Handedness in favor of the right hand, and language, are dominated by the left hemisphere. Asymmetry in the language region is, for instance, discoverable on the skull of "Arago XXII" coming from Tautavel, France. This specimen is classified as homo erectus and assigned an age of 450,000 years by uranium-thorium and electron-spin-resonance tests. (Source: Musée de l'Homme, Paris.)

Besides governing right hand and body movements and language, the left hemisphere is specialized in analysis and

mathematical functions. It is also assertive and, in observed behavior and experiments, tends to dominate decision-making. The right hemisphere of the cerebrum initiates and supports activities of the left side of the body, and pursues non-verbal and holistic forms of thought and appraisals of experience. It is described as artistic and analogical in its ways of processing the external world for internal consumption and action. Thomas Parry has surmised that a relation exists between ancient catastrophism and a take-over of internal and external behavioral leadership by the right hemisphere of the brain on the occasion of traumatic experiences [5].

Each hemisphere alone can convey to the whole person the possibility of physical and mental survival. Each is in constant touch with the other through the medium of the corpus callosum which carries millions of connecting links between them. The severance of this membrane has permitted direct observation of the individuality of the two hemispheres. It leaves a still "normal" person "with two separate minds, that is, with two separate spheres of consciousness."

If the key to humanization is a general delay of instinctive response with a consequent choice-factor introduced into a wide range of behavioral decisions, then a possible source of the delay lies in the corpus callosum and/or any drug that can inhibit the full and complete communication or near-identity of action of the two hemispheres. If, for example, fatigue and exhilaration both produce schizoid symptoms, some quantitative measure of interaction between the cerebral hemispheres may define the normal schizotypical state of the hemispheric relationship; the norm itself would be genetically and/or socially induced on a continuing basis, providing typical human behavior. The recent association of high or uncompensated adrenalin secretion with schizophrenic symptoms suggests offering this drug as a candidate for a humanizing auxiliary.

One is inclined to distrust so simple a solution to so fundamental a problem, even after posting the usual warning signs: that the process is more complicated than it appears; that we know next to nothing about the circulation of adrenalin and other drugs with which it interacts in process; and that historical proofs of such an evolution are probably impossible.

One might as well suppose, while offering the same type of warnings, that an electrical change has brought about human behavior. If the Earth has gained charge in recent millennia, the human body may be operating in a hyper-electrical mode relative to the environment in which it evolved. This would be the case with the biosphere generally; insects, birds, and mammals are all sensitive to electromagnetic fields and changes in them. The hominid might then become the 'nervous human' who turns upon the not-quite-quantavoluted hominids and trains them to be human, meanwhile through adaptations and interbreeding creating a new race, whose, members are quantitatively distributed about the genetic norm of the 'nervous human.'

As with every significant element in the quantavolutionary theory of homo sapiens schizotypus, the hypothesis of the physiological source of humanization is put forward to orient thought and method. The theory as a whole serves to show where we can go when deprived of the assumptions of a uniformitarian external force-field of evolution and of the free, long expanses of evolutionary time.

SIGNALING HORMONES

A logical candidate for mutation and environmental transformation in the chaotic period is the endocrinal system. It is an anciently derived collection of glands, separate from but connected with the brain, the nervous system, blood pressure, metabolism, growth, sex, fear, and stress. It discharges numerous hormones that stimulate and regulate these systems. Its main components are the pituitary gland, the pancreas, and the adrenal cortex and medulla. Lionel Tiger places "phyletically prescribed environmental boundaries" around "sociogenic processes," treating mainly of endocrinology [6]. The bio-social movement may help quantavolution much, because of the intense scrutiny it gives to the logically necessary biological and social interface where the great change of humanization had to occur.

The endocrinal system, especially the adrenal cortex, is stimulated by stress and establishes counter-stresses in the organism. For example, rats bred in the laboratory have smaller adrenal

glands and less resistance to stress, fatigue, and disease than wild rats. Their thyroid glands are less active and their sex glands develop earlier and permit greater fertility. They have smaller brains, are tamer, and are more tractable.

In humans, similar differences occur between people who are stressed by the environment and those who are not. New Yorkers usually have enlarged adrenal medullas, compared with the American population at large. Paranoid and obsessive traits, involving distortions of reality, are commonly observed among persons who suffer from an excess of adrenalin either as a result of great fear and anxiety or in consequence of inadequate suppressive and discharging chemicals and mechanisms.

Schizophrenia involves at least some separation of the 'primary' self from a second self, which includes part of the self and engages in profuse identifications with the outer world. Frequently observed in mind-workers, it evidences heavy pituitary stimulation of the brain as well as insulin and adrenalin 'excesses.' The brain often becomes ungovernable owing to endocrinal disturbances. Notable, too, is the association of fear, aggressiveness, and sexuality in variations of the endocrinal system. It is then reasonable to suppose, for instance, that sexuality is determined more by the stresses of the quantavolutionary period than by the aboriginal oedipal complex or simple sexual drives.

Other modes of mutation or transformation also point to the importance of the endocrinal system in developing humanness. Solar radiation stimulates the adrenal system, both directly and indirectly. Hence, abruptly changed levels of solar and other types of extraterrestrial radiation may have prompted humanizing behavior. The types of social imprinting imposed upon the first generations of mankind and all generations since then were, so far as we can tell, the same; delusory, symbolic, obsessional, and aggressive; these are typical products of endocrinal excesses.

Finally, the obsessive will to mutate, to change one's core-being down to the egg and sperm themselves, has been proposed by Freud as an evolutionary example of "the omnipotence of thought;" so strong a will would be more probably and capably generated in individuals who are endocrinally excited. More

than by growth of the brain, therefore, the accelerated development and passover of hominid to human in a quantavolutionary period may be owed to the endocrinal system.

The hypophysis or pituitary gland excretes hormones that can arrest growth and cause dwarfism by reduced excretion, or giantism by increased excretion. An increase also probably increases the rate of insulin secretion by the pancreas. Growth hormone "directly enhances transport of at least some and perhaps all amino acids through the cell membrane to the interior of the cells."[7] It also depresses glucose utilization by the cell. The growth hormone is secreted continually from birth to death.

If the hormone reduces or perhaps delays growth, and at the same time can deprive the cell, including the brain cells, of nutrient amino-acids, and can also diminish insulin output, can it then contribute to the delay and dispersion of signals through the brain? It is conceivable; experiments can be designed to test the hypothesis.

> Man is supposed to be fetalized as compared with the apes since in the adult man the size of the head and the relative proportions of its parts resemble those in juvenile apes rather than those in adult apes. Bolk speculated that fetalization may have been caused by changes in the hormonal balance in the body, especially by a decrease in the production of the anterior pituitary hormone [8].

Dubrow has correlated growth and size of humans and many other life forms with changes in the intensity of the earth's magnetic field. We may wonder then whether an endocrinal change produced by a change in the GMF might stimulate pituitaryism and expand australopithecus to modern human proportions.

Since the left brain hemisphere is asymmetric with the right hemisphere, being larger occipitally, and this area is close to the calculating and speech centers, then a growth of the total cranium implies an important proportionate growth of this area and its special functions. That it may be more than proportionate is indicated by Dubrow's finding that the length of the skull geographically varies inversely with the intensity of

the GMF [9]. Thus humanization would accelerate. The quantavolution that split man's mind and freed it to displace copiously upon the world may thus have been influenced by a declining GMF. This 'freedom' would then take the form of the multiple selves, or poly-ego.

I have noted on occasion that drugs which are used to treat diabetes of the pituitary variety, and are intended to reduce blood glucose concentration, occasion paranoid suspiciousness as a side effect. But this and these other workings of the endocrines are puzzles within riddles: as F. Dunbar said, "There are no disorders of single endocrine glands."[10]

MUTATION

Let me consider now mutation, asking the ethologist and expert upon instinct, Tinbergen, to describe the situation:

> Present day theories of evolution consider mutations in the widest sense as the basis of all heritable change. The variability due to mutational change may show directiveness of various types, adaptive as well as non-adaptive. Adaptiveness is brought about by selection. Speciation, or the divergent evolution of populations originally belonging to one species, starts with geographical expansion of the species' range to such a degree that two or more populations of one species become reproductively isolated. The various populations thus isolated are usually slightly different in genetical make-up right from the beginning. This difference, together with the environmental differences leading to different selection pressure, account for divergent evolution of the populations which ultimately results, via the formation of geographical races, in the origin of new species, genera, and even families. Whether this 'micro-evolutionary' process is at the bottom of all evolutionary divergence, even of those often called macro-evolutionary, is a matter of disagreement. It is certain, however, that the causes of evolution can only be studied in micro-evolutionary processes [11].

A gene is a large molecule of deoxyribonucleic acid (DNA) wound on a double helix, along which are strung in fixed order some simple chemical structures called nucleotides. Only 4 types of nucleotides are ordinarily found in one and all chromosomes but their varied arrangements establish by code the behavior to be followed by any given gene. Hence each of

the supposed 50,000 genes that carry the full hereditary code of instructions has its unique code that determines its unique job.

A gene mutates, that is, changes its code and hence its 'building plan' by a disarrangement or loss or destruction of one or more nucleotides of the helix. This accident occurs when a foreign chemical or particle or charge or wave or organism enters the chromosome and its gene, with especial effects when the gene is in the process of duplicating itself. Once the gene is altered, it transmits new instructions and whatever aspect of the organism is under its command will accordingly change. Mutations may also affect the organization of genes within the chromosome, rearranging them or even rearranging chromosomes.

It can be estimated (following calculations by Wallace and Dobzhansky) that in the case of man, the number of 'spontaneous' ('natural,' 'background') mutations that would occur for a world population of four billion people in 350 generations amounting to 10,000 years would be only around two hundred (200). Since practically all mutations are 'cosmetic,' harmful, or lethal changes, it is embarrassing to place one's faith in mutation (at least as here construed) as the factor bringing about speciation from hominid to man. Indeed, Wallace and Dobzhansky, after presenting the negative and positive effects conclude that mutation is something to be avoided. More-over, "Lack of genetic variability for further evolution of the human species is something we need not worry about."[12]. Like the last man to squeeze aboard a crowded bus, they don't want the driver to stop anymore to pick up someone else.

Here, however, we are concerned with the point of origin of the bus: presumably the change from hominid to man must be applauded. Somewhere along the way this genetic event occurred. But we can understand the plight of uniformitarian evolutionists. How many mutations are represented in the differences between hominid and homo schizo -- one, ten, fifty, one hundred, one thousand? Geneticists cannot say, because, excepting a very few cases, they do not know yet what genes control what changes to what degree. (Anthropologists, such as Washburn and Moore, in their book *From Ape to Man,* can brave the statistical jungle to extrapolate, but fail.)

If we retrocalculate the figures given above, we would have, say, a single viable mutation per ten million years. For, if the humanizing population is set at four millions instead of four billions over whatever time period is involved, a generous estimate by conventional reckoning, then we multiply the time required for 200 mutations one thousand times, giving 10,000,000 years. If one in 200 mutations is viable, then we get a viable mutation every ten million years. But the difference between viability and the ape-to-man difference is still to be bridged. Would then 500 viable mutations be required in order to bet upon the critical change occurring? If so, this would appear to require five billion years. Fortunately, we can dispense with further arithmetic, since authorities have pronounced this to be the age of the Earth itself.

To explain the creation of man by mutation under a uniformitarian theory is thus impossible. To call in natural selection, as is usually done, does not help. For natural selection, unless it is sheerly *ad hoc* or *post hoc ergo propter hoc* reasoning, must have some genetic possibility to work with. It must depend upon mutation to begin with. One cannot assume that homo sapiens resides in 'Hominid X' like a homunculus, awaiting only isolation and inbreeding, or a shift in moisture-carrying winds, or a new supply of protein-rich alligator meat to give the creature sustenance.

If we are to use mutation theory at all, we must associate it with radionic turbulence of the most violent kind, extended over many centuries. And it is even more plausible if, to such catastrophic mutators, we add a permanent change in some atmospheric constants. And, then, too, we must continue to belabor mutation theory, for there is some deep mystery in it -- a kind of genie in the bottle, something of Lamarck's environmentalism, of Freudian psychosomatism, perhaps even of the monads with miniature universes within them, which is to say, something of a Great Intelligence. At this point in time, then, we still need mutation theory and catastrophe theory, with an open door to whatever other theory comes bearing fruit.

We receive a hint that the merger of gene theory of mutation into macro-evolution or quantavolution is possible with recent studies showing that much DNA (like much brain tissue) is surplus, seemingly unnecessary [13]. Is this material that is in readiness for recombination? Is it potentiated for organizing a

general response in the event of a mutation that would otherwise be too specialized to survive in the species?

Some important areas of agreement exist concerning mutations. Genetic mutation is a change in the formation-instruction code contained in the DNA component of one or more genes of the sperm or egg. Of the estimated 50,000 genes, a mere 210 have been assigned loci in specific chromosomes [14]. The gene map is practically useless, then, in plotting the route of humanization.

New genetic instructions are carried into the fecundation of the egg, thenceforth into the embryo, the newborn, and the adult. This happens provided that survival is possible under the changed rules of growth. "Mutation" of non-genetic material whether adult or embryonic, affects only the individual and is not reproducible. Many chemicals and particles can bring mutation in this sense; but they affect individuals, not species, through cancers and abnormalities.

George Gaylord Simpson laid down a few years ago several principles that are pertinent to humanization.

> It is now known that mutations, broadly speaking, an ultimate basis of variation, are discontinuous... The somatic effects of mutations vary from great to barely perceptible, or quite likely, to unperceptible by usual methods of observation... Despite the fact that a mutation is a discrete, discontinuous event at the cellular, chromosome, or gene level, its effects are modified by interactions in the whole genetic system of an individual (oddly enough, there is no generally accepted term for that important concept). They [mutations] are also modified by varying environmental factors. The results are that for many mutations, the somatic effects in different individuals vary in an essentially continuous manner. Even an expression that is marked modification in some individuals may be only the extreme of what is a gradual sequence in the population.. [15]

The whole genetic system falls into line with the mutation, so to speak. This is certainly a hologenetic effect; one wonders why "no generally accepted term for that important concept" exists. A great many features of the organism (hence species) are systematically calibrated. Still, individuals of the species,

already unique, alter in unique ways as a result of the mutation. Whether the human 'big brain' evolved in one or several steps, the process was individualized so that, for instance, one person could have only half of the cranial matter of another person; further there are ethnic and sex differences in cranial size.

Simpson hesitantly comments on the likelihood of quantavolution of species:

> The instantaneous origin of a new species by a single genetic event can occur but is unusual. It is practically confined to cases of increase in individual chromosome numbers happening to produce a system both viable and capable of reproduction but not capable of backbreeding into the parental population. In usual... cases distinct evolutionary change involves the increase or decrease of proportions of genetic factors in whole populations, and this is a gradual process occurring in successions of generations. The prevailing modern theories of evolution are essentially, although not dogmatically, gradualistic [16].

No new species has been proven to form, through mutation, breeding, or otherwise, in human history. First mutations occur rarely; perhaps one in 25,000 spermatozoa or eggs possesses a gene that has been mutated. Still, with a large population over a long period of time the number of mutations will be high. Since women carry their eggs from birth, some 200 of them, an egg mutated on one occasion may be represented in a birth as much as forty years later; male sperm is wasted and renewed, millions per ejaculation, so that a mutated sperm has very little chance of being partner to a conception.

The chances for a successful mutation are so slight, and the process typically visualized by biologists for evolution of a species is so long, that many scholars have offered calculations showing the high improbability of the origin and development of species by mutation. Yet other theories have not been acceptable, except for the enlargement of the mutation-referral, or calibration process that Simpson spoke of above. Natural selection has to work only with the gene pool already available to a species and is questionable on the grounds already stated in the preceding chapters.

MAJOR FEATURES OF EVOLUTION

G. G. Simpson declares that "Mutation rate can rarely be an effectively determining factor in rate or direction of evolutionary change; this is also the conclusion of Muller..., leading student of mutation rates."[17] Mutation offers plenty of possible changes but natural selection is more important: once more we face the frustrations of evolutionary ping-pong between mutation and natural selection.

An effort was made by the geneticist Richard Goldschmidt, in 1940 to provide a new material basis for evolution [18]. He said that his lectures at Yale ought to have been called "the genetical and developmental potentialities of the organism which nature may use as materials with which to accomplish evolution." Evolution and natural selection, including the survival of the fittest, were accepted by him as facts. But, he said, selection and adaptation required "necessary hereditary variations" to work with.

So he strove to discover evidences of "macro-evolution." He showed how hereditary differences, that might have fateful consequences in appearance and behavior among species, might be attributable to certain mutations. He conceived the idea that "hopeful monsters" would be frequently generated, from among which some rare type might accomplish an evolutionary saltation. Although he could not demonstrate such directly, he conceived that novel patterning of chromosomes might instantly achieve the same effect as an accumulation of mutations, producing a new chemical system that would substantially alter an organism's appearance and behavior. So he could speak of "systemic mutation" as a complete change of the primary pattern or reaction system into a new system.

He might have added the term "hopeful scientist," to describe himself and others who were products of the "hopeful monster," homo schizo. The phrase: "To illustrate the presence and wisdom of God in the natural and moral world" meant to the naturalist, he declared, "the demonstration of law and order in his chosen field." This view is a common amnesiac sublimation of the characters of the gods Yahweh, Shiva, Zeus, and Jupiter, spreaders of chaos and lightning-like destroyers of the order of

Mother Earth and Mother Nature. Perhaps if he had investigated the character of his gods, he might have truly found the means by which nature accomplished changes -- by catastrophes multiplying infinitely the mutating forces and adaptative opportunities of the world. He then would agree even more with another authority whom he supports, O.H. Schindewolf, the German paleontologist, who not only surmised macroevolution but adjudged the causes to be catastrophic and extraterrestrial, in a set of studies published between 1936 and 1963.

The earliest men were in fact "hopeful monsters" who had to believe that the gods were responsible for their sorrows, as well as their welfare, but sublimated many of the sorrows. Perhaps this is why Mircea Eliade, the hopeful scientist, must wonder why the first Greek god Ouranos was believed to have bred so many hateful monsters, his own children, whom he cast down and buried in the bowels of the Earth; Eliade may be avoiding his own ambivalence in not answering the question that perhaps he of all scholars is best equipped to answer.

Coming closer to the key to quantavolution and macroevolution are scientists such as Dubrow, who credits sharp changes in the geomagnetic field with mass mutations leading to sudden increases in populations and systemic mutations leading to new species and genera [19].

INTELLIGENT MUTATION AND EVOLUTIONARY SALTATIONS

That genes instruct organisms via chemo-electric code is well-known. That genes mutate occasionally has long been known. The mutation as an electro-chemical event with functional consequences is also appreciated. Puzzles remain: how, if at all, do mutating genes provide the non-random set of instructions needed to accommodate the rest of the organism to the new structure/function of the changed part? The problem is made all the more poignant by the observation that nearly all mutations are relatively "meaningless" and mostly trivial; yet a given species is integrated functionally, and differs "significantly" from another species. No gift of time, no matter how generous, nor even the bonanza of radiant catastrophes, can displace our

feeling that mutations may generate "hopeful monsters," some of which survive.

A new metaphor is therefore suggested. We assume that the mutation is a changed chemical message sent by one gene to all other genes as well as to all other genes as well as to the operations which itself commands. Every gene (hence chromosome) receives, upon mutation, not only a capability to provide a new instruction but also a capability for leadership. Every gene, like Napoleon's soldiers, "carries a marshal's baton in his knapsack." When it mutates, all other genes become dedicated followers. The gene, as befits the ideal field marshal, conveys to them instructions concerning the behavior newly expected of them. They do their limited best to conform to the new order.

The gene that gives the limbs of my cat a surprising six digits orders all other genes to whom the change is relevant to provide the necessary services. Muscles, brain, blood vessels, and many other structures and functions swing into line. The cat survives and breeds its kind.

The instructions given out by the other genes that control the cat's features are contained in their programs, for apparently they have not been mutated. We see at least two levels or types of changed instructions passed from a leader gene to all other genes: a) a new proportionality of structure and function which provide 'normal' individuation within limits of an ongoing species, and b) *ad hoc* accommodations in the presence of hitherto inexperienced demands. The *ad hoc* accommodations may be presumed to be quantitative or extreme deviations of the individuation code. Both types of change will persist so long as the mutated gene gives off the same signal, practically "forever." The mutation may be "deleterious," or "harmful," if the pre-existing capabilities are not flexible enough to provide holistic means of survival; on the other hand, the *ad hoc* instructions may be accommodated, and the organism survives.

Is it conceivable that the genes carry design accommodations for every successful macromutation? If so, where do they originate? Suppose that, in the beginning of life forms, each gene is possessed of designs that can cope with every form from an amoebae to a whale (this is, of course, not a new idea).

Given a certain chemical stimulus, it will produce its part of the structure and function of any species known up to the present and many more. There is no logical reason why an individual gene capability of a bacterium of 2^{2000} combinations cannot foreshadow all life forms that have developed. The gene's speciated repertoire of designs presumably has limits. Indeed, such limits are commonly defined in the course of reciting the similarities among all living forms. They are further defined in the course of classifying phyla, orders, and families. Then, should a changing gene stretch the führerprinzip too far, asking, for example, that feathers be provided for a whale, the followers, the other genes, cannot find the requisite function among their repertoire of attainable specifications, and the animal will usually die.

But suppose that my cat bears kittens with flipper-like limbs. The mutated gene passes its changed chemical messages to its cohorts and the necessary changes are made, well within limits, except that the little beasts cannot walk very well. They might swim and, if introduced to a body of water, do so. The cohorts work hard now to accommodate: eye muscles tighten; muscles bulge at the flipper joints; oil gathers heavily at the skin pores; the body becomes rotund for insulation and floating; the taste buds are alerted to watery savors; the lungs expand for searching and diving underwater; and so on.

The young cats are not equally flexible and they lack parental instruction, but perhaps one or two survive and go ashore, mainly to procreate and give birth, cautious and suspicious of land forms, abandoning their unmutated kittens and carrying their mutants back into the water. Since my cat is a mixture of Siamese, Persian and Mediterranean alley-cat, its kittens and their kittens will afford numerous possibilities for immediate "natural selection." They will compete adequately with beaver, muskrats, otters, duck-billed platypus, seals, and sea-lions, and will supply prey for the few large carnivores of the sea and food for smaller marine animals with their carcasses. They may live and hunt in gangs. If my cat had given birth to all of this in secret, I would be surprised by a new order of beasts when, a few years later, I would be swimming.

Should, in the course of events, a member of the new species be mutated, a new gene would probably become the leader. Now gigantism is the order of the day, from among the dead-born emerge two double-sized kittens, which grow to quadruple-sized adulthood. A new instruction would have been dispatched to all its genes, which would have been received and interpreted on the basis of previously existing instructions, not for "Cat" but "Cat I."

The process of fixing the next species, "Cat II," would be analogous to the earlier one. Cat II genes would be centered around the Cat plus Cat I chemical norm. Their limits of deviation presumably would remain those of Cat plus Cat I. That is, they had inherited Cat I's new instruction. The new chemical instruction would build upon it; it would only order research of the repertoire to its limits to abide the new order. So, in swimming around a decade later, I might receive an even greater surprise.

Examining the gene structure of Cat II progeny, one would find all of the instructions implanted in the primordial form of life, Amoebae I (or even, in fact, its predecessors, that were locked into it), together with every mutation (or new command) ever imparted to Cat II ancestors. Missing would be only the changed genetic capabilities afforded species that have branched off of its line since the beginning of life. The whale would be denied feathers. In this sense, "ontogeny recapitulates phylogeny." Under such conditions, the number of successful mutations from the primordial form might have been far fewer than is generally believed, perhaps less than a hundred for the generally of species, and under a dozen for the particular species.

Consequently, mutations can be conceived to cause very little or very great changes in the structure and functions of a species. Further, mutations are considered statistical, that is, indeterminate increments contained in a limited number of commands. They are, of course, not models of the form-to-be. Their "intelligence" consists in their primordial ability to induce coordinated shifts of behavior in non-mutated genes.

By implication, "important" changes occur by saltations, as quantavolutions. In environments that provide mutational possibilities, radically different forms can emerge quickly, propagate

abundantly, and branch quickly again. Long-time durations are of little importance; whether they occur or not is immaterial.

The theory here is so simple that it may be merely a metaphor. It need not be justified by elaborate mathematical calculations. It preserves most of the general observations of Lamarck, C. Darwin, St. Hilaire, Mendel, Dobzhansky, Watson and many another geneticist, it can cope with paleontology and genetic engineering without strain. It suggests, among other things, that, in principle but against great odds, preexisting ancestral species can be recreated, and that the creation of future "major" life forms is within sight, perhaps at the level of probability of controlled nuclear fusion.

EXTERNAL PRODUCERS OF MUTATION

The prevailing evolutionary theory, "The Modern Synthesis," has looked to point mutation within structural genes as causing individual variability, which is ultimately carried into a population where it comes to be a dominant trait. A species change is thought to occur by gradual accumulation of small differences. Isolation and small numbers promote the change. Subsequently, the new species diffuses. Long time intervals are admittedly required. Transitional forms, which should be abundant among fossils, are rarely discoverable, and never incontrovertibly accepted a such. The fossil record appears to be a representation of quantavolutions, not incrementalism. It is suppressed, however, by an ideology of uniformitarian evolution.

Even when "the Modern Synthesis" is attacked, as it was recently in a conference of geneticists and paleontologists, the challengers, advocates of 'macroevolution' or 'punctuated equilibrium,' (our 'quantavolution') appear to stay within the boxing ring outlined by an assumed speciation: 'what happens in speciation?', not 'what causes speciation?' A rapid speciation, even to the challengers, is one "taking place over, say, 50,000 years, but that is an instant compared with the 5 or 10 million years that most species exist."[20] Even so, it would be far longer than necessary to change Hominid 'X' into homo sapiens schizotypus, if the modifications which I suggested above were sufficient to make the main differences between the two

species. Once the viable combination is struck, the speciation occurs instantly.

Furthermore, with normally prevailing rates of mutation, speciation is unlikely under either the Modern Synthesis or the 'punctuated equilibrium' theory. It is striking that the aforesaid conference did not take up the question of the possible role of cosmic or space environmental change. Writing in 1980, a group of scientists claimed that a major extraterrestrial impact on Earth ended the Cretaceous 'reptilian' period and inaugurated the Tertiary mammalian period at which time, quoting D.A. Russell, "no terrestrial vertebrate heavier than about 25 kg is known to have survived," and the food chain was completely disrupted for many years by other biosphere extinctions and reductions. Further, "there have been five such extinctions since the end of the Precambrian," bringing us back to the beginning of life [21].

Schindewolf, Salop, and a number of other scholars, whether in the close fields of genetics, geology and paleontology, or in the general field of catastrophism, have brought forward volumes of material to support the likelihood of mutation-causing disasters. Probably the 'earth-bound' specialists are waiting for a green light from the astronomical establishment. Meanwhile pressure mounts from the earthlings and the general catastrophists. *Nature* magazine, for example, carried in one issue (May 22, 1980, Vol. 285) three articles on catastrophes at the Cretaceous-Tertiary boundary.

Not only mutations, but all other factors in speed-up of genetic change are provided by natural catastrophes -- isolation, adaptation, and extinction of competing species. Thus we hear Simpson say that "The chance of fixation of a favorable mutation may be considerably larger by accident of sampling in a small population than by selection in a large population..."[22] Catastrophes therefore simulate in quick time the supposed effects of natural selection. If man has been humanized within the past 100,000 years, or even within the past million years, actually at any age boundary, even granting the dubious long-time reckoning, he probably was humanized by catastrophe.

Here the quantavolutionary model diverges from the evolutionary model most emphatically. In order to enhance the chances of a viable speciation by mutation, a heavy bombardment of particles is required such as has not been experienced in history; a radiation storm is called for. Such storms must have existed on numerous occasions in recent prehistory, if the evidence assembled in my *Chaos and Creation* is accepted. They ionized thoroughly the environment by interrupting, deflecting, and reversing the electromagnetic field of the Earth, by mega-lightning electrical discharges upon the near encounter of bodies in space, upon the occurrence of great potential differences between space and Earth, and by removing cloud canopies and transforming the gaseous composition of the atmosphere. Meteoric pass-throughs collisions would have occurred. The Sun would be stimulated to hyper-activity. The electrical and atomic state of every organism and rock would be altered.

The radiating effect of one meteor or comet of small size gliding through the atmosphere is heavier than that of a large cluster of hydrogen bombs because of its great heat, well over 2000° C, over a long trajectory, the wide distribution of fall-out, and its possible final explosion at a great speed of many kilometers per second. A single such passage, of which there would have been many, should produce millions of mutations in the biosphere generally. A large explosion creates a catastrophic tube from the upper mantle into outer space, in and around which many millions of combinations of electrical, chemical, physical, material, thermal, and pressure events take place. Paleontologist D.J. McLaren had events such as these in mind when, in a presidential address to his colleagues, he reviewed the evidence of the wholesale extinction of species. After describing the effects of a large-body collision, he remarked: "This will do."[23] Yet, it is not only extinction that occurs, but also speciation.

As soon as they will grant the occurrence of extraterrestrially caused disaster, paleontologists will arrive at a public agreement in favor of quantavolution. Essentially this would include first that the species have been created and exterminated in waves. The waves will probably be fixed chronologically at the passages between the conventionally named periods -- such as

between the Pliocene and Pleistocene. Thirdly, they will probably settle upon radiation storms (or, for stretched-out changing, new atmospheric constants) as the principal force bringing in the great changes. They may well decide that these radiation storms are connected with cosmic explosions and encounters. Finally, they may, with greatest reluctance, turn to a shorter time-scale for measuring the succession of events in natural history. For radiation storms and geological disasters not only mutate and exterminate species; they also invalidate methods of dating that assume a constant chemical and geophysical environment.

The time of man and protoman now includes a Holocene that impinges upon the Pleistocene that is moving back in turn into the old Pliocene. I have already noted that anthropologists believe that they are finding modern types of *homo* in early Pleistocene (once Pliocene) times. Whether the advent of homo sapiens should be set in these times or in the early Holocene depends largely upon whether one adopts a long-time or short-time chronology. The change from hominid to *homo* was not anatomically or physiologically spectacular. Australopithecine and sinanthropus, if they lived alongside each other, probably lived in the time of proto-modern man as well.

Ericson declares our thesis in the title to his study, "Extinctions and Evolutionary Changes in Microfossils Clearly Define the Abrupt Onset of the Pleistocene."[24] Now I report what Salop writes:

> At the end of the Pliocene, some 3 M Y ago, is the last great revolutionary limit-line in the history of life. The first ancestors of Man appeared and an essentially new epoch started, the Anthropogene or Psychozoic. All other changes in the organic world, however important, seem of minor significance in comparison with that event. The animal kingdom of today originated, broadly speaking, also at that time, not counting the extinction of large animals in the second half of the Pleistocene thought to be largely caused by the activity of Man [25].

This last explanation, involving man, is not acceptable; all species were under extinction stress in both Pleistocene and Holocene, including man. Moreover Salop limits the causes unduly. He comments, "Growth of the solar constant by one

percent results in an insignificant rise of temperature of the troposphere, but the UV radiation multiplies 100,000 times." The ozone shield would capture most of this if it were as strong as today. Recent planetary, cometary, and meteoroid catastrophes, which are more probable but are not discussed here by Salop, would engender infinitely greater radiation storms [26].

Most large mammal species were wiped out in the late Pleistocene, 70% by one estimate, in ways that would imply worldwide atmospheric revolution, as with the mammoth. The quantavolution of hominid into homo sapiens could have occurred on one of numerous occasions. Given the lesser resistance of the mammals and man to radiation effects, and granted findings such as Ericson's and Salop's, there is further reason to hypothesize the mutation and drastic adaptation of humans.

If the proto-men (the Hominid 'X') of this era were spread over at least the Afro-Asian world, some estimates, no matter that they must be highly speculative, are in order. The creatures must have been numerous. In a world of ten million hominids (30 per 100 square miles) and during a thousand years of one or more ionizing forces, whether continuous or intermittent, five million females would be subjected to radiation. Their eggs would be present and available for mutation for a life-span, say, of forty years. Assuming that females averaged a pregnancy once every two years, that their life spans averaged twenty years of child-bearing, and that a radiation storm environment persisted in which one of twelve fertilized eggs had been mutated, then some 1.85 billion mutated births would occur in the one millennium. Mutated sperms might raise the number to three billions.

Of these three billions, from 300 to 3 millions might be beneficial or inconsequential, guaranteeing at the least an average chance of physiological survival beyond infancy. One must not neglect the chance that two mutants would interbreed, making possible combinations of genes, or a new total configuration. If systemic mutation were admitted to be possible, then too the chances of an emergent human would be increased [27].

The numerous high energy forces would have had enormous effect upon the ecology and mankind. Not only would they cause destruction on a grand scale; they would affect the mind of future generations in many ways -- genetically, by imprinting, by social indoctrination through story, a custom and institutions. The beginnings of mankind had to be associated with fearful happenings, as Nietzsche, Freud, T. Reik, I. Velikovsky, and of course all sacred historians have declared. Much was forgotten and distorted.

No one has detailed particular disasters and their human effects as well as Velikovsky. Still, it is not alone, as Velikovsky puts it, that mankind has never recovered from the terrors of catastrophe:homo sapiens schizotypus did not in fact exist before the terrible times. Mankind was born out of catastrophe and achieved his delusionary schizoid human nature out of catastrophes; and he can never be anything but the kind of creature that went through those special overwhelming experiences. Humanity was created during a natural reign of terror.

VIRAL MUTATION

Quite recently, the role of viruses in genetic change has come to be recognized. Viral storms might accompany the large-scale penetration of the atmosphere by exploded material from extraterrestrial events. Various ancient myths report such occurrences. Apollo was the Greek god of plagues and arrows; he was a sky god and not the sun, as later writers supposed. Recently, Hoyle and Wickramasinghe have, in their book *Life Cloud*, proposed that early life forms were deposited on Earth by cometary fall-out. In *Disease From Space* (1979) they also claim space dust as the carrier of plagues to Earth. Their proposed investigations went unsupported by the grants authorities [28]. The search for viruses in meteorites and Martian soil samples in proceeding.

Deeply buried viruses might also be exposed and some of them mutated by large-scale earth upheavals. Large explosions can create drifting material that will disseminate both crystallized and already activated viruses in similar fall-outs, and with similar genetic results. Hope-Simpson in 1978 reported that the last six peaks of sunspots coincided with pandemic influenza, possibly from increased cosmic radiation which mutated

existing viruses, enabling them to evade human immunities [29]. Not to be ignored, therefore, is the chain reaction of a virus, a viral mutation, and a human mutated by a virus. Again, the likelihood of successful mutation is small but the participating organisms are exceedingly numerous.

We bear in mind the theory, advanced elsewhere in my studies, that several solar system bodies disintegrated during the past 14,000 years. One or more were probably carrying life forms. Viruses might persist for some years, possibly thousands, prior to their extinction, in a permanently hostile environment, and hence, while scarcely detectable today in meteorites or direct planetary sampling, would have been aboard their exploded vehicles in ancient strikes against the Earth.

PSYCHOSOMATIC GENETICS

Still another means for achieving humanization, and also mutational, would be the psychosomatic conversion of genes. For a time, the idea fascinated Freud and Ferenczi. They were influenced by Lamarck's theory of the inheritance of acquired characteristics. On October 5, 1917 Freud wrote to Karl Abraham to this effect, saying, "Its essential content is that the omnipotence of thoughts was once a reality." When Abraham responded that he had not heard of the idea, Freud wrote that it would complete the theory of psychoanalysis by providing a theory of change through an "entoplastic" adaptation of one's own body.

> Our intention is to place Lamarck entirely on our basis and to show that this 'need' which creates and transforms organs is nothing other than the power of unconscious ideas over the body, of which we see relics in Hysteria: in short, the 'omnipotence of thoughts.' Purpose and usefulness would then be explained psychoanalytically; it would be the completion of pychoanalysis. Two great principles of change or progress would emerge: one through one's own body, and a later (heteroplastic) one through transmuting the outer world [30].

Even before it was realized how minute was the probability of successful genetic mutation, Freud, like many another thoughtful person, like the theologians, like even Alfred Wallace and Lyell (until his old age), could not accept the

piecemeal elaboration of homo sapiens according to the uniformitarian Darwinian model. With scientific catastrophism in disrepute and obloquy, they could not imagine an appropriate environmental stimulus to change.

The theory is not beyond discussion. Presumably the hominid bearer of sperms or eggs would be so drastically affected by environmental turbulence that it would will a chemical mutation upon them. Practically every tissue and organ of the body has been shown to be capable of physical change, usually deleterious, when an obsessed person focuses intense and prolonged attention upon the soma. The genetic material cannot logically be exempted from the obsessive influence; both point and systemic mutation could then occur.

The ability, conscious and/or unconscious, to engender fully intense and prolonged neuro-chemical and/or electrical energy, and to focus it upon a given tissue or organ, is given to few persons in these times. It might more frequently emerge when the environment is heavily agitated and the collectivity reflects this agitation and inspires a response among its members. That is, the alteration of the race by willing a genetic change might have occurred in the creative years of mankind. This would be a true mutation, inasmuch as a chemical intervention or electrical impulse affecting the genes is postulated.

The psychosomatic model has a low probability. Although the terrorized hominid woman may have had the most intense desire, conscious and unconscious, to change her offsprings, how could she have known how to target the eggs in her womb? Can terror act as a chemical bullet directed at the eggs? We have noted that Teilhard de Chardin and the 'school' of directed evolution also have found it necessary to premise an inherent motivation towards progressive biological change, to go along with transmutation. Psychosomatism unconsciously targets an organ. Physical stress and psychic stress both can affect the heart, for instance. And our culture tells us: 'Don't give your dear father a heart attack by your evil conduct.' Further, there is a lore of affecting the unborn child. And witch-doctors may sometimes pretend to know how to affect one's enemies with psychic heart attacks and psychic damage to unborn children.

Psychosomatism, we can affirm, performs the seeming miraculous. But we prefer to believe here that psychosomatism is the cultural product of the already humanized homo schizo. It is an irresistible path that the fear arising out of the split-ego and instinct-delay points out to the human being. In one report, which unfortunately I have lost, the women of a tribal group are apparently capable of controlling their own fertilization by 'willpower;' this is, if true, a possible effect on the germ plasm or on the fluids or musculature of the reproductive organs.

Freud, and Jung, also believed in "phylogenetically inherited material" but could never describe precisely its brainwork. The evidence is that certain common symbols are not learned, nor 'classical' phobias, nor the oedipal complex, nor some other symbols and practices. The human inherits not only predispositions, but even subject-matter and memory traces. Homo schizo has a natural cultural output: so goes the contention. But we can postpone this matter until a later chapter.

Freud and his associates could not come to close grips with psychosomatic humanization; the chemistry, biology and neurology were not available, then. They may not be now. Freud's reconstruction of the origin of conscience suffers from such basic flaws that one marvels at even the limited acceptance granted it. He should have worked instead upon his psychosomatic theory of mutation. He declares that, in an early family of homo sapiens, the sons, sexually covetous of their mother and other females, killed their father and ate him; ever since this significant incident occurred, a sense of guilt for the action has been transmitted through the mnemonic generations.

Inasmuch as ordinary observations of primates and other mammals reveal the dispossession of the aging and weakening "bull males" in families and hordes, with regard to a full range of values, including the sexual, it is presumptuous to build a specifically human trait upon the assumed killing and deduce therefrom some of the most important qualities of human behavior such as guilt, conscience, totem and taboo, religion, and civilization. Unless, of course, we are dealing with an animal already so advanced in the preparation of conscience, that the concoction of new provocation would hardly be necessary. It is much more likely that the ascription of morality to events such as the reformation of sexual power in a group is

attributable to a "higher morality" -- the instinct-delay fear -- that gives in the process of its sublimation and rationalization direction to all aspects of life.

AN ATMOSPHERIC TRANSFORMATION

Geoffroy Saint-Hilaire (1772-1844) advanced two important ideas. One was that of saltation, the leap from one species to another: "the first bird hatched from the egg of a reptile;" the second was that atmospheric changes and other environmental changes bring about speciation, particularly those "respiratory fluids," which "sharply and strongly modify" animal forms [31]. His treatment was cursory and unconvincing.

But today it is more apparent that atmospheric reactions are an important factor in behavior. They might be an alternative or a supplement to genetic mutation in transforming mankind. In this case, Hominids 'X' are presumed to have an already existing genetic capability of becoming human. They are genetically preadapted to quantavolution. This genetic capability is not exercised in the hominid condition because the atmosphere contains a 'hominid mixture,' not a 'human' standard. The oxygen may have been more or less ionized than it is today, for example. The atmosphere may now be heavier (or lighter) in solar or cosmic rays, certain gases, and other chemical elements affecting biological behavior. Might some of these conditions alter human conduct?

The evidence is strong that some or all humans would be affected. Prevalence of unusual gases and metals in the workplace affect workers with psychiatric symptoms, even though they spend only a few hours their daily. One can surmise from this fact that an enduring day-around condition would bring about shortly a different norm of human mentation and behavior.

In such cases, the changed constant would affect proto-humans in a number of places around the world and humanization would be a worldwide phenomenon of the age. Although I feel that such changed constants have affected human history, I doubt that they alone could have accounted for the emergence of homo schizo. Therefore, I follow generally the model of a single-shot mutation in humanization. Some cultural science

support for this position will be cited in the chapters to come, diffusion of basic culture from a single point of origin, for instance.

D.W. Patten has offered, as a geologist and creationist, several hypotheses on atmospheric acquisitions from outer planets, especially affecting the ozone and the nitrogen content of the air, which would then alter the chemistry of growth and longevity. He halts at this point [32]. Temporary or permanent alterations in the gaseous and ion composition of the air could potentiate an already existing physiology, especially via the endocrinal glands and hormonal system. Both the solar and cosmic 'constants' were inconstant during much of the primeval period of humankind; even lately, though respecting smaller deviations, the inconstancy of the solar and galactic winds has come under study.

External events can introduce continuous and to some extent permanent changes (operating as a new constant), if the events and the conditions they bring about persist. So long as heavy noise, air pollution, rapid movement, and other high-stress life conditions of New Yorkers are constant, New Yorkers will tend to have swollen adrenals. Or, so long as the proportion of oxygen in the air of the High Andes is relatively low, the people there will have unusually developed lungs. A connection of the endocrinal system with megavitamin therapy has registered effects upon schizophrenia through facilitating the physiological discharge of adrenalin.

A diminished oxygen supply or incompatibility of oxygen type in the atmosphere may introduce schizoid symptoms to some part of the population. The brain needs oxygen not only to survive but to energize neuro-transmissions throughout its domain. In schizophrenics the oxygen level in the brain is sharply lower than normal. Further, frontal lobe brain activity is low. Thought dissociation may be produced by oxygen deficiency in the frontal lobe.

A radiation storm; a material fall-out; a sweep-out or in-take of atmosphere in transactions with extraterrestrial bodies; intense electrical storms; and the dropping of canopies (opening of skies) can drastically reform the atmosphere. They might change atmospheric constants abruptly or over a period of time.

The new atmosphere forces upon the hominids a new 'norm' of response. The new norm is, at least among some individuals, within the range of genetic capability. The adaptible survivors behave according to the new norm, which is to say that they now behave as "humans."

The reconstructed atmospheric constant may affect most importantly the fetal environment of the humans-to-be. This happens when the new chemicals in the air find their way into the hormonal food supply of the fetus. And/or the new constant presents its demands for changed physiology and behavior upon the infant after birth. Man, and all life, lives off a radiation diet that is generally unperceived. Even today, delicate scientific instruments are required to detect radiation, and the symptomology of radiation poisoning is not very clear, or where clear does not readily name its precise cause.

The atmosphere of chaos was a mutator. The sun of the later Solarian Age may not have been. Nevertheless, the finally settled atmosphere has played a role in humanization. Legends around the world speak of a primordial cloudy sky. The opening of the skies would increase radioactive influences from perhaps still nearby and hot planetary bodies, and also and especially from the sun.

Exposure to helio-radiation (including ultra-violet rays) generally increases physical resistance, relieves arthritic and muscular pain, lends a feeling of well-being, stimulates ergosterol and hence Vitamin D production, counteracts rickets and respiratory disease, and kills bacteria and fungi of the skin. It promotes the healing of wounds and athletic performance; it increases the rate of basal metabolism. All of these occur at the price of occasional skin cancers, and possibly of still unknown deep changes [33]. Although they would contribute to a higher general level of health and activity, they would not create the human. Larger events are required.

The Earth's geomagnetic field has come under intense study in the past few years, because evidence now available points to reversals in the past. Whether the field has reversed quickly and often, as quantavolutionists believe, or gradually and rarely, as evolutionists think, a reversal of the North Magnetic Pole introduces as interval during which cosmic rays can descend upon

the Earth unhindered and bring about mutations in great numbers. Some studies have indicated a coincidence of reversals with waves of biosphere extinction. B. Heezen, pioneer oceanographer (for it is on the rocks of the ocean bottom that magnetism can be most readily traced), has speculated that the last reversals was before the time of man. However, the time of man has been pushed back well beyond this period in conventional theory, and in quantavolutionary theory the times of the last several reversals are well within the human span, one having occurred in the eight century B.C. according to an examination of the orientation of iron particles in pottery of that age [34]. Yet another reversal is said to have occurred around four to six thousand years ago in connection with large biosphere and natural destruction [35].

Furthermore, the geomagnetic field (GMF) is declining slowly. I have already introduced the work of Dubrow on the subject. If the decline has been exponential from some past peak, as I believe and will be discussing with Earl R. Milton in a forthcoming book, then the hominid was subjected to a sharply different paleomagnetic field. So we must ask ourselves whether the relaxed grip of the electromagnetic field disorganized the hominid brain and in effect created homo schizo. For he would be presented with an intellectual freedom in the form of a bewildering number of options for action instead of the more closed system of stimulus-response accorded Hominid 'X.' The 'constant' is still changing, but slowly, today. Still the frequency of heart attacks has been convincingly associated with internationally collected measurements of geomagnetic activity as registered by magnetometers.

It may be possible, too, that many animals, including especially the primates, acquired a loosened behavioral potential at the same time, in the same way. Relieved of the heavier GMF, the minute electrical charges that operate the central nervous system may have stepped up their activity, relatively speaking, and, crowding the access points, delayed instinctive reactions and promoted displacements. An electric shock, administered experimentally or therapeutically (at this supposed new level of the human mind), provokes mental activity (mania), hallucinations, and amnesia, while reducing depression and anxiety. ECS [Electroconvulsive shock] leaves a permanent change in brain excitability.

That a marked change in the Earth's electrical field would have affected the human brain is not difficult to accept. We have mentioned that much testimony on a primordial canopy of clouds exists, at the time of the first god Uranus (known by many names.)[36] The sky cover was probably removed in the time of human creation. The results would include a new and constant heavy bombardment of the biosphere with cosmic and solar particles. What legends frequently describe as the primordial chaos could have been a combination of actual celestial turbulence, ground bombardment, and mass biosphere mutations and extinctions, associated with the shock of being transmuted from hominid to homo. The Hebrew *Genesis* is by no means unique in referring to this concatenation of events.

Nor does this conclude speculation about the possibilities of the ancient skies. If large bodies transacted in close encounter or collision with Earth, as is argued elsewhere in the *Quantavolution Series*, large electrical charges would be exchanged between the bodies. The Earth could either lose or gain immense charges, sufficient to affect deeply the human nervous system. Then the proto-human must cope either with an enhanced or lesser charge on the Earth's surface or in the atmosphere, either as a sudden terminator event or as a new constant or both.

At this point of the discussion, the multiplicity of possibilities begins to bewilder and I would, if I could, sing the praises of "Occam's razor." Would the hominid mind split and develop instinct-delay and the poly-ego from any one or all of these possibilities? Or would man becomes stupefied, more hominidal, instead of electrified, confused, and energized? Reasoning *ex post facto*, which is to say, begging the question, I shall have to say that since he became the latter, whatever happened, even combinations of opposites, worked to the same end of instinct-delay and poly-ego problems.

SOCIAL IMPRINTING

In Seneca's ancient tragic drama, *Thyestes*, the chorus chants of the shocking fiery passage of Phaeton in his solar chariot, when each and every constellation deviated:

> This is the fear, the fear that knocks at the heart
> That the whole world is now to fall in the ruin
> Which Fate foretells; that Chaos will come again
> To bury the world of gods and men; that Nature
> A second time will wipe out all the lands
> That cover the earth and the seas that lie around them
> And all the stars that scatter their bright lights
> Across the universe [37].

A fifth means of transforming hominid into human nature might be by the social imprinting of shock upon the individual. The hominids again afford the basic genetic capability and a pre-adapted habitat. In this case, however, natural disasters inflict shocks upon the hominid beyond its 'normal' tolerances of stimulation. The shocks in themselves are the grossly exaggerated homologues of the shocks of 'normal' existence.

They take the form of a celestial scene inhabited by new symbolic references and other mind-openers; of terrorizing high-energy expressions including spectres and pandemonium; of crushing and effacing effects that are prolonged and of high intensity; of the ranging of the natural elements.

The shocks are so traumatic that the victims adopt response behaviors that become patterned as the essence of human nature. The traumatized catastrophical survivors retain the memories, but distort and use them in ways that are typically human. Most importantly, they devise in the very process of their own creation the social means of perpetuating their own changed mentalities and behavior. Human nature is then and thereby guaranteed by a collectivity of humans formed into a group or society. The memorial generations transmit and adapt new traumatic and 'normal' tribulations to the fixated human nature.

In explaining the development of the human mind in relation to the catastrophes of Venus and Mars in the period 1453 to 687 B.C. Velikovsky pushes beyond Nietzsche, Freud, Jung, and Eliade with the concepts of collective amnesia and aggression [38]. Mankind is destructively aggressive as a result of suppressing its memories of natural disasters. "The inability to accept the catastrophic past is the source of man's aggression... Freud did not come to understand the true nature of the Great Trauma -- born in the Theogony or battle of the planetary gods

with our Earth, brought more than once to the brink of destruction -- which was the fate of Mercury, Mars, and Moon. Freud died in exile from his home, when a crazed worshiper of Wotan was preparing another Götterdämmerung."[39]

The view which I am setting forth embraces this criticism of Freud and the concepts of collective amnesia or repression concerning catastrophes. Also, aggression is to be correlated with this suppression, and the techniques of aggression are in a direct sense analogized unconsciously and consciously to events witnessed in the sky. Nevertheless I perceive social imprinting as at best an auxiliary source of human nature, an intensifier, which itself needs to be intensified from time to time by fresh natural (or man-made) catastrophe.

The Middle Bronze age civilizations, 3500 years ago, whose trials Velikovsky describes so vividly, were pre-adapted to catastrophes; their societies behaved in ways already learned, and with institutions inherited from prior disasters. Ultimately, though, with the earliest disasters, a physiological change had to take precedence. Even in the genetic humanization of man, catastrophe was an on-looker, carrier, and psychological and cultural reinforcer of gene-fracturing elements.

John V. Myers and Warner B. Sizemore declare "that the disintegration of *objective* reality during cosmic catastrophe could produce *subjective* states similar to those of schizophrenia, and that the disintegration of subjective reality in the schizophrenic is accompanied by visions of cosmic catastrophe."[40] I argue that the reality recognized by the first human was catastrophic and his mind was as well. There was never -- and here I think we diverge from a common view of Velikovsky and a great many others, including conventional long-term evolutionists -- a clean minded, rational evolved human whose mind was 'blown' by catastrophic experiences: the recurrent disasters *proved* to homo schizo that his vision of the world was correct!

THE SUMMARY MECHANICS

It is perhaps apparent to the reader by now that I prefer, as a 'holding position,' a complicated mix of several means of humanization, altogether happening within a very short period

of time. The mutation of an individual hominid is given prominence generally in the scenarios to come. But it is not difficult to switch from the one to the other, or to stress a combination. The changed atmospheric constant as the mode of humanization has the value of inherent continuity, and is as efficient as genetic mutation in explaining generational inheritance; also it permits humanization to occur simultaneously among many hominids at the same time, in the same month or a few years. We might begin a search for humanizing mechanisms that are present in the modern atmosphere but would not have been present in an atmosphere in which hominids could thrive.

The branches of the human race have changed in some respects, mostly cosmetically, since the cosmic beginnings of homo schizo. But the basic ways of behaving as human were determined in the midst of great crises: the interruption of the Earth's motions, the loss of electrical charge, the dropping of the immense cloud canopies in deluges, and the first openings of the sky. An allotment of a thousand years would have been sufficient for these tremendous experiences to bring about humanization.

Even while mutations were abundantly occurring among all species, a single group of hominids, largely potentiated as humans beforehand, in distress and in terror, would find amongst themselves individuals of flexible, if erratic, genetic constitution, who were capable of expanded symbolic behavior and signaling various interpretations of the new giant forces of the environment.

The same group would become capable of managing its newly installed communication system, and then lend its cooperative forces to the evolving interpretation of the universe, the aboriginal cosmology. The group would be driven to adopt the new system even before all of its members shared the mutant genes. In the endeavor to ease their pains and anticipate the sharing of the inheritable traits, it is possible that non-mutants actually mutated themselves by will power, adding a consistent but different emotional mechanism to the hereditary pool of the human-dominated group. Whereas the first mutants would operate by genetic instructions, the second kind of mutants would work out genetically a mode of hyper-excitation of the

endocrinal system. This would lend the group an element of obsessive emotionality as soon as genetic miscegenation began.

The social imprinting of shock would come about not by itself alone but in the course of executing symbolic references of the first mutant type, in accepting the obsessive drive of the second mutant type, and in the development of followership among the erstwhile normal band, consisting of sophisticated crowd behavior already possessed by hominids.

All elements would be caught up in the atmospheric reformation. The mutations were consistent with it; they were in fact created by it and responsive to it so that, in a fundamental way, the correspondence of the new world with the new being was assured. Although it did not eradicate the old 'normal beings,' the radicalized atmosphere punished them and preferred those who responded readily to the new constants.

Notes (Chapter 3: Mechanics of Humanization)

1. This column is discussed in the author's *Chaos and Creation* and *The Lately Tortured Earth* and see I. Velikovsky, *Earth in Upheaval*, Doubleday, 1955; Harold T. Wilkins, *Mysteries of Ancient South America*, Secaucus, N.J., Univ. Press, 1956; Claude Schaeffer, *Stratigraphie Comparée*, London: Oxford U. Press, 1948.

2. *Biosocial Anthropology*, London: Malaby, 1975, 7.

3. New York: Macmillan, 1968.

4. Robert E. Ornstein, *The Psychology of Consciousness*, San Francisco: Freeman 1972, 63.

5. "The New Science of Immanuel Velikovsky," I *Kronos* 1, 1975, 6-7.

6. "Somatic Factors and Social Behavior," in R. Fox, ed., *op. cit.*, 115; E.J.W. Barrington, *et al.*, *Hormones and Evolution*, N.Y.: Academic Press, 2 vols., 1979.

7. A.C. Guyton, *Medical Physiology*, 3rd ed., Philadelphia: Saunders, 1966, 1040.

8. Dobzhansky, *op. cit.*, 205; L. Bolk, *Das Problem der Menschenwerdung*, Jena: Fischer, 1926.

9. A.P. Dubrow, *The Geomagnetic Field and Life*, N.Y.: Plenum, 1978. *Ibid*., 84.

10. *Emotions and Bodily changes*, N.Y.: Columbia U. Press, 1935, 4th ed., 1954.

11. N. Tinbergen, *The Study of Instinct*, Oxford U. Press, 1969, 5th printing, 195.

12. *Radiation, Genes, and Man*, N.Y.: Holt, Rinehart, Winston, 1959, 43.

13. Discussed in B. Silcock, "The New Clues that Challenge Darwin," *Sunday Times of London*, Aug. 3, 1981, 13.

14. V.A. Mckusick and Frank A. Ruddle, "The Status of the Gene Map of the Human Chromosomes," 196 *Science* (22 April 1977), 390-405.

15. *Op. cit,; The Major Features of Evolution*, N.Y.: Columbia U. Press, 1953.

16. *Ibid.*

17. *Ibid.*

18. *The Material Basis of Evolution*, New Haven: Yale U. Press, 1940, 3.

19. *Op. cit*., 99.

20. Lewin, *op. cit*., 883.

21. Luis W. Alvarez, W. Alvarez, Frank Asaro, Helen V. Michel, "Extraterrestrial Cause for the Cretaceous-Tertiary Extinction," 208 *Science* 4448 (6 June 1980), 1095-1108. 1107; Russell, *Episodes* 1979 No 4, 1979, 21. *Cf.* Otto H. Schindewolf, "Neocatastrophism?" (trans. V.Axel Firsoff), 2 *Catastrophist Geology* 2 (Dec. 1977), 9-21.

22. *Op. cit.*

23. Quoted in Robert Bass, "Did Worlds Collide?" 4 *Pensee* (Fall, 1974) 8.

24. David B. Ericson, 139 *Science* 3356, Feb.22, 1963.

25. L.G. Salop, "Glaciations, Biologic Crisis and Supernovae," 2 *Catastrophist Geology* 2 (December 1977) 22-41; *cf*, Martin, P.S. and H.E. Wright eds., *Pleistocene Extinctions*, 1968.

26. See A. De Grazia and E.R. Milton, *Solaria Binaria*, Princeton, N.J.: Metron Publ., 1983, for discussion.

27. I am using the kind of reasoning about genetic change over time employed by Simpson (1953), 109-10, on the horse.

He estimates 300 effective new steps were needed over 15m/y with a mutation rate of .000 001 and no systemic mutations, or macromutations, which, he says, are unknown. See also J.B.S. Haldane's approach, "Natural Selection," 101-49, in P.R. Bell, ed., *Darwin's Biological Work: Some Aspects Reconsidered*, Cambridge (Eng.) U. Press, 1959. See also Wallace and Dobzhansky, *op. cit.*

28. *London Times*, Lit. Supp. April 14, 1978. *Life Cloud* (N.Y.: Harper an Row, 1978).

29. R.E. Hope-Simpson, "Sunspots and Flu; A Correlation," 275 *Nature* (1978), 86. H. Hoaglund discusses "Some Biochemical Considerations of Time," in J.T. Fraser, ed., *The Voices of Time*, (N.Y.: Braziller, 1966), including oxygen consumption and slowing of time, and deep freezing an time slowdown of virus (325-9).

30. Ernest Jones, *The Life and Works of Sigmund Freud*, N.Y.: Basic Books, III, 312, 341.

31. "Influence du monde ambiant pour modifier les formes animales," *Mem. de l' Acad. des Sciences*, XII 91833) 63, quoted in H.F. Osborn, *From the Greeks to Darwin*, N.Y.: Scribner's, 1894, 199.

32. *The Biblical Flood and the Ice Epoch*, Seattle: Pacific Meridian, 1966.

33. S.H. Licht, ed., *Therapeutic Electricity and Ultraviolet Radiation*, E. Licht, New Haven, 1967.

34. Velikovsky describes this work of Mercanton and Folgheraiter in *Earth in Upheaval*, N.Y.: Doubleday, 1955, 146-7.

35. Dubrow, *op. cit*. 84.

36. Isaac Vail, *Selected Works*, Annular Publications, Santa Barbara, Calif., reprinted 1972.

37. In *Four Tragedies and Octavia*, E.F. Wartling, trans., Baltimore: Penguin, 1966, 81.

38. "Cultural Amnesia" in Earl R. Milton, ed. *Recollections of a Fallen Sky*, Princeton: Metron, 1978, 21-30, 26-7; *Mankind in Amnesia*, New York: Doubleday, 1982.

39. William Mullen, "Schizophrenia and the Fear of World Destruction," I *Kronos* (Spring, 1975), 70.

40. I *Kronos* (1975) 70.

Click here to view the next section of this book.