

# EVOLUTION AND HUMAN DEVELOPMENT

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Evolution is the great mystery story of our planet earth. It is our earth's origin mythology. How, why and where did life first begin, and why did the age of the great dinosaurs or of the great mammals suddenly come to an abrupt end. And we can push our speculations even much further back in geological earth time and cosmological time to hypothesize an original act of creation in terms of a universal Big Bang.

All traditional civilizations, major and minor, have had origin myths which explain the past and provide validation for the present and a sense of purpose in the future. Tenses of past, present and future are not clearly separable in the mythological mentality. Scientific ideology elevated to the status of a secular religion, has framed its own kind of origin mythology in terms of stories about human evolution and the rise of modern civilization, which confer upon our modern processes a kind of natural legitimacy and inevitability of natural process. It is in this sense that human evolution is to be understood in terms of the biological evolution of humankind and the stories which have been written describe the important events about this evolution. In this way the values of the present can be implicitly valorized in our collective representations of our remote pasts.

It is not without some significance that the closer we come to our own epoch on our convergent time lines the more the problems and paradoxes of historical counter evidence intrudes upon our common sensibilities and sensitivities about our past and the less firm is our mythological grasp of the ordering of events.

Our notions of temporal process, change and the dynamics of evolution have been closely coupled in our collective imaginations with ideologies of spiritual emanation, of progress toward utopia--or paradise in a perfect period and a perfect place and of rational fulfillment or 'enlightenment' which is supposed to collectively free ideological linkages to our mythological thinking about our

remote pasts have a culture historical precedence in the Christian doctrine of the Great Chain of Being which envisioned the natural order of things as frozen since the age of creation into a hierarchy in which man, penultimate only to God himself, stood proudly on top.

The power of our ideologies of progress as these have become evinced in our beliefs about science, technology, modernization and development of our civilization was in large part the result of attempting to reconcile our undeniable evidence and view of evolution with our own embedded beliefs about our own innate, natural superiority on the Great Chain of Being. Popular notions of natural selection, fitness and 'survival of the fittest' survive in scientism today to explain the human rise from barbarity and primitiveness to civilization and sophistication, of culture and civilization from simplicity to complexity and of the rise of modern mankind from inferiority and weakness at the hands of 'natural forces' to a superhuman position of superiority and mastery over the elements of nature through our science and technology.

In first proposing the biological theory of evolution, Charles Darwin created a modern revolution of earth shaking proportions, not only in the world of science but in the whole world. Not only has it lifted the plane of scientific generality to a new order of thinking about change and natural process on both local and grand scales, but it has challenged our world and our view of our world for the first time with the vision of our own nature, with our own relative fitness or lack of, and with the problem of our own collective survival on earth. It has challenged our own basic preconceptions about our own innate superiority on earth--our own 'anthropocentrism'--and its further development is leading to the challenge of our collective ideologies of our own inevitable progress and becoming 'better' on earth.

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Indeed, science has done much to excavate our deep sense of the past, to exorcise our creation mythologies and to explicate the relations and rules which have lead to the understanding of how we came to be on earth. In the structure of the human and the natural long run, science is slowly working to unearth and excoriate the

layers of our own understandings about ourselves and our world to uncover the ontological seed of our mind, of our culture history and of our biological beginning.

In the understanding of evolution, several different problems must be separated out as distinct, though interrelated, to one another. The first is the question of natural evolution itself, and of the logos of change and entropy which underlie this evolution. The second is the question of the biological evolution of humankind as a distinct and special species on earth, and of the general problem of defining precisely and generally what constitutes human nature as it survives in us until today. The third problem is that of the rise and development of human culture history and the process of human civilization. The fourth is the understanding of the problem of human development in the sense of the 'humanization' of humankind, and of the evolution of mind of which human development is a function.

The first two sets of problems, natural evolution and human biological evolution, are strictly speaking biological and scientific problems, while the second two problems, the rise of human civilization and the human development of mind are the proper domain of the study of culture history. But in the interrelation between these problem sets it is not always possible to sharply or clearly distinguish where and when one set of problems leaves off and the other begins.

In general, the problems of human evolution can be distinguished from the problems of the culture historical development of human civilization in the sense that mythology, scientific or otherwise, can be distinguished from history. Similarly the problem of the evolution of the human body (and brain) in a way that symbols can be distinguished from sensate signals, or that super organic patterning can be sorted out from organic functioning, or that the historical development of languages can be separated from the physiological production and innate capacity for speech.

But it is in seeing the interconnections and interrelation between the natural science of evolution and the study of human culture history, in the movement of understanding from biological beingness to phenomenological sentience, that we can speak of a

critical important convergence of knowledge between sciences and humanities--of an evolutionary science of culture historical development.

Though human culture historical process can be said to be developmental, it remains essentially non-evolutionary in a natural biological sense. The rise of modern human civilization has for the most part remained disconnected from the genetic evolution of humankind, though the former has always been conditioned by the latter, has always occurred within its frame, and though the latter has become irreversibly altered by the former. We must understand human culture historical development as what a single species has done pheno-typically and environmentally on earth to enhance its survivorship against natural forces. This process is not related to the larger framework of speciation and evolutionary branching which is ecologically inter-species and trans-specific. Furthermore, human development on earth has achieved its own historical momentum and movement such that it continues in its own way and at its own pace for the most part independent of any natural evolutionary constraints.

The developmental processes of human culture history are in a historical sense irreversible, linear and unwinding toward a final sense of completion. The natural processes of evolution are in a sense cyclical, curvilinear and continuously diverging in multiple directions--it does not necessarily unwinding toward a final sense of completion unless our understanding of its patterning is yet partial and incomplete. It merely continues on its day to day adaptations to altering rhythms of the earth's environment, exploring and perhaps, in the long run, exhausting all its possibilities. Human development has been a case of multiple variations upon a common theme, many possible profiles within a single culture historical horizon of mind--biological evolution has been limited variations upon multiple themes of development, a few profiles of possibility within many event horizons. On the other hand biological evolution has always been an infinitude of possible patterning within a single environmental horizon of the planet earth which is itself an phenomena of natural evolution, while human culture historical evolution has essentially remained

the thematic reiteration of a few general human profiles within multiple horizons of period and place.

What is being emphasized is the sense of complementariness between natural evolutionary process and human developmental processes. It is tempting to describe this complementariness as a function of the dialectic between nature and culture, evolution and development and in another sense, between natural sciences and the humanities. In understanding this complementariness based upon similarities and differences, it is important for a hypothetical 'natural science of the evolution of human culture historical development' to focus upon the points and periods in the remote past of humankind in which there was a close interconnection between human evolution and development and a simultaneous convergence and divergence of forces and relations which resulted in the emergence of human mind and the beginning of culture history and in the subsequent unfolding of its complementary but separate character.

It has become fashionable for sophisticated modern human scientists to translate recent and distant human history in terms of gene culture co-evolution with the explicit idea that one or the other tracks or leads the other in fairly close, systemic and ecological ways. Such an approach is held to promise a grand synthesis between ecological and evolutionary approaches, between universal and particular scales of understanding and between nature and culture. While the common sense of its application to relatively recent historical or pre-historical developments of human culture and civilization remain extremely problematic as so much bio-cultural determinism which extracts the problem of historical diffusion and the relative independence of different traits within given culture historical complexes, it remains nevertheless an intriguing point of entry in the hypothetical speculation of the remote and gradual emergence of human culture and civilization during the biological evolution of Homo, and of a long formative period of 'proto development' in which there perhaps were closer connections in gene culture co-evolution.

From a scientific standpoint, there must be some point in the natural evolution of humankind in which the innate capacity for

symbolization and culture eventually emerged, and which proto development conferred upon its possessors an adaptive edge and evolutionary advantage. This must have happened over some indeterminable period or frame of time which from an historical standpoint was quite extended but from a larger, global evolutionary framework was quite sudden and rapid.

The relations and processes of change at that particular point and period must have been to some optimal degree cybernetic and systemic and perhaps organic in a substantive sense. First and second order feedback relationship between human organism and natural environment and between human experience and organism must have occurred which lead to a step wise evolutionary growth and development of human consciousness and culture.

This period of acceleration on the runway was a necessary first step in the 'taking off' or 'first flight' of human civilization, which, once gaining its own momentum, overcame the evolutionary laws of gravity which kept all species in their environmental places, and led to eventually to the processes of civilization and development to supersede and overcome, albeit destructively, the natural processes of evolution.

In our recent development of global civilization, humankind has become like an 'unnatural' alien predator species which, when introduced and allowed to run wild in a new habitat, upsets and destroys the natural balances which evolved and eliminates all competitor and host species until it eventually eliminates itself or becomes the solitary island survivor.

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In understanding the interconnections between human evolution and development it is important as well to recognize the extent and ways in which our evolutionary knowledge, our environmental memories, our collective understandings and our ecological information is contained within, carried and expressed by our on-going fund of human experience and modes of experience. Our basic beingness contains the protoplasm of our own natures, the secrets of our own origins and biological beginnings, and the adaptive wisdom of our own kind. The way we experience our

modern world have been pre-conditioned and are rooted in the traces and fund of 'primitive understandings' rooted in our past. This primeval and coeval experience of humankind both individually and collectively and literarily and metaphorically expressed, represents the evolutionary fund of our human development. To call it instinctual or 'fixed action patterns' or 'deep structures' is to misplace its concreteness in the anthropomorphizing of the ethological understandings of other species. It is to zoomorphize humankind in a reductionistic sense. Better perhaps to refer to it as 'intuition' at the base of our most common sense, 'feeling' underlying both our universal sympathies and sentient empathies, and our rational sublimity and imagination and our paradoxical sense of individual uniqueness, self importance and pan humanness. It is to be found in our existential self awareness of our own eventual demise as reflected in the death of beings around us as well as in the innate needs and biological rhythms of our own bodies.

It is a danger that collective illusions of our modern scientism and developmental ideologies are teaching us to quickly unlearn and collectively forget the lessons of our own basic beingness, to become aware in both an organic and an apperceptive sense of the naturalness and wisdom of our own experience and to rapidly replace the long evolved and developing modes of human experience with a new, artificial kind of experience of non-being. This substitution has been a very recent phenomena of human history--though its own roots may go back several millennium--its blossoming today in terms of the overwhelming power and persuasiveness of mass oriented, materialistic electronic media is inducing an unprecedented phenomena of experiential numbing and pan-human forgetting that is frightening in its proportions and devastating in its consequences for basic human environmental adaptation and continued natural evolution.

In a very real and basic sense our future adaptability and survival depends upon our getting back in tune experientially with the nature of our environments and with our own human natures. It is vital that we relearn how to experience wholly again ourselves in our world without the vicariousness and alienation which has become embedded in our modern collective existence. This re-

attunement is not a matter of secondary elaboration of planning to be spontaneous and unplanned, of intending to experience fully and undividedly. It is a matter of unlearning the kinds of 'unlearning'--the embedded constraints which we've acquired through our adaptation to civilized environments.

In this, perhaps the mythological portrayal of primitive man as a weapon wielding, violent and war mongering animal that regularly slaughters his neighbors. This seems to have been more of a self fulfilling prophecy of the projection of our own acquired violence than anything that has necessarily been demonstrated by the Paleolithic or archaeological record. It is in the exaggeration of our own aggressive impulses and overemphasis of our capacities for violence in the world that we find most of our own alienation from our own natures and from the natural world around us. It is in the many ways which violence has become embedded in both our modern civilized way of life and on our own ways of experiencing the world that we find our greatest alienation and loss of our own attunement with the natural world.

Our symbolic experience is our greatest sense making, ordering way of relating to the world. It is vital that we learn to see and understand the ways of our natural experience, and the ways that this natural experience can become corrupted and perverted. We need to know, both normatively and experientially, the way that adaptation becomes encoded into our experiences of our environments, individually and collectively, and the ways that our experience is based upon incorporated by and embedded within evolutionary survival skills which are rooted in very origins of our human identity in the world.

How does mind become embodied by and expressed within experience. How does our experience learn the environment. How does a endothermic lizard know to move from a cool shady spot to a warm sunny rock in the cool morning, or a snake distinguish between a threatening aggressor and a harmless by-passer. How did mind evolve in ecological adaptation and experience of natural environments.

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The greatest problem encountered in the conceptualization of evolution is trying to see the entire process as something other than a big branching tree with a single trunk from which all subsequent lines eventually diverged. The tree fits our taxonomic understandings of the dynamics of time because it is the shadow of our own nomothetic consciousness which tends to classify things, such as the *Scalae Naturae*, into a hierarchy from the particular to the most general. The danger with this kind of conceptualization about evolution is that it tends to misconstrue the directionality and patterning of the entire process of evolution as essentially a single interconnected stream of life, rather than as multiple streams of different kinds of living beings each with its own set of origins in an obscure beginning and all intertwined and interwoven in the web of life with other living things. The tree model of evolution obscures our seeing that evolution has always been more of a wild forest of living things rather than a single tree of life.

It is also difficult to see that in the structural long run of evolution speciation, branching and divergence has been a rather continuous, rather than a discontinuous process. It is only in hindsight and in rather fragile and thin Paleontological records, that we tend to look at single lines of stable, unchanging species. At any one point in the entire process any species was probably characterized by divergence and differentiation--in a state of fission and splitting within which a relatively 'complete' line from beginning to end could be found. It is only in the hindsight of the survivorship of certain lines over others that the record must appear more homogeneous and static than it really was. It is also because the record is composed almost entirely of sporadic 'cross sections' taken at particular instances of time--like frozen images of snapshots--that the full degree of variation and interrelation remains relatively hidden and misleading.

It is in this regard that it also seems difficult to reconcile the notion that evolution has essentially been blind to the environments of its evolution--that the mutational mechanism has been largely a 'dead brain' that responds dumbly but statistically to selective forces. It is

difficult to believe that blind chance alone can account for the tremendous diversity, complexity and symmetry that is replete in the biosphere at all levels. And yet the principle of its blindness and dumbness remains a basic tenant of the law of natural selection. Lysenkoian arguments of the phenotypic influence and genetic transmission of acquired characteristics have all but fallen into complete abandon and disfavor.

But it is to be wondered whether evolving species do not typically and regularly 'explore' their environments and in an evolutionary sense are able to see and experience environments as alternative possibilities which guide their adaptive responses in a genetic way. Can the evolution of all the diversity of life be accounted for merely upon the chance but statistically regular occurrence of a certain rate of mutation--that in any given population at any given period enough 'adaptive' mutations are available to afford the survival of the species. It seems that life in general must possess some mysterious, yet poorly understood by science, means for experiencing and exploring its different environments, for responding to fluctuations in these environments in adaptive, organic ways and for somehow reprogramming these adaptations into its genetic matrix. But if it cannot be by the Lysenkoist acquisition of traits, then what are the other possible mechanism which would explain such a phenomena.

Fitness and selection is not an individual function, though these process work at this level of the adaptation or elimination of the individual, but is a group or species wide phenomena. At any given time the total fitness and selective forces are represented by the whole grouping and within such grouping there is always a range of variation of 'genotypic/phenotypic' profiles that are expressed. The range of variation represents the net or average adaptation of the entire group. At any given time a certain maximum number of individuals of the group can always be removed from the process of reproduction without affecting the net fitness of the whole group--such systematic exclusion of maladapted profiles and inclusion of only the most adaptable ones can drive a species up a slope to an adaptive peak--the process of natural selection is at work, but it depends not only upon geno-typical mutation to drive the process of continuous variation, but upon the range of adaptive

variation of phenotypic/genotypic profiles. Given such a scenario a minimal number of the species must survive and reproduce in at least replacement to prevent the entire species from dying out. If the number of reproducing members falls much below this minimal threshold, the entire adaptive-reproductive capacity of the species is threatened. Within this minimal group of survivors, there is a species wide totipotency of phenotypic/genotypic variability expressible through their offspring. The surviving offspring will always reproduce 100% of the total variability of the entire population. Furthermore, over the long term, an enduring species will reproduce almost an endless, infinite amount of 'phenotypic/genotypic' variability within a given genotypic matrix of a species.

This process alone is not enough to account for the actual environmental variation and of relative selective pressures and limiting factors and the rates of speciation itself fluctuated quite regularly and interdependently with one another, such that at certain times for a given population forces of selection may be strong but population pressure or environmental circumscription may be quite lax, while at other times the rate of speciation may occur quite rapidly while the selective forces driving such differentiation may have been quite weak.

It is also quite evident in the fossil record that though natural selection and speciation may have been for the most part continuous, there is an overlay of another pattern in which speciation episodes occur more sporadically and discontinuously between long periods of relative stasis and specie stability. This saltational, model of punctuated equilibrium reveals a long period of robust adaptation of a specie which is generally adapted to its environment, during which pressures of natural selection were present but were slow and weak, and with only slight modification of the genetic matrix of the species. There then occurs a sudden speciation in which the genetic matrix seems to rapidly reorganize itself to produce in a relative brief span of time a new species with a different 'phenotypic/genotypic' horizon. It may be that during these brief episodic periods of reorganization of the genetic matrix, some other kinds of mechanisms may have been involved other than the normal process of natural selection.

One such schedule that has been proposed is that given a certain set of functional genetic interrelationships of the genome which control and account for the total possible patterning of the range of 'phenotypic/genotypic' profiles, that these genetic matrices regularly 'cycle' through the possible patternings at a fairly rapid speciation events, nor does it account enough for the way that species may 'experience' evolution through an exploration of their environments. Not enough account has been taken of the selective effects of the phenotypic patterns of adaptive behavior which individual's adopt or acquire during the course of their lifetimes and it is also difficult to see how mutation alone can account for the genetic transmission of instinctual 'fixed action patterns' which are perfectly adaptive for certain kinds of environments.

One possibility is that for species with bigger and more complex brains, that phenotypic/genotypic patterns of brain function may be acquired and subsequently transmitted to a certain proportion of offspring--a predisposition to respond reflexively to certain given stimuli in certain kind of contexts. These patterns may not be so much genetically coded as is the ontogeny of their subsequent development becomes a likely pattern of a certain genotypic matrix.

Elimination or negative selection does not necessarily have to drive the process of speciation. It is not that a minimal group must survive, but it must reproduce--a minimal threshold of reproductive activity must be maintained by any given grouping to ensure the corporate survival of that group's genetic matrix and totipotency. It seems that in most instances actual elimination of individuals from groups was not driving the process, so much as relative removal of certain proportions of phenotypic/genotypic profiles from reproductive activity--through inconvenience, agonistic competition or patterns of social structure that privileged access to a select few and prevented it to most of the others.

It seems as well that the relative ranges of phenotypic/genotypic variation, of adaptive variability and determinable rate and that certain minimal genetic fluctuations or mistakes or mutations might eventually cause a catastrophic self organization of the genetic matrix which results in rapidly changes in ontogenetic

development and in the final expression of phenotypic/genotypic profiles. This process of genotypic self organization is held to account for the process of ontogenetic development of the organism and the functional differentiation of its cell structure during its development. Such self organizing patterns can fall into relative fixed and stable matrices, that given a general adaptation in a range of environments, entails a rather long duration of little genetic differentiation and minimal selection. Sudden changes in the environment, over specialization or just the 'winding out' of the horizon of the genetic matrix would then precipitate a relative sudden alteration of the structure of the organism--rapid speciation would then occur.

It is also apparent that for many species of animals individuals are born into a 'group culture' of some rudimentary sort which provides the ritual patternings for reproduction and organismic functioning and survival. Individuals inherit not only genotypic traits from their parents but also inherit phenotypic behavioral patterns and 'values' of experience from their groups. It is not known how much of such group culture is instinctual and fixed and how much of it may be in some way linguistic, learned and transmitted through imitation or sanctioning.

Culture in this rudimentary sense is itself an adaptive mechanism of natural selection which is not confined to the human species. It is through the transmission and enculturation of such corporate group culture that individuals with different phenotypic/genotypic profiles survive and become selected for reproduction.

And corporate group culture does not have to necessarily be taught or become learned by organisms which are members of it. In a sense they are born into it and from the beginning are programmed in their very experience and perception of their environment by it. It is the only way provided for their sensibilities for interacting with other members of their group and for group responses to their environment. It is in a sense indirectly constrained and ingrained by the very experiential structure of their group life.

In this we can distinguish between the mechanical solidarity of more primitive kinds of societies and the more developed, intra-specific organic solidarity of more highly organized societies,

which exhibit exclusive functional specialization by members of the group.

While it is fitting to apply the notion of corporate group culture to many animal species which exhibit environmental awareness and motility if not individual mobility, it is much more difficult to apply the same criteria to plant life which remain rooted to the spots in which they germinate and which do not respond actively or sensitively to their environments. In the plant kingdom, the regular processes of mutation and natural selection and the preconception of a statistical, blind evolution based on chance survival, is more fitting. But if this were the entire picture of evolution, then all animals, humans included, would necessarily be plant like as well.

In this sense we may refer to a passive, plant like evolution which is blindly 'acted upon' by selective forces, and to a more active, animal like evolution which is experientially 'reacting to' selective pressures. In this sense we may refer to qualitatively different kinds and orders of evolutionary process--that the forces of evolution are not everywhere balanced and homogeneously the same.

It is even possible to speculate about species specific horizons of adaptive fitness and of perhaps even species specific forms of evolutionary process.

Other mechanism of evolution are perhaps operant in different kind of phenomena. The notion of a species over specializing in certain eco-niches or along the lines of certain phenotypic/genotypic profiles until the point they become functionally maladaptation or the environment suddenly alters the adaptation in their eco-niche, leading to their rapid extermination. In this case, evolution follows a pathway to a dead-end in evolutionary development. We can see that evolution is always following multiple pathways, and seeks out the lines of least resistance for elaboration. It is also possible that some certain traits, like size, bone structure or shape or their relative proportions are relatively more plastic and alterable in terms of their phenotypic/genotypic profiles than are other kinds of traits. The canines of the saber-tooth tiger and the huge racks of the Irish elk

are clear examples of specialized over-development of certain traits which become clearly an evolutionary dead-end.

It is also possible that the possible patterns or kinds of pathways that evolutionary development can take, or the kinds of associated trait complexes are relatively few in number such that different kinds of species might follow a parallel evolutionary path along the same lines of development. In this evolutionary development must concede to certain kinds of mechanical or physical constraints. Whether a bat, a bird or a pterodactyl, flight requires a similar kind of wing structures. Giant dinosaurs cannot lift proportionately the same weight as ants, but they must have had to consume a great deal to maintain their own bio-mass and so were a strain upon their environments in a way that all the ants in the world could never be.

It is also possible that adaptive fitness in given environments becomes encoded organically into the sensate structure of an organisms experience or capacity for sensing its environment. In this way, snakes with poor eye sight, have developed heat seeking membranes and though deaf, are finely tuned to the vibrations of the earth. Many similar examples exist in nature. Even how a species comes to experience its environment in any given modality may be preconditioned by evolutionary developments.

There is also a kind of optimal balance or ceiling in the horizon of adaptation of any species, given its total genetic matrix there can be only so much that can be done, so many possible designs and an limit to its capacity and possibilities for developmental patterning. To add here is necessarily to take away from something else--to pursue one line of evolutionary development entails diminishing degrees of freedom to pursue other possible lines of development.

It is possible that while some kinds of evolutionary changes are generalizing in nature, others are specializing--general trait complexes may confer an overall robustness, but lack any special advantages. Specialization in one or a few fields of adaptation, though at cost to other possible pathways of development, confers at least short term or myopic advantage. There might also be a tendency for certain kinds of traits or trait complexes, once begun, to evolve to extremes which are no longer adaptive and are irreversible.

In a sense, species may be defined spatially and synchronically in relation to other species, temporal dimension, a species is open ended in its development and unbounded. In a temporal sense, boundaries between where one species leaves off and its offspring species takes over are never clear nor precise. It could be that the phenotypic/genotypic profiles of a species become gradually submerged beneath or amalgamated with those of a replacement set of profiles until the former species is no longer recognizable as such.

Seen in a deep temporal dimension, speciation resembles more of a gradual substitution or replacement of one species by a closely related but separate species, or sub-species, such that in time or across vast distances of separation, there is relative discontinuity between species. Such patterns are too slow, gradual and general to be recognizable on an everyday or local level except in terms of relative absence or scarcity of some species, or of a gradual day to day dying off of individuals in relative specie isolation

In the deep sense there are a few sharp and solid boundaries where one species ends and another begins--rather multiple populations are in continuous flux and transition, with individuals pursuing many different directions of development.

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It is worthwhile to take one more step back and to try to see the bigger picture of evolution. Are there possible structures of the long run' in evolutionary development of which we are scarcely aware? Where is evolution of the long term headed, if it can be said to be headed anywhere?

In this regard it is necessary to understand the evolution of the natural earth and the interconnections of the environments of the earth and the evolution of life on earth. Ice ages, warm cycles, volcanism, periods of atmospheric change, all of these have resulted in dramatic transitions of many life forms and life begins on earth.

In this regard, it is worth wondering where evolution essential stops for some kinds of species, and where it is focal for other

kinds. Do certain levels of biotic climax made possible or probable the development of one direction of evolution--say the rise of giant animals, and a shift to another kind of bio-mass spell the demise of another. In this sense might not evolution and its directionality and selective mechanisms be attuned to larger contexts and global processes, to whole webs of life rather than to particular speciation events. Might not evolution like ecology upon which it is based, be in actually a global phenomena which is mostly interdependent such that many kinds of species evolve together or in interrelation and if removed from these webs and contexts, fail to evolve at all.

This brings to notion of the simultaneously of all life on earth and of the on-going total synchronicity of the evolution of life on earth. All of life has always been evolving as a whole web together, and that individual lines of species development are but single threads of its total weave.

Perhaps the evolution of life on earth has its own clock that is slowly winding out. Perhaps the movement from the age of fish to the age of amphibians to the age of reptiles to the age of mammal to the age of man, in which each age is represented by the greatest amount of living tissue, surrounded by different contexts of plant life and bacterial and insect species which follow their own evolutionary pathways, has a sense of order and direction or design, such that as each age exhausts the horizons of its predominant patterns of possibility, it shifts to a new successive sequence in which a new age predominates/

There is a sense that whatever is at the bottom of the food chain within the horizon of an age, are the first to die out--being squeezed from both above and below. When it starts to give way from beneath, the links in the chain all break in their turn until it reaches to top of the apex, where the meat eating king bereft of any large package prey, begin feeding on one another and their own carrion.

In this sense we might refer to the rise and climax and decline of ages of evolutionary civilization--as one form of evolution becomes replaced by another predominant form.

It is a horrible dream of a 1950's science fiction thriller when giant insects grow out of the irradiated rubble of the earth to inhabit and colonize the earth, and men are but little rodent like monkeys that hide in the shadows from the light of the day.

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Looking back onto a younger, fresher world, it is to be wondered whether there has not been all along a general evolutionary trend from dumb insensate life forms to intelligent sentient life forms. Surely the warm blooded, big brained mammals had something over their cold blooded small brained predecessors and surely humankind must stand at the apex of evolutionary development to look back and down the long evolutionary slope. But perhaps general sentience has been only a rare but not unusual exception to the rule--a relatively infrequent oddity of natural development. Maybe our oversized brains are but extremely overspecialized dead-ends of evolution. If sentience as representing the evolutionary working out of its possibilities is a general and in a sense eventual outcome of evolutionary development, then perhaps evolution has been evolving towards a reflexive state of 'self-control'--from dumb blindness of plants to self reflexive adaptations of human beings. And this is not an 'intention structure' of evolutionary directionality but just programmed into its patterning as an eventual outcome of possibility. Evolution began then as a tiny hole through which light diffracted and then became a window upon a bigger world, and eventually metamorphosed into a door through which evolution could step into another world.

We are left to reconsider the role of experience in evolution and how experience embodies and becomes embodied in evolution. Is it possible that fragments of mind become genetically transmitted through the generations such that archetypes, memories or sentience of our distant ancestors, or even of different beings, survive in our collective unconscious as a general fund of living human experience--an might many of us share in the same or similar sets of remote experiences, such that we may suddenly have the same thought or feelings, though far removed from one another, or we may dream of distant states of being, or we may have instant reflexive recognition of something or someone even

though we had never seen or experienced it before. How shall we account for idiot savants or child prodigies who harbor a treasure of knowledge without the previous lived experience. Where shall we draw the line between natural and 'supernatural' evolution and where shall science leave off and magic take over.

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It is possible that at any given time and place the environment provides only so many given slots or possible niches which is then the role of natural evolution to fill in in the best way it can. These slots are a consequence of the larger ecological context of adaptation. Evolution itself creates the possibilities of these slots which it then fills in by further evolution. In this way as well evolution can be seen to be a self organizing system which achieves its own directionality and momentum.

There is a sense though the evolutionary process may be cyclical and repeatable, it is nevertheless an irreversible historical process. The end products of a long sequence of developments are not the same as the in-puts, but like the difference between the rough uncarved stone and the whittled down statue, the former represents the long term consequence of a direction of evolutionary development while the latter represents the potential, yet unrealized seed of such development.

Understanding evolution then presents us with the same kinds of paradox of change which culture history presents us. We can establish few if any truly non-arbitrary base lines from which to measure change in a discontinuous way. We cannot say for certain at what point a given line of development actually emerged, began or diverged from another line of development. We can only recognize change from the relative point of recognizable stability, and vice versa. Similarly we cannot know for certain which lines of the evolutionary past were actual dead- ends or which were but precursors to later, and still continuing development. We still cannot tell if Neanderthals was a direct forbearer of modern man or but a short off shoot from the lines of hominid development. And if there were either, how many other types may yet be hidden in the ground or forever lost in our past.

It may be that evolution has long had an effect of accordion equilibrium in which phases of species expansion, or of overall evolutionary expansion, followed phases of contraction, and that during the respective phase, certain predominant selective forces were at work. It is likely that expansion leads to a limitation--a maximum carrying capacity of the environment beyond which predictable 'super critical' events set in to disturb and damage and eventual induce a reversed contraction phase. The contraction phase may proceed as a 'negative feedback loop' until some minimal threshold is reached--at which point the expansion phase kicks in again. The kinds of evolutionary developments accompanying either phase may be quite different and there may be more rapid 'speciation' at one extreme or at an optimal level in the entire process.

It follows from this that in the structure of the long run, evolution might exhibit an overall optimal equilibrium of development of which expansion/contractions are but oscillations about an optimum level. This optimum level could be very 'robust' and stable state of the ecological self organization which remains steady inspite of the expansion or contraction of individual groups or species within its continuum.

Adaptive plateaus may be reached within this optimal range of evolution by different species which are able to maintain a static state of slowed evolution for long periods with only an optimal investment in the maintenance of the 'system'.

If expansion/contraction and accordion equilibrium are evident, then it must be asked what the 'cohesive' forces are which serve to hold the whole ecological--evolutionary system together over the long term, that normally resists extremes of either contraction or expansion.

What comes up, in terms of investment of stored energy, must eventually come back down in response to the laws of entropy. This principle guarantees that all species to maintain themselves at whatever level of 'energy investment' must store or carry 'potential energy' which must eventually be re-released back into the environment. It is also guarantees that all species must eventually become extinct, and that the process of dying off is always much

more rapid and sudden than is the slow and gradual process of evolutionary development.

In this sense, the whole process of evolution and ecological system can be seen to be a grand energy system in which potential energies are channeled, carried, stored and continuously re-released back into the system. At any given point in time this energy system has an overall limit or capacity--how it uses or becomes expressed in evolution varies. Species represent competition for energy and evolutionary explorations for new sources of energy to augment the entire system.

Looked at in terms of a global energy eco-system which maintains a dynamic equilibrium through time, the evolution of life can put its energy resources to more efficient use through the fullerian 'anti-entropic' principle of information--the development of the experience of evolution towards more sentient forms, capable of processing and managing greater information, enables a more efficient use of available energy in environments.

Evolution can be construed as a total system of life and living which has as its principle aim the maintenance of an optimum level of ecological functioning through time. As a grand system the individual components can be seen to fit and fill important evolutionary roles in certain 'slots' in the eco-system. As a grand system it is self organizing at the edge of chaos. In this sense indirectly different species depend upon the existence and functioning of one another in a mutual symbiosis in order to maintain the functioning of the whole system. The loss of vital components in this system can spell extensive damage and dysfunction for many other interrelated components of the system.

In this role, competition occurs only in relation to filling the 'same' slots--this is not the basis of evolution so much as local adaptation. The total system depends upon the proper function at optimal levels of each of its organically specialized 'slots'. When one species, or individuals of a group, 'over adapt' or begin by their own success to interfere with the functioning of the total system, selective forces will tend to work against them to either bring them back into homeostatic equilibrium, to readjust the system to fit

them into new niches, or to effectively eliminate them from the evolutionary process.

In this way, 'group fitness of a whole species that outstrips its evolutionary boundaries not only interferes with the survival of other species and the functioning of the whole system, but also becomes maladaptive for the individuals of the group as well. The adaptiveness of the group as a corporate phenomena tends to override survival interests of the individual members of the group, which eventually become selected out of the environment.

The 'ecologistic fallacy' implicates in this picture of global evolution of life as being 'determined' by a hidden hand which directs the entire process and which maintains a balance by silent selection. In actuality the entire system is robust only in a self organizing ??????????????

(THIS SENTENCE ENDS ON PAGE 474! WHAT IS NEXT????)

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Speciation can be seen as the epigenetic expression of the selective forces of evolution--as the epi-phenomenal patterning of the principles of its unfolding. In this sense a species can be regarded as a kind of cybernetic system of reproduction which is intrinsically interconnected with a wider ecology of environment.

Genetics is the total fund of information of life informing its diversity and its toti-potentiality for evolutionary patterning and possibility. A species is a very limited portion of this total genetic fund of life--a partial and limited set of potential possibilities of its patterns. Evolution and life predetermines, species are 'organistically' specialized expressions of evolution, they are also part of the functioning of the larger body of life and evolution and thus are reflective and representative of its developmental possibilities. Species 'evolve' into other species as a result of this expression of the potentiality of life.

In this regard we can see that there are multiple levels of selection operating in within a broad evolutionary context--sub-species, species and super species selection. All of these must impact upon the individual organism as a basic carrier of genetic information but all impact in fundamentally different ways.

Sub-species selection are the intriguing patternings which affect the reproductive expression of the individual or which effectively eliminate the individuals reproductive contribution to the whole group. Species selection are those forces which impact more or less uniformly upon the entire group in the same way--and frequently arise from inter-species competition for resources--these forces frequently and effectively, if somewhat randomly, determine every individual's chances for reproductive success. Super species selection are wide ranging forces which may impact upon many different species, though dissimilarly. These are wider events of environmental fluctuation and circumscription. These forces work unevenly but overwhelmingly to influence the reproductive success of numerous different but ecologically interrelated and interdependent species.

It must be seen that selection is systemic at all of these analytical levels and that the ecological webs of interdependency which influence and impact upon the individual and the group are in an evolutionary sense 'self organizing' and to know some random extent 'self determining'. Speciation and inter-species networks create ecological environments and possibilities for evolutionary developments which reverberates at all three levels upon many other species.

(THE FOLLOWING SENTENCE BEGINS ON PAGE 477 BUT THERE IS NO BEGINNING TO THE SENTENCE). Sense of relational functionality of its individual components--it moves forward in the patterning of its relationships as a 'exploration' of its own environment which is continuous. All of its individual elements are in a state of semi-random flux, and the entire system maintains homeostatic equilibrium only in a gross statistical sense of the stability of the whole in relation to its many parts. As the system grows in size and organizational complexity it becomes more integrated such that minor fluctuations of a few of its

components can result in major reverberations among many other elements. It approaches a state of super criticality. The efficiency of the system depends upon its ability to quickly readjust itself to the semi-random fluctuations of its components such that the entire system remains structurally stable over time.

It is an energy capturing and processing system because it maintains optimal order in the face of entropy and chaos. It must continue ways to efficiently capture and utilize energy from the environment in order to maintain its own 'sense of equilibrium'. Individual components which become overly consumptive of its net energy resources disturb its equilibrium and force the system to reestablish equilibrium at a new level of energy.

Selection may favor the short term success of increasing energy consumption of its individual components, it will tend to work against the long term survival of its over consuming species, as a species too costly to maintain. There is an important human lesson to be learned from this relational role of natural evolution.

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It is likely that nature for the most part, maintains fairly wide margins of adaptiveness between its different species--there is enough flexibility of the relations of the system and enough degrees of latitude to afford quite a bit of 'damaging' changes to its components before systemic adaptation can be achieved. This accounts perhaps for the overall robustness and stability of the entire system. The breadth of these wide margins are built into the entire system, from bottom to top, from the cellular and molecular level to the widest system of organismic functioning. The system usually maintains fairly high thresholds and pretty wide tolerance limits before its thermostatic mechanisms are 'kicked on'. Though many local variations and disturbances to create 'critical mass' that would disturb the entire system. Species may come and go as they see fit, but life as a whole continues on its own way.

On the other hand, it is also possible that the system is much more sensitive to minor perturbations and fluctuations of its elements than we would give it credit for, and it has perhaps evolved in a complicated sense to a greater responsive level of environmental sensitivity. To maintain hypersensitivity enhances the stability and survival of the entire system as well, in a much more efficient and cost effective manner than if its tolerance limits were exhausted. Mechanisms of selection and 'counter selection' must kick in fairly immediately in response to local alterations of its patterns of interaction. In this way, there is survival value in evolution 'experiencing' its environments.

Combining wide tolerance limits with hypersensitive levels of 'stimulus response' renders the whole evolutionary system of life quite stable and dependable. This maintains a steady, optimal rate of change and assures the maximum adaptive value of such changes. This also maximizes the 'adaptive resourcefulness' of the entire system to assure that it can explore all of its possible 'options' in an efficient and timely way. In this way we can easily account for the total fund of genetic diversity of life on earth and for the degree of its symmetry and delicacy of development--given the evolutionary, biological time frames that are involved.

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Species are 'allowed' certain directions or adaptive freedoms by the evolutionary system or are restricted by evolutionary pressures from such development. The evolution of a single species never occurs in isolation or alone but is always contexted in a broader environment of ecological relations. Evolution is always constrained by and contingent upon these broader ecological relationships. The pathways of evolutionary development of any given species at any point in time and place are always limited and generally directed by life.

Looking at the evolution of life on earth as a single well integrated 'system' of transformational patterning of which individual species

are but components, leads to speculation about the basic understanding of what biological 'life' is and what distinguishes it from inanimate objects. Living organisms cannot exist long apart from the biosphere in which it forms and participates. Living organisms are characterized by their system maintaining functions and by their procreation of these functions in their offspring. These systems maintain a sense of organismic order and integrity against the natural tendencies for chaos and entropy. In order to do so they are 'energy capturing' systems and 'informational systems' which utilizes energy in an efficient manner. In terms of the genetic transmission of the germ plasma of life--the essential 'information' of ontological and evolutionary development is transmitted from generation to generation and preserved. In the process of transmission this information becomes altered and transformed in ways which either enhance or endanger the survival of the species. But it has not just been a matter of system maintenance, but there has been an 'anti-entropic' phenomena of growth, increase in diversity and complexity of life forms which cannot be adequately accounted for merely on the basis of relatively blind genetic mutation. The evolution of life has involved its expansion, its exploration of the earth's environment and its increasingly efficient mechanisms of utilization of energy.

Life as an evolutionary systems has had a 'sense of purpose' that has been more than merely blind chance--this 'sense of purpose' is perhaps best described as 'sense' itself, as life evolved in an effort to make sense of itself and its environment. It is this 'senseness' about life which makes its evolution fundamentally different from the growing of crystals from a super saturated solution in a jar. Neither is it enough to describe this kind of 'senseness' as something super organic and merely 'synergistic' though these are definite qualities of its expression. This 'senseness' has involved a continuous 'reading' or 'monitoring' of its environments and an active recreation of itself and modification of its environments in order to improve or build upon its own 'senseness'.

In this we can speak of the evolutionary development of the 'senseness' or environmental self awareness of natural mind as being the basis of living qualities that human beings share in common with all other life forms. Mind was a natural outcome of

the culmination of evolutionary experience--of long ages of evolutionary knowledge and wisdom that has become embodied within and expressed by our own sense of experience.

We can refer this alternative conception of the evolution of life on earth as a single 'oikological' system to be related ecological notion of Gaia--of the earth as a single living entity. Life, in its many forms has embodied an evolutionary wisdom and intelligence which allows it to respond as a single well integrated system to things which threaten to harm it or prevent it from achieving its sense of purpose.

It makes sense to refer to a certain kind of plasticity of mind as well as morphological plasticity which is characteristic of life and of evolutionary experience--which enables it to become shaped into an infinite diversity of forms and yet still retain its overall integrity of being and sense of purpose. It is this mental and morphological plasticity which has enabled life to continue growing and adapting and evolving on earth inspite of the many changes it has experienced.

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Many stories about human evolution have been told, some with more grains of truth in them than others and yet all presented partial and biased pictures of the whole story which exaggerate certain aspects and de-emphasize others.

While all of these are more or less 'just so' stories, none nor all combined are complete or even very accurate in an historical sense. What is sought here is not a more inclusive or 'balanced' story nor is it another attempt to rationalize what actually did happen. There is no way of discovering through our own educated sensibilities what was going on in an age so distant and different from our own--as it is we have few common reference points of understanding or experience to give us much intellectual empathy with the lives of our first forebearers.

What is sought here is a different kind of story, one that hasn't been told before not because of its purported historical accuracy or in its great vision of rationality but merely for the sake of the difference and interest it takes, and the uncommon sense it makes.

Several metaphysical and interpretive dilemmas arise in the consideration of human evolution. The first is what has been called the two camps of the 'lumpers' and the 'splitters'. The second kind of dilemma entail the search for 'anthropogenesis'--the first causes or primal factors which inaugurated evolution. The third is the 'gradual take off on a long runway' versus the sudden launch--the gradual evolutionary emergence of human culture or the instantaneous 'bio-cultural' miracle. A fourth dilemma is what might be referred to as the unsolved case of the missing link (or links) and the appearance of definite boundaries or horizons in the fossil record. Fifth and there is a dilemma of having to infer a possible presence from a definite absence--in the absence of solid evidence, we must fill in our understanding with 'just so' stories which no matter how rational or scientific 'sense sounding' they remain never the less mythological and common sense making. A closely related dilemma to this one is the problem of inferring a probable absence from a definite presence--even the solid evidence we have reveal very little and creates so many gaps and questions in our understanding as it fills in. we cannot really know what certain kinds of 'tools' were really used for, or why they were manufactured in the first place--we can conjecture, guess estimate, date and correlate--but we cannot without much doubt fill in the missing pieces of the mosaic jigsaw puzzle when only a few scattered pieces remain and especially when the time frame are a great deal greater than our own--so much so that we are barely capable of comprehending their significance. Related to this is the problem of the immediate presence of many overlapping time frames and spots with very little direct evidence revealing exactly how this frames were interrelated, what the sequences of change may have been or what was the actual historical branching process that did occur. Finally there is the dilemma of what I call 'data boundness' and 'fixed frame' mentality and view of the world which has certain common sense seeming implications for how we view our first ancestors as either very like ourselves or opposite from ourselves.

It is this last kind of dilemma which seems especially problematic because of the kind of implicit, stereotypical image it presents of ancient proto-cultures and because of both its fear to stray too far from a rigid interpretation of the facts at hand, or else an obsession to take conjectural flights of fantasy which sound sensible but actually make little sense in relation to the available data. The kind of tacit preconception of early Homo that this dilemma promotes is that of separate, self isolating culture gardens and of early Homo bound by fears, superstitions, ignorance, traditions and the weight of customs. From this standpoint we refer to separate categories of cultural and physical man and promote a sense of boundary consciousness which is more a residue of our own bounded consciousness than anything necessarily real in the past. Homo domesticus was always home bound, hearth bound, cave dwelling. She/he may have had annual per-regrinations or certain regions of hunting--but she/he was always instinctively defensive and territorial and fiercely possessive and jealous of what little she/he had.

Related to this is a 'data boundness' or 'data blindness' which disallows the researcher from thinking between the things at hand, or from straying very far in interpretation from the detail that the data actually represents. This predisposes the researcher to see the past in purely objective and materialistic terms--culture is not symbolic process, but culture is the set of artifacts at hand. Science deals strictly with data sets and the techniques devised for their analysis.

The common consequence of this data boundness and fixed frame mentality is that when and if the knower does stray afield into the unknown, they usually do a rather poor job of it--not being used to thinking in more abstract terms about relations existing between the things.

Breaking with bounded data sets and freeing the mind from fixed frames a more open attitude can be cultivated which does not seek the black and white but look to the gray areas in between, and which can see multiple possibilities for the patterning of our proto-people unconstrained by our own implicit limitations which we unconsciously superimpose upon the data.

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The first preconception to be dispelled is that our earliest precursors were necessarily sedentary or even semi-sedentary or at the worst trans-human. An extension of this is that there has been time immemorial nice and tidy little 'culture areas' which are characterized by a consistent trait complex and monolithic language and world view. It is for myself a much more interesting picture to see humankind as always being more mobile and migratory than not--that our proto people probably got around a lot more and ventured further afield and 'mixed things' up to a much greater extent than we usually give them credit for. In fact, Homo migratis is a much more likely and fitting image--mobility has long been the rule of human existence and sedentarism the recent exception.

Seen from the standpoint of a great deal of movement the net consequence may have been a very different sense of 'culture' and of identity than what are presupposed in our conjectures--cultures, of there were such things, were rarely fixed by given geographical areas or boundaries, and never situated within a single set of environmental constraints--culture was what individuals and their group carried around with them--their sacred possessions, charm pouches, tool kits, carrying bags as well as secrets, stories and memories. Cultures were then not so much configurational wholes as they were composite conglomerations. Identity was situationally and individually relative, and likely changed with the changing scenery and landscapes.

Culture then may have been more reflective of the natural environment than of any civilized settlement--culture was exterior and extensive and existed in human relation with the environment. The locus of culture was extensive rather than intensive--'wild' rather than 'domestic'.

Proto people regularly traveled in culture and traded culture with one another, and their sense of tradition did not fix their frames of

reference/inference in relation to their wider world. Cultures were composed on the spot, and then decomposed when inconvenient--groupings were not so much corporate as convenient and individuals regularly shifted loyalties and identities between groupings. Culture was an extemporaneous construction which served the ad hoc purposes of the present needs of the moment.

The boundaries between languages, and the core 'structure' of what constituted any language were merely continuums of variation, of different dialects and codes--the boundaries between languages were always porous and semi-permeable--more like Creole or pidgin languages in which borrowing and code mixing as the norm. Few language 'standards' existed, if any. The oral, concrete, semantic structure of language was the situation of the immediate concern for communication and transaction--only geographical and historical difference separated different peoples and prevented their interactions.

The net effect of this general situation was that early culture was more of a self operating, 'species wide' phenomena of natural civilization which provides a pan proto human sense of solidarity and cohesion in the struggle for survival. People were not crowded in little communities, victoriously competing with one another for petty resources--this phase of human civilization came much later. Rather people, few and far in between, realized that much more was to be gained in cooperative interaction than in competitive struggle for dominance.

Of course there probably always was a we-they sense that the people on the other side of the mountain are the ones who eat grandmothers but this was always probably always tempered by a near automatic intraspecific recognition and respect which meant a 'live and let live' ethos--and if people got too crowded, there was always another mountainside to settle upon. People kept a healthy distance and spacing which tended to neutralize competition and conflict. The struggle for survival was not one of human against human, but one of humankind against the elements and the environments and there must have been a deeply ingrained, near instinctive understanding of this orientation.

The living of proto people was not a golden age of a peaceable kingdom--life for most was probably brutal, nasty and short. But proto people made the most of what little they had to work with, must have realized that their next door neighbors made better allies than enemies.

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It seems more striking that proto woman/ma was much more of a coward and shrewd scavenger than a fierce and fearless hunter. The age of heroes had not dawned upon the human horizon. Indirection in stalking, tricking and trapping prey was much more saner and safer and simpler than direct face to face confrontations. They would more likely turn and flee in fear than stand and fight with courage. Of course, it was a matter of survival and not honor.

The stereotypical archetype of the proto person is best described as a kind of natural 'socio-path'. Proto people did not have a finely developed sense of justice or an over burdensome conscientious to interfere with their daily activities. Besides the biological bond with mother and child, human bonds of friendship or fictive kin was at best fickle and weak--a matter of convenience but more genuine than spurious. Conscience was more an honor among thieves than among friends. There was probably not even a finely developed sense of familial amorality--individual amorality is a more fitting appellation. Because such a selfish and immature way of being is so basic and deeply rooted in humankind, there are so many criminals today in prison behind desks and in positions of authority. We have not evolved all that far after all.

But there is a difference between the proto human natural socio-path and the modern 'deviant' socio-path--the first is a product of survival against natural, impersonal forces of selection, while the latter mode is the by-product of wholly unnatural, impersonal forces of social selection. While the former is genuine in its naturalness, the latter is ingenuine in its prevention. The former

didn't know to lie or deceive, because then there was no such thing as lying and deceit, but only tactful ways of pursuing self interest.

The proto person didn't have much of a deep emotional life-- extremes of feeling were to be acquired with the sophisticated sensitivities of being civilized. Suffering, separation, pain and hurt were probably not uncommon, and not unnatural occurrences in a normal lifetime--and desensitization, inerrment and quick acceptance were probably more normal learned traits. Proto people were not without feelings, but feelings served a very different evolutionary purpose than they seem to serve now. Feelings did not so much interfere with the normal process of living, so much as they were a natural part of the process of living. It is possible that emotional expressions so basic to humankind originally served as a paralinguistic and socio linguistic function of empathetic, if not truly sympathetic communication and communion between people. This communication served in place of much talking out and literary rationalization which has become such a part of modern day therapy.. such expression probably also served a very simple and straight forward pragmatic and stylistic function as they still sometimes do today.

It is likely that proto people had access to more alternative states of consciousness than do civilized people who put a premium upon scientific rationality. These states were typically sought after not as 'escapes' from harsher realities but for the sense of psychological empowerment and the possibly supernatural meaning which is inherent to their experience. Its sense of 'understanding' which it provided was rooted in the very organic structure of its experience. It is likely that such fuller consciousness and more natural exercise of the mind conferred a greater adaptive advantage in heightening awareness of the environment and in cultivating a spiritual 'intuneness' with natural processes and forces.

If most social bonds were fickle and transient, it is also likely that the only enduring bonds were the 'biological' nature/nurture bonds between the mother and child--and these were not universally strong but that nature probably selected for closer mother child bonding. Women and their children may have formed the first 'families' and social groupings and matriarchal, women-women

bonds may have also become quite enduring. By and large males must have been quite undependable and perhaps formed their own somewhat peripheral groups of consociates. Strong attachments to a mother might keep a son close to the 'home' group for a long period, well into the male's adulthood, which might have provided a measure of added support to the adaptiveness of the group.

But many men also probably had a 'nurturing' side of their natures and so it was not uncommon to find 'home' groupings in which fathers and brothers were also present, perhaps not so much as strong authority figures than as equal partners and participants in group life. Also a single 'strong' patriarch may have come to dominate such groupings and provided 'leadership' to the group. But besides his exclusive sexual prerogative with the females his contribution otherwise to the support of the group may otherwise have been quite minimal--becoming a burden upon the group's resources rather than a contributor to them. Under such circumstances, it is not unimaginable that the women, or their sons or brothers, being as shrewd and cunning as they were, quickly and quietly eliminated this kind of burden. Another kind of adult male, though, probably did survive to provide more persuasive and genuine direction for the group--this is the elder who by the unusual length of his years and fund of experience and sharpness of mind was a real asset to the long term interests of the grouping. Being beyond his primary, his protein and sexual demands would have been minimal.

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This kind of patterning is still present with us today in many regions of the world--it has the name of 'culture of poverty' but probably more accurately represents a 'poverty of culture'. It occurs everywhere that basic interests in individual human survival due to chronic scarcity of basic resources, overrides all other constraints of group solidarity or social identification. The correlated patterns are still there to be found--sociopathy, absent fathers and irresponsible impulse control disorders, habitual substance

abuse, single mother families or multi-cultural orientation because they have been doing it time immemorial. In the beginning, it was quite natural adaptation to the exigencies of human survival under conditions of scarcity and material poverty. Today it has become extremely devalued as the 'ugly' side of humanity. The absolute poor today have no other recourse--they can rarely go out and freely hunt game or gather wild fruits. If they cannot find a factory or farm labor job which earns only a threadbare, below subsistence level income, then they must resort to alternative styles and social patterning which acquires the basic resources. It is not surprising that they should have a sociopathic orientation and a poorly developed sense of social conscience.

The critical difference between the period of proto culture and the modern era of mass poverty of culture is that in the former case such an adaptive patterning of a rudimentary culture was 'natural' and 'adaptive'--while it remains still adaptive today, it is considered to be quite unnatural and 'deviant' from the superficial normative standards of 'civilized' humanity. From the standpoint of a global civilization, it is considered quite artificial and naturally unnecessary.

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There is a very dangerous element of the modern 'science' of sociobiology which sees the high incidence of 'cads' and prostitutes among the chronically poor as being based upon a higher incidence of certain genetic pre-dispositions. It is clear that such 'common sensical' thinking is rooted in preconceptions which are fundamentally socially racist and the social promotion and engineering based upon such thinking leads to fascist policies of social exclusion and persecution--genetic selection--in the name of enlightened 'reform'.

But it must be recognized from this alternative point of view that such a common and pervasive patterning among the worlds poor is not necessarily so much a genetically programmed response, as it

is a basic, very deeply rooted cultural patterning common to humankind in adaptation to situations of scarcity and chronic stress. It is an adaptive response that all people, and cast into the black hole of absolute poverty would necessarily 'acquire' if they are to continue 'existing' and 'subsisting' however minimally.

When it comes to basic interests in human survival, altruists are rare indeed. There are few values so sacred that dire poverty and individual self interest in survival does not override and render contingent and relative-whether it is infant death and mother love in Brazil or Christian self sacrifice at the altar. Altruism came in with later with the age of the heroes, much to the chagrin of the socio-biologists basic theory of inclusive group fitness, and like the values of love, charity, devotion, remain for the most part hypocritical glosses of the collective subconscious where spurious relations of selfish competition, egoism, greed, power abound. We will readily burn witches at the stake, and brain wash gullible young boys into thinking it is best to die for their country and the worlds aristocracy will continue to appropriate for themselves and their offspring most of the worlds best qualities, humanities, opportunities and treasures and resources for themselves and their offspring, but the sad fact remains that there have indeed been far too few Gandhis or Martin Luther Kings in the world, and most of those few have died anonymously in the world.

In a sense human beings are biologically and probably genetically preprogrammed, for those kinds of character traits and social patternings which reveal themselves in contexts of impoverished culture and long term access. This 'instincts' regularly reveal themselves at football games, boxing matches, pop rock concerts, situations of social panic, crime scenes, and in bar rooms and on the fastest, busiest freeways. Human beings have been too well adapted and respond all too predictably and naturally in such contexts but this is not a function of deviance or of a particular gene culture correlation. Indeed, it would be the biological rule rather than the human exception. The fact of the matter remains that human civilization has developed inspite of the common and pervasive characteristics and not because of them. And if this psycho social patterning is so basic and natural, then it cannot be so abnormal and the wealthy people who live the illusion of their

natural freedom from it, of their own basic 'super humanness' must think twice about the ethical and scientific efficacy of their own common sense and their own positions in life--for they do not have what they have except at someone else's expense.

A culture historical theory which combines ecology with the material evolution of humankind explains the predicament of humankind as being caught between forces of 'micro-parasitism' from beneath and 'macro parasitism' from above--this has left most of humankind in a chronically precarious position which has led to its existential exploration and 'evolutionary experience' to 'escape' these conditions. This has resulted in a positive feedback loop of cybernetic growth which has benefited and increased not only the size of the host body, but the micro/macro parasites which have always fed and depended upon this body.

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There are other characteristics associated with this basic proto cultural patterning which are still apparent in the poverty of culture today.

One such difference is that associated with 'field dependency' and 'field independence' with the frequency of 'field frequency' being much greater among poorer people.

Another common characteristic is the difference between 'primitive' or 'pre-logical' mentality and 'rational mentality' or concrete and abstract thinking.

Basic also is a kind of basic or 'vulgar' orality of culture versus a refined or derived 'literate' culture--with semi-oral and literate cultures coming in between. The differences between oral and literate modes of speech discourse are fundamental linguistic differences between impoverished culture and civilized culture. Everyday patterns of oral discourse provide the kind of social

cement of the former way of life, while literacy provides the kind of glue of the latter orientation.

To a great extent these differences are reflective of basic 'class' differences and are characteristic of 'class consciousness'. It is important that network patterns of vulgar 'orality' survive in all social groupings, as a basic human way of pragmatic communication, while in poor cultures this is the primary mode of interaction, in civilized cultures this becomes compartmentalized and hidden in 'back regions' of discourse which are distinguished and covered over by literate discourse patterns which occupy 'front regions'.

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Other characteristics of proto people were worth mention. Aboriginal, natural man was not a noble savage but a fear dominated coward and sociopath primarily interested in self survival. But there was nothing ignoble or abnormal about these adaptations though by modern standards they involve strategies of risk minimization and minimal risk taking. Strategic success is based upon cunning, trickery, deceit and indirection. Witchcraft and magic become common means of achieving results, as well as accusations of sorcery and witchcraft. Cognition and human evolutionary experience are rooted in the acquisitions of patterns of avoidance, vicariousness, pre-occupations with non-being, the symbolic and real fear of death, narrow self interest, small group amoralism. In such contexts it was frequently better to let the child go and soon have another than to lose the whole reproductive mechanism. In this we can see that the need for truth, for love, for good, has been well rooted in the existential realities of the life, or apathy and the evil of natural violence.

We still love winners and hate losers.

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For an extremely long period in proto human prehistory, it can be said that there may have been a kind of 'gene culture co-evolution'. Culture could be seen as a mechanism of 'super species', species and sub-species selection. What was selected for was just the kind of patterning that has so far been described. It is not so much that humankind is inherently evil, but that inherent evil is well rooted in human nature, and that people must unlearn this 'genetic pre-disposition' in order to learn how to become genuinely 'humanized' and civilized. But from the very earliest, rudimentary culture proved an extremely effective edge for human survival--crude tools, rudimentary social organization, basic linguistic skills, the hearth, all proved extremely effective in selecting for the adaptive success of humankind. Though for most of the long span of proto human prehistory cultural adaptation was severely constrained by the natural exigencies of the environment and as a selective mechanism it created a new kind of human being, however humble and weak of character, culture nevertheless soon 'lifted off the ground' and basically detached itself as more or less independent of natural selection and selective forces of evolution. Though it remained long close to the ground, it soon took off on its own trajectory of developmental evolution as its own kind of 'supernatural' and 'super organic' self organizing patterning. All subsequent patterning of the growth and development of human culture history and of civilization evolution and not because of it--as a self organizing process it developed in its own direction in its own patterning and time frame.

The further off the ground that this development went, the more alternative process of social selectionism in the service of the development of civilization supplanted the role of natural selection in the biological evolution of humankind. But while human feet still touched the ground for the longest time. These different kinds of processes and 'forces' perhaps 'canceled each other out' or else cybernetically 'reinforced' one another to boost certain basic traits of human development and to keep human culture in the air and off the ground.

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In this different kind of origin mythology which centrally locates the basic source of natural 'self' we can see that the evolutionary experience and development of the sense of self is not lost between the pages of the unfolding story of humankind as so much social and culture historical process.

We can see while the evolutionary experience of the sense of self remained organic, its social development as 'ego identity' in reference to civilization became somewhat 'super organic'. Today the tripartite conception of the psyche of the self as 'ego reality' caught between the impulsive forces of the id and the compulsive forces of the superego is a fitting description of the basic 'double identity' or 'duality' of identity of a fundamentally dichotomized sense of self in the world.

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There is another kind of patterning of a 'complex' of human behavioral phenomena which must be understood in relation to a culture historical understanding of the 'deep' development of humankind but naturally and culturally.

This complex of paterings have to do with 'acquired dependency' or 'learned helplessness' which is related to 'adaptive response disorders' and 'delayed stress disorders' which are due to the experience of extreme stress and trauma. In a sense, social 'evolution' and social selectionism took over the role of natural selection as mechanism based upon and dealing with this kind of organic human experience.

This kind of behavior is physiologically and psychologically embedded in human responses and reflexes to environmental stimuli. It may be related to the predominant functioning or switching between sympathetic and parasympathetic nervous systems.

Such phenomena are also related to 'impulse control disorders' and obsessive compulsive or repetition compulsive behaviors as well as to certain kinds of 'hyper-suggestibility' and psycho somatic, hysterical and organically experienced phenomena of 'spontaneous group reactions'.

Susceptibility to techniques of behavior modification, brain washing, to hypnosis, to conversion and persuasion and the stringency of 'socialization' and 'enculturation' of the individual personality, as well as phenomena of 'de-individuation', 'depersonalization' and 'de-realization' are all related to this kind of complex of stress related responses.

To posit a central, focal point role for this kind of complex of behavioral and experiential phenomena in both the evolution of humankind and in the subsequent developments of human culture history requires some amount of qualified explanation especially of the central role and relationship of symbolic process in the mediation of this kind of phenomena, both psycho socially and in terms of environmental and evolutionary experience.

Nevertheless it can be claimed that natural and social forces of selection 'converged' resonated for an extended period of proto human prehistory to select for a certain kind of characteriological and physiological/psychological orientation of human beingness, organically embedded in the very process of human experience itself, which has had a double and contradictory set of consequences for humankind. On one hand it guaranteed the persistence and permanence of a kind of proto human adaptive orientation which has been a predominant pattern of human prehistory and history, and also it has offered another possibility, or potentiality, for human development, for the incidence of human 'genius', 'creativity' and 'enlightened consciousness' which has contributed to the development of human civilization inspite of, and because of, the predominance of the other patterning.

The development of humankind has always been challenged by living a interdependent set of double standards. This internalized contradiction of human beingness has had both good and bad consequences for the development of humankind.

Like evolution, the development of human civilization has been both self organizing and to some extent 'directive' and purposeful'. Achieved progress of humankind was not an inevitable statistical probability of chance, or random patterning, but was the long term consequence of the development of human mind as an epiphenomena of natural evolution.

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We must understand how the human capacity for symbolization evolved, and then how culture as systems of symbolization, then subsequently developed. We must seek to understand what role and function symbolization served in human adaptation to natural environments and how human adaptation could be used to explain the origin of symbolization as a characteristically human process.

A symbol is defined as something which stands for or represents something else. Symbols are characterized by their duality of meaning--of being simultaneously both what they are in a literal sense, and also representing something else. Symbol systems thus have a reflexiveness of their function. Symbols are composed of signs which actuate their physical objective existence in reality, and also represent other things which are primarily abstract and mental. In a sense a symbol is actually a mediating relationship occurring between the thing and its inference or meaning. Symbols, composed of signs and representing 'ideas' stand for both the signs and the ideas simultaneously and reflexively. Symbols also have a third value, which is often hidden, in that they also 'stand for themselves' as a fact of relationship itself.

Original symbolisms were oriented toward nature and derived from natural signs. They were mostly concrete in function and non-

abstract. Symbols were mostly 'sign oriented' and had a 'mechanical' versus an organistic function--they were non-specialized and 'context dependent'. A symbol tended to stand for something immediate and specific, not general and indeterminate.

The limits to the number of symbolisms were the limits of long term memory--several hundred to two or three thousand. Symbolisms replaced one another as need attended to changing circumstances. Out with the old and in with the new.

At some point, though, symbolisms began to form more complex aggregations--they began to become multiplied and ordered in a more hierarchical arrangement. There was a shift at this point, accompanied by increasing population densities, long term settlement patterns and complex social organization, at which symbolisms shifted their loci of primary function away from the mediation of natural signs in the environment toward group maintenance functions of reinforcing in-group identity and boundary maintenance. Symbolisms shifted from an extensive orientation to a more intensive orientation--mediating cultural environments rather than natural environments.

This marked a critical turning point in human cultural development. There occurred then fundamental 'change' of human mind and consciousness from an environmental to a cultural focus. This marked a critical shift in human identity from a self oriented identity to a social sense of self. Competition between groups and group life began to take on a 'natural' symbolic function. Nature became 'wild'. There occurred a shift from a 'natural' orientation towards a 'rational' orientation--symbolic focus went from natural signs to rational ideas. Symbolic function differentiated and became specialized and organistic. Some symbols took on cultural sign system function serving to make cultural environments seem as if 'natural'. Other 'symbols of symbols' took on a cultural ideational function. There occurred a naturalization of rationality and a rationalization of nature.

Natural symbol systems represented an organic, experiential encoding of the environment--they allowed the natural sense of self to be merged with the environment. Response to the

environment was reflexive and automatic. Perception of the environment was direct and unalienated.

Symbol systems allowed immediate 'pattern recognition' of the environment such that there occurred an 'instantaneous' reading of the environment. They enabled a great deal of information to be processed very rapidly. Symbols serve a 'pattern framing' function.

Symbols worked in an analogical way to maintain 'similarity relations' with diverse and changing contexts of experiential phenomena. They allowed flexibility of natural mind and adaptability of experience. The pattern framing function allowed an experiential continuity between environment and organism.

Symbols provided a 'unity of experience' which provided the individual with a sense of self identity in relation with the world.

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symbols had a paradigmatic function of providing exemplary models by which to experientially frame and understand new phenomena. They were a way of 'learning' a new environment through experience and encounter. It is likely this symbolic process was largely an 'unconscious' and therefore somewhat 'automatic' and reflexive process.

It is possible that such a natural symbolic function, as an experiential expression of 'natural mind' allowed an 'adaptive radiation' of humankind, to explore and exploit a very diverse range of environments, way beyond the 'phenotypic/genotypic' horizons of any species. It enabled groups of humankind to successfully meet the challenges of moving and entering and adapting to new environments.

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The crystalline structure of symbol systems determines that they are self organizing systems. It is possible that the structural limits of these systems, like all human informational systems, are determined by the structural limits of long term and short term memory. It is also determined that symbol systems would grow to reach a supercritical state when they overreached their own structural capacity. Adding more symbolisms could induce some degree of disintegration of the entire system and a reintegration at a lower level of complexity. Symbolic matrices reached a critical mass beyond which chain reactions might interfere with the mediating functions of the system.

Symbol systems have their own history and evolutionary structure of development. There occurs 'symbolic selection'--symbols which functionally mediate with the environment are selected for, symbols which fail to are selected against. As the environment changed, from natural to cultural, so did the symbolisms.

In this we can see that mind evolved as an adaptive mechanism in natural environments. We can refer to natural mind as this kind of extensive orientation of experiential beingness, based on the organic and mechanical functioning of sign symbolisms. Mind served as well then as a 'selective' mechanism allowing the human being to focus attention upon 'important' patterns of phenomena in the environment and to ignore 'noise'. Mind was also a mechanism of selection--it was naturally selected for in the evolution of human intelligence and then became itself a force of selectionism. Mind became a mechanism of 'cultural transmission' as well, through the learning and teaching of symbolisms and symbolic orientations which 'carried' culture through time and across space.

We can speak of the evolution of mind from natural to rational states, construed by rationally minded scientists as a movement from irrationality to super rationality or 'perfect mind'.

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Symbolisms somewhere, sometime grew in complexity until they began to take on a 'super organic' and synergistic life of their own. At this point they become fundamentally detached from their natural signs and became themselves signs--symbols of symbols. At this point mind was born and then proceeded to develop in its own way. Symbolisms could no longer be easily destroyed and became traded, bartered, diffused over wide areas and whole regions. Symbolism grew on top of other symbolisms--and symbolism became embedded not only in human consciousness but in human social life as well. Once made, symbolisms could not become easily destroyed, but became 'stockpiled' in cultural pools of 'symbolically embodied experience'.

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In the understanding of original symbolisms, it becomes necessary at some point in the story to mention the near universal symbolic process of the insertion of patriarchal authority in the welding together of the family, and by extension, of a society, through marriage; of the 'incest' taboo which serves to symbolically reinforce the social patterning related to reproductive access and the cementing of corporate social relations and finally of the rise and influence of totemic symbolisms as foci of group identity and ritual reinforcement. All of these come more or less together at a point in time in the development of human culture history when the shift from the extensive to an intensive symbolic orientation occurred and all are perhaps symbolically interrelated in the social structuring of human corporate groupings as cultural entities and as an expression of 'world view' of rational mindness which comes to compete with and replace natural mind as the primary symbolic ordering process of human experience.

In these cases it seems that the appropriate symbolisms relating to the articulation of these 'cultural complexes' served a ritual and mythological reinforcing function and a 'reality' creating or

constructing function, which was necessary to foster dominant bonds and social relations and prohibitions which would otherwise be weak.

The insertion and augmentation of the patriarchal authority of the father in both the family and the group and the subordination of the reproductive and nurturing of the mother, was a necessary move in the development of social 'superego' or collective conscientious as 'the law of the father' which overrode individual self interest and the classic myth of Oedipus Rex in which the son overthrows the authority and fear of the father and in the process internalizes the authority of the father as totemic emblem. This is reflective of a natural and basic conflict of self interest between the needs of the individual and the demands of the group and of the psychological process of internal identification with the group and of the psychological process of internal identification with the group in the resolution of this conflict. The Jews have a 'binding over the son' and the Christians have the 'son becoming the father'.

Incest taboos are symbolically designed to reinforce patterns of sexual access, complementary to marriage rules and regulations, which serve to unit family units together and reinforce the more general social bonds of a society. Violation of these taboos are considered extremely polluting, not just for the individuals involved but for the whole status of the group. Purification, even expurgation and ritual death are the only resource a cultural grouping has for restoring normal order to group life and relations. The incest taboo in this case represents the symbolic subordination of the love of the body of the mother--the ritually reinforced symbolic rejection of the bond of the mother by the son as a complementary means of reinforcing the authority of the father over the son and the privileged access of the father to the mother. In this case, sisters or certain cross cousins are considered symbolically of the body of the mother. Menstrual taboos represent as well the rejection of the bleeding body of the mother as endangering the ritual purity and threatening to the normal social relations of the group. Symbolically the menstrual blood represents the reproductive wounds of the mother which threatens the fertility of the group, not just in bearing offspring, but in hunting game, cultivating or harvesting foods, fishing, as well as in supernatural

propitiousness. The protein taboos of nursing or post-partum mothers is another means of subordinating the body of the mother in reinforcing the law of the father--the father feasts to celebrate the new birth, the mother starves to feed her newborn child. A mother giving birth, the placental afterbirth, the bleeding, and the emergence of the bloody newborn from the womb is a 'dangerous' period for the groups normal relations. Couvade is an attempt by magic for the male to usurp this natural power of the male--a kind of 'birth envy'. The taboo on adultery and the devalued status of prostitutes, primarily associated with women, is related to the incest taboo in that it serves to restrict and regulate the sexual prerogative of the female and make such choices the pater-recht of the father, and the law of the group. Breaking this taboo similar to the incest taboo can have dire consequences for the people involved.

Totemic symbolisms are manifest in practically every society, and have been a mainstay of human culture history. The totem represents the corporate solidarity and the strength, and successful survival of the group. Totem reflects the 'territorial imperative' of a group which defines its boundary-identity 'psycho-geographically' in relation to political domination and privileged access to the resources of a particular region. The annual killing and communion of the totem, like ritual cannibalism or headhunting represents the imbibing into the body of the spirit of the land--the symbolic subordination and incorporation of the power of the spirit familiar. This too assures the adaptive success and productivity of the group.

In a similar way, ritual ceremonies involving mutilation and initiation are also symbolic means for either reinforcing the law of the father or else subordinating the natural power of the mother in the service of superimposing corporate group identity upon the self identity of the individual.

In these respects, we can see the power of symbolisms in the mediation of human reality, and of the psycho-social integration of the individual with the group. Symbols have the power of making unreal things seem real, unnatural things seem natural, and nonsensical things to make sense. Symbolisms when ritually

enacted by people, create social realities where none before existed, and reinforce social relations in ways which nature never before intended.

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In terms of this power of symbolization in the creation of human social structure we are better able to see how the complex of traits associated with adaptive response disorders, 'learned helplessness', the power of linguistic persuasion and the displacement of libidinal ties in 'conversion' experiences. These are the natural organic and psychological human reaction to the symbolic superimposition of authority and social power in their lives. The experience of stress by either ritual separation or else by social ostracism is known to lower thresholds of cognitive resistance to conversion experiences and behavioral modification. Induction of a little stress at regular intervals goes along way in inducing and reinforcing social conformity. The fear and threat of violence or punishment is a similar 'stress' producing ways of making people behave in socially sanctioned or valued ways.

In a way, rape as a form of incest violation, is ore polluting for the victim than for the victimizer, and the symbolic consequences of such violent victimization can be severe and long lasting. In such a way, traumatization, either actual or threatened, produces the same kinds of consequences in the individual.

But internalization of authority, behavior modification, reinforcing social conformity and threatened or actual traumatization has the same long terms kinds of consequences upon the symbolic integrity and identity of the individual cannot function outside of or independently of the symbolisms and structures relations of the group, it leads as well to conversion reactions, somatization disorders or organic displacement of repressed or intense psychic pain and suffering, to delayed stress disorders in which similar environmental stimuli may trigger unexpected 'flashbacks' or the re-experiencing of traumatic or intensely stressful events, it leads

to adaptive response disorders--the acquired inability of the organism to respond to the environment in adaptive ways, to impulse control disorders, to borderline psychosis, dementia, psychic disintegration of personal identity, to phases of depression and high levels of neurotic anxiety. In social settings it leads to 'de-individuation' such that individual self controls of personal behavior are completely externalized onto the environment of social relations. Maintaining self control then becomes a problem, and a strategy of maintaining control over one's social environment, whether through manipulation, domination, subordination, etc.

People in this condition are ripe for the picking of a system, any system, which promises them, if not salvation, at least temporary (THIS SENTENCE ENDS ON PAGE 508. PAGES 509-521 ARE MISSING)

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Relief from their suffering and a symbolic way of ordering their external environment such that they regain a sense of security they have lost in an internal sense. Through projection and repression they can regain their identity through fixed frames and symbolic dependency such that their own neurotic psychoses becomes transferred onto a group orientation as a delusional collective psychosis. Such people have reduced resistance and low thresholds to persuasion and conversion to 'impersonal' orientations which become highly controllable and exploitable.

These people have incorporated the principle of non-being into their lives, and render to the service of power in paradigmatic world views. The basic naked insecurities of their natural condition remains, but it has become disguised beneath the clothes of conformity.

The primitive, proto-typical, natural states of being does not remain very far away in any of us--and it has always been just

beneath the covers of civilization. It is not difficult to look about in the world and to find many survivals of or primeval beginnings-- both in power and powerless.

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Human mind evolved once or several times in the inauguration of human symbolic functioning, and then conveniently stepped above the ground of natural selection. The culture historical development of human civilization, as the expression of the elaboration of symbolic functioning of mind, became then largely a self organizing and self reflecting developmental process separate from natural evolution. Symbolic functioning proceeded at its own pace and civilization developed as a developing environmental-symbolic context in which mind could find its expression. Similar to the evolving environments of life which created possibilities and pathways of speciation, the slow development of the contexts of civilization made possible the fuller realization of culture historical process. Symbols as paradigms, as models could be easily diffused as 'stimulus-generalization'--just the symbol as the remoted idea could be easily carried throughout the world and easily reconstruct from its templates the basic cultural elements. Civilization developed as a changing environment in which the same basic natural human being found themselves. It was the same flexibility of symbolic functioning which fostered these new environments which allowed the individual within a new group context to adapt to these new environments. In this sense, even tools, technology and material possession are symbols of the new environment--directly expressive of the symbolic functioning in the experiential mediation of environments.

Civilization grew up organically, through symbolic functioning, as a new world environment around humankind and slowly transformed the psychic functioning of humankind to fit these new environment--humankind became more stabilized as symbols became more and more rational and ideational in function and construction. Such development of symbolic environments of

civilization was quite gradual and probably occurred only after many fits and starts. Several pre-conditions must have been met. First, an complete adaptive radiation had to have occurred such that proto people came to occupy most regions of the earth. Secondly, natural population increases in local and regional contexts had to reach a minimum threshold of density before the symbolic process could 'take off'. This natural increase was probably quite long and slow in its development. But once 'critical mass' of human population densities in an area were achieved, symbolic functioning would 'explode' and human consciousness would 'implode' in a self-regenerating cycle of civilization.

Once this happened, symbolization and symbolic function then took its own 'super organic' life n terms of a functional momentum of development, which then continued on its own in the environment relatively independently and uncontrollably of individuals or of groupings ability to resist. The environment, now predominantly social, began to transform itself beyond the individuals capacity to control it and the individual has culture historically since that moment been forced either to adapt to the new changes or else suffer the consequences of marginalization. The processes of transformation continue inexorably and uncontrollably in our world today--we call it technological development, modernization, even progress and it cannot be controlled. Individuals or groups may renounce the state of the world, whole nations may go on a backward course in reversing historical process but the world continues towards its own ultimate ends.

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Evolution itself has now been stopped, frozen in its tracts and supplanted by the modern process of civilized development.

As we have stepped outside of the whole evolutionary ecology of life, we have stepped ideologically and symbolically outside of the horizons of our own natural history. We have substituted our sense

of culture history for this natural sense of history and we are paying the price and the cost in terms of our own alienation and the alienation of our environments.

It is not without reason that non-being and the problem, indeed the imperative, of power and control have become the central existential problematics of our own civilization and culture history. When our environments are beyond either our own control and the control by nature, then we are genuinely driving blindly into a black night of the future. Non-being and power affect us personally in our everyday lives, and also affect us collectively in all our group life, at every level of social interaction and function. All our symbolisms recursively reiterate about these central meta-themes and our modern mythologies cannot escape their hold upon our imaginations.

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It is necessary to separate the problem of the culture historical development of human civilization from the related, but separate problem of human development.

It was A. L. Kroeber who emphasized the correlation between the rise and peaking of civilization with the increased frequency of 'genius' as an expression of the cultural stylizations typifying a civilization, and who noted as well the tendency for societies which are waning in civilization to frustrate and stem the expression of such genius. Certainly the rise of human civilization has at least created the possibility if not probability for human development and has been associated with the increased incidence of its many expressions, but it remains doubtful just how much civilization doesn't also frustrate or prevent such development in its promotion of spurious relationships.

Human development can be defined as the realization of human symbolic functioning in an independent individual sense, and promote the expression of human creativity or 'genius' through

symbolization. Associated with this is fostering a non-authoritarian social atmosphere in which human rights are relatively achieved and their violation or usurpation prevented.

The culture historical development of human civilization has certainly created the possibilities for the greater realization of human development, but it has generally failed to achieve this kind of genuine social progress.

It will not be until such a grand achievement is realized that humankind will gain more control over its environment in such a way that preserves the naturalness of its being in the world.

Humankind as a species may throw up only a small handful of genius in the world in any given generation but it is perhaps this small handful which has made the only critical difference between developmental disaster, evolutionary equilibrium and human well being in the world.

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What seems clear is that we are in fact not all that different in our natures and our being from our prototypical ancestors. Only our environments and our sense of non-being are different. Individual human beings, as 'ideas' of mind, and humankind, as the expression of mindness in the world, have embedded in their organic experience the very structure and basis of the ecological evolution of all our life. In the understanding of this experience is rooted our natural science and native senseness about the world and the promise of our enlightened emancipation from its merciless dictates.

We cannot change the way the world is headed, nor reverse what has already happened. But we can change the ways that we ourselves go about relating to our world, whether social or natural, in such a way that makes greater evolutionary sense. We can start

'minding' and 'reminding' ourselves of our own natural beingness in the world.

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## ECOLOGY AND EVOLUTION

There is a general implicit pre-supposition that because ecology is largely a synchronic, systemic and space like science, that it must therefore be subsumed beneath the more general problem of evolution as a dynamic, diachronic, time like science. Ecological problems and frameworks are fit like snapshot profiles into the unfolding film reel of evolution. Those who imagine a great scientific synthesis of a space time like 'evolutionary ecology' generally see the relationships between the two general perspectives in such a way.

It makes sense, though, to reverse the formula and to fit the problems of evolution into a more general orientation of 'global ecology' in the sense that a total environmental ecology of earth 'evolved' into its present state, and that part of the primary function of evolutionary development has been to establish and maintain an on going dynamic equilibrium of this universal ecology of life on earth. The selective purpose of evolution has been to explore the range of possibilities for exploitation and adaptation to the environments of the earth such that its ecological equilibrium can acquire greater stability through diversity and complexity.

In this sense, the environments of the earth, having been largely biotic, 'evolved' as the context for the evolutionary events of individual processes of speciation. Life evolved its own habitations and environments by which it could further augment its ecological equilibrium. Environmental contexts evolved as a dynamic equilibrium around separate, single species integrating all of these into a global web of life.

What has been 'dynamic' in a structural sense about evolutionary development that has conferred a sense of selective purpose upon the entire system of life is this sense of earthbound ecological equilibrium.

Life continuously explores its earthbound environments and embodies its evolutionary experiences in the biotic and behavioral expressions of its many life forms, as the patterning of its possibilities of development.

'Ecological evolution' has been a self organizing system which periodically approaches 'critical states' of over development--of critical biotic mass on earth which then rapidly despoils and depletes its own geological substrate. Then life generally contracts again and alternative directions for development are discovered. Clearing away of the old, dead wood, makes room for the growth of new, fresh wood.

Like lilies upon a small pond, life does not know its own limits until it experiences them,

Evolution of life has been the developmental embodiment of the experiences of the earth's environments. Evolutionary experience becomes organically rooted and its 'senseness' of 'ecological fitness' becomes embedded in the very fabric and living environment of life itself.

To the extent that we are a part of this general evolutionary experience, we have ingrained in our own nature's and our own sense of being the very expression of ecological evolution itself. Recognizing and cultivating this organic senseness of our natural experience in ourselves, we can better learn to see it and relate to it in our earthbound environments.

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HORIZONS OF MIND

Individual expression or examples of an idea represent the profiles of its range of possibility--the idea itself represents the limits of this range of possibility--an idea is the horizon of the possible patterning of mind as an expression of its environmental experience. Because the range of possible profiles is open ended--the change and variation of its examples are infinite--ideas as horizons of mind are essentially open and infinite, though limited. Thus, prime numbers, though limited, remain infinite and open ended in possibility. Infinity is such that it may be infinitely subdivided, and each of its divisions still would be infinite as long as they are open ended.

Ideas themselves are profiles of the range of possibilities of mind--they are the exemplary expression of mindness as environmental experience. Thus mind is open ended and infinite horizon of the horizon of ideas. Ideas are 'general symbols' in that they are non-particular and in their basic abstractness as mental constructs are non-concrete. They typify or represent a class of concrete things or the relations between things. As general symbols, ideas also have sticky and fuzzy edges and thus many different ideas cohere together and 'blend' in indistinctness upon their horizons. Ideas are mental reflections of the phenomenological experiences which they represent.

Ideas are mental templates and 'filters' by which we screen selectively experience and arrange it into meaningful, interpretive order. Ideas are flexibly arranged and are polythetically composed of a range of profiles along different sets of traits or distinctive features. It is this which allows ideas to be very adaptable to new environments. Like tools in the hand, they can be carried far afield and allow us to continue to function in an adaptive way.

Horizons of mind, like evolutionary horizons of development are always relative to the relational contexts in which they are situated. They always bound the point of view of the present moment of experience, and determine the limits of our conscious and unconscious understandings, but as we approach the edges of our horizons, they continuously recede and vanish into the context of

which they are a part. They are always surrounding us, but are forever remote.

The horizons of mind evolved as a natural self organizing system. Though its contexts is unlimited and open ended, its sense of experience is always limited and determined in the present of mindness. Mindness tends toward states of super criticality in which it is always changing and undergoing crises of interpretation of new ideas in new sets of environmental experiences, but mind has remained as a total system flexible and 'robust' and fairly stable. Its evolutionary development, like natural evolution, has been one of a selective exploration and elaboration of its experiential environments. Mind has created its own mental/phenomenological environments for the experience of its mindness. Mind has developed its own possibilities of symbolic patterning through the elaboration of its environmental contexts of experience. Mind has enlarged itself in the world, and in the process, has enlarged our experience of the world.

The evolution of mind is primarily a culture historical phenomena--the mindscape of multiple horizons of ideas is a function and reflection of human civilization in the world. The fact and act of civilization as a process of the evolution of mind is an expression of mindness.

Mind first evolved as a natural possibility--natural mind was a sense of possibility which was rooted in environmental experience--as the evolutionary horizon of humankind.

## BEINGNESS AS ENVIRONMENTAL EXPERIENCE

Beingness is a natural ecological/evolutionary state or condition of environmental experience in the world. Environmental experience embodies beingness organically in the world--it merges the organism and its own self awareness with the larger relational context of which it is evolutionarily and ecologically a part. Awareness of this beingness is a natural understanding which is

embedded in the phenomenological immediacy of real, unalienated experience. As a natural understanding it is 'enacted' or 'performed' by the perceptual enactment of cognition and recognition. It is the act and the performance of clear and unadulterated perception in the world. In its natural state it is inherently selective--it does not entail a conscious decision of interpretation or deliberateness of the 'will' to experience, nor is it based upon the implicit ground of 'common senseness' of experience. It is the epi-phenomenal expression and end product of many millennium of evolutionary development as such its structure is built in a natural wisdom of deep experience.

It is very difficult for us today to 'get back in touch' with our own innate beingness, because it has been substituted and sublimated both consciously and unconsciously by our own symbolizations which have changed and altered our environments of the world in quite arbitrary and unnatural ways. The alienation of our own natural experience is rooted in the difference of our very experience of the world. We cannot see the difference because it has become virtually the only way we can see the world. The very environments of an evolutionary/ecological nature in which this experience was derived have been irreversible altered and rendered 'unnatural'. But the traces and basis of our own natural beingness remains within us organically.

It was flash frozen in its evolutionary development when the evolutionary environment itself became 'frozen' by human culture history. In a very real sense, it is always just beneath the surface of our own sense of ego, expecting to burst out and blossom. Because it is now fundamentally alienated, what little of it we can recover in ourselves, through the modification of our own experiences, is but a shadow, a remnant, an artifact and a fossil of its original beingness.

But by holding it, feeling it, looking at it, touching it and turning it over and over in our mind's eyes, we can get a sense of its experience--its 'senseness' and we can learn to value and emphasize this senseness in every aspect of our existences on earth. It must always seem strange and primitive and perhaps frightening in its nakedness and rawness of power--but by

familiarizing ourselves with its remnants we can rekindle its evolutionary fires.

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## NATURAL SYSTEMS, SCIENTIFIC RULES AND ORGANIC EXPERIENCE

Part of the problem of dichotomization between a Naturwissenschaften, a Geisteswissenschaften and a Kulturwissenschaften has been the hypothesis of fundamentally different and inimical 'modes of experientiality' which lead to different criteria of 'tolerance'.

It must be recognized that there is a fundamental difference between natural phenomena and 'system of mind' which are purported to reflect the structure and function of the patterning of such phenomena, and of the difference between the organic experience of natural phenomena, which is itself the primary and underived inductive ground of empirical science, and the scientific rules which seek to explain and account for such organic experience. The language and symbolic generalizations, the ideas and symbolizations which compose our scientific theories are representative and reflexive of natural phenomena, but they are not the natural phenomena itself. Thus there is no reason to suppose that nature evolves or composes its patterns, whether this is the motion of subatomic particles about a nucleus or the acquisition and biological substrate of human language competence and performance, according to a basic 'set of rules' which our sciences comprehend. As such, we can say there is no necessary or demonstrable or provable reason for presuming the a priori existence of a 'deep structure' of mind or logos which accounts for and results in the pattern that we then observe. It is enough that the organic experience of this patterning is evolutionarily/ecologically rooted--is an epi-phenomenal expression of the dynamic processes

of nature. Our scientific rules and theoretical 'systems of mind' are themselves a posteriori constructions which imperfectly reflect and seek to better explicate our understanding of these organic experiences, indeed even our own experience, or 'senseness' of this natural experience. The sets of rules and principles which we do elaborate of our own mindness, which we confuse with the natural evolution of our organic experiences.

It is a grand paradox that the evolution of organic experience and the evolution of the experience of mindness are both 'self organizing' systems which do not follow basic structural rules or principles but are based upon basic relational functions.

We can seek to explain our dual experience of reality through our scientific systems, but we cannot seek to non-relatively describe and define our experience in non-arbitrary ways.

The only principle of patterning which could be held to be a priori to both natural experience and our experiential systems of mind is the principle of change and entropy and we can never explain change or know change in an ultimate, absolute way.

It seems that the basic distinctions between a Naturwissenschaften, a Kulturwissenschaften and a Geisteswissenschaften are more apparent than actual--a result of the paradox of mind which afflicts our own experiential beingness in the world.

As Naturwissenschaften, our systems of mind require relational rules of organic, experiential phenomena. As Geisteswissenschaften, we seek to describe and define the unknown hidden behind organic experiential phenomena in basic ways of our language. As Kulturwissenschaften, we seek to see how our systems of mind and languages of reality are both reflexive of the organic experiences of reality in relative ways.

We cannot escape the existential dilemmas of our own senselessness and beingness in the world. Natural phenomena evolved in the world for reasons which we then give to it in the name of understanding.

Nature's beginning is our scientific ends, and our scientific beginning has been nature's end.

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