

Chapter 10

Cultural Evolution

Balance of Nature

Evolution represents the pattern of change. It reflects the organic and behavioural adaptations which enable life to avoid death.

In this context, life represents a harmonious balance of universal forces. However, as the Universe is a dynamic entity, the balance of nature is always changing, and life must continually adapt to avoid extinction.

Although the process of adaptation involves combination and division, an excess of either would lead to the extinction of life. Thus life's identity is maintained by an alternating cycle of continuous growth and division. However, as the constituents of life are finite, the cycle of life depends upon either the development of new constituents, or the division and recombination of existing life forms.

The competition for the constituents of life results in the evolution of complex life molecules, whose defensive and offensive mechanisms can completely neutralise any cannibalistic actions by identical life forms. As a result, predatory organisms tend to consume dissimilar species.

In this context, as life forms defend their identity by a cycle of combination and division, it is possible for two dissimilar life molecules to avoid mutual competitive extinction - if their defence systems are completely reciprocal. For example, if one life molecule divides the combinations of another life molecule, while the latter recombines the divisions made by the former, this will lead to a mutual bond based upon internal exchange.

Such complementary unions can create a competitive advantage, as their complementary defence systems can be manoeuvred to provide the most appropriate defence against predatory organisms.

Thus, most life forms are combinational in character, and comprise a mixture of dissimilar components which maintain a common bond based upon internal exchange. Furthermore, as the cycle of life tends to prevent division automatically by the initiation of combinational growth, this natural defensive strategy has led to the long term evolution of complementary unions of molecules, organelles and cells.

Nevertheless, these life forms remain in perpetual competition with other similar, and dissimilar individuals, within the biospheric environment.

As a result, the behavioural systems of life tend to vary according to their internal or external attitude. The internal behaviour is based upon complementary union, while the external behaviour is based upon competitive division. However, when individual life forms are not cannibalising each other, they maintain an intermediate behaviour based upon a hierarchy of complementary division.

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As the development of life within its environment has been automatic, there has been no adaptive advantage in the development of cognitive systems of evolutionary adaptation. Thus the requirements of life have been assumed, while the nature of evolution has been irrelevant. As a result, while most species of organisms have been able to survive competition with other species, they have been unable to prevent their own species' extinction, during major changes in the environment.

Sensory Intelligence

Nevertheless, the organic evolution of life has resulted in the development of cognitive systems to improve individual survival. This has created a degree of sensory intelligence, which may eventually enable advanced life forms to avoid their own species' extinction -- by adapting to environmental changes in accordance with the rules of evolution.

The cultural evolution of the hominid species has generally maintained the normal patterns of internal and external behavioural evolution. As a result, the technological and sociological adaptations of the species have increasingly reflected the internal behaviour of the organism. For example, the hominids have gradually developed civilisations where internal competitive division has been eliminated, in favour of complementary union -- based upon common exchange.

However, life forms never adapt because they want to. They only adapt when they are forced to adapt. Furthermore, they never evolve new systems if they can utilise existing systems. In this context, the hominids' intra-species systems of social communication and organisation both mirror and parallel the human body's internal systems of intercellular communication and organisation. This utilisation of internal adaptations for external survival is a prominent feature of the cultural evolution of the hominid species.

Structural Adaptations

It is proposed that the hominid species evolved initially within the equatorial regions of the world, and adapted to higher altitudes and latitudes, in the usual way. In the global warm phases, the marginal subordinate species were forced to adapt to higher altitudes than the mainstream species. When the climate cooled, the mainstream hominid species became extinct, and their territory was reverse-colonised by the marginal hominids. See Figure 6(a).

Eventually, Homo sapiens Neanderthal adapted to the equatorial tundra regions, between the snow line and the tree line. At these altitudes, the low temperature led to the gradual evolution of a cold-adapted physiology.

As a result, the species' hair became relatively straight and long, like that of other high altitude mammals. This development obscured the ears of the species' individuals, therefore altering the perception of the individuals' facial triangles. This led to the usual widening and compensatory front-to-rear compression of the skull, which is typical of cold-adapted people. This physiological adaptation converted the relatively flat-skulled, Homo sapiens Archaic, into the compact-skulled Homo sapiens Neanderthal. This resulted in the high forehead which is typical of Homo sapiens Neanderthal and Homo sapiens Sapiens.

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This forehead of Homo sapiens Neanderthal would endow the specie with a supplementary forehead triangle, which would improve the degree of personal interaction -- and complement the evolution of speech and language. In addition, the change in the specie's skull physiology would result in the internal redistribution of the brain -- forwards and upwards. This would require a consequential widening and foreshortening of the jaws, to maintain a proper degree of weight distribution on the specie's neck vertebrae.

As a mountain specie, Homo sapiens Neanderthal would remain relatively short and stocky, with a good power-to-weight ratio. However, the specie's more compact skull would eventually allow the specie's descendants to develop a much slimmer skeleton, without causing any further delivery problems for the female. As a result, the successor specie could adapt to a wide range of hot and cold climates.

It is proposed that the adaption of Homo sapiens Neanderthal to the high altitude equatorial regions, led to an increasingly rapid succession of cultural changes in the hominid lifestyle.

Territory

In this context, it should be noted that in the equatorial regions, there are no seasons. As a result, animal territories tend to be relatively compact with fixed boundaries. This is certainly the case with most hominoid Ape species, which tend to stay in their territories for most of their lives.

In this regard, the survival of the hominoid Ape communities depends upon the maintenance of their territory. Therefore, the communities make regular patrols around the territorial boundaries. This is coupled with foraging activities, which are adapted to enable the specie to survive when food sources are least abundant. As a result, the hominoid Ape's life cycle is based upon a very conservative routine, which maintains the territory, and prevents starvation.

The hominoid Apes tend to be specie-specific plant consumers, although some will gather bird's eggs, or hunt small animals, on an opportunistic basis.

In this regard, it appears highly probable that the hominid species would have maintained a very similar pattern of life, with the main emphasis upon plant gathering, rather than animal hunting.

However, as each successive hominid specie would evolve on the margins of their predecessors habitats, this basically hominoid (Ape) type of life cycle would be moulded by the harsh realities of the peripheral environments. As a result, the hominid species would be very cautious and conservative, tending to avoid predators, and remaining in a state of constant alertness. In this regard, the hominid specie's survival in a marginal environment would specifically require an ability to remember all food sources and hazards.

As a result, each successive marginal development in the hominid species would lead to the evolution of individuals who had a greater awareness of their environment's potential, than their predecessors. These more advanced hominids would become increasingly skilled at recognising every plant and animal - by sight, sound, and scent. In this context, the increase in memory, due to the improved child-rearing intelligence, would be a considerable asset.

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As the species adapted to higher and higher equatorial altitudes, the size and abundance of the predator animals would progressively decrease. This would allow the hominid species to develop a life-cycle based upon semi-permanent camps, which could serve as protected feeding sites.

Although there would be the occasional war between neighbouring hominid communities, it is unlikely that these would lead to any change in each community's territorial boundaries. This is because marginal gatherer communities cannot carry much food with them when raiding other territories.

Furthermore, as the raiders do not know the whereabouts of the food, or water sites in neighbouring territories, their invasions tend to be very temporary. In this regard, it is the knowledge of the territorial food and water sources which protects each gatherer community from long term foreign invasions and colonisation. As a result, the territorial boundaries of the gatherer-hunter communities would tend to be very stable for hundreds of years.

It is probable that in times of famine, the hominids would cannibalise the less dominant individuals within their communities, in order to survive. This was a common practice in very marginal communities, even in the nineteenth century. It is possible that the dead might also be eaten. However, when individuals died during foraging activities, predator animals would probably reach them first.

Tools

As the early hominids were gatherer-hunters like their hominoid Ape predecessors, it seems unlikely that they would have developed any tools for hunting. It appears that most of the stone tools were manufactured in order to make other tools out of wood. The stone tools would have been left in the semi-permanent camp sites, and reused every time the community returned to the site.

In this regard, the hominid skeletal structure suggests that the species individuals developed their abilities to throw stones with increasing range and accuracy. However, it seems highly improbable that stone tools would have been used in this way. Stone tools are difficult to make and replace, and heavy to carry. It would appear more probable that the hominids would make wooden sticks and spears, similar to those used by Australian Aborigines.

In this context, if the survival of the hominids became dependent upon their skill in making and using tools for hunting and protection; it is proposed that the species would gradually adapt to the demands of toolmaking and the physical characteristics of the tools. This would be an important evolutionary development.

Thus, while most species only adapt to the biospheric environment, tool-using species also adapt to a technological environment. In this regard, it appears that the hominids adapted both physiologically and mentally to the demands of simple tool manufacture and usage.

Altitudinal-Latitudinal Evolution

It may be recalled that according to the Altitudinal-Latitudinal Model of Terrestrial Evolution, each species of terrestrial plant and animal adapts first to a higher altitude and then to a higher Latitude. All biological evolution initially takes place on the equator.

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When a specie has adapted to a higher altitude on the equator, population pressure will force the subordinate individuals to move longitudinally east and west - until all the equatorial niches are filled. Then, continuing population pressure will force subordinate individuals to move north or south to the higher latitudes. When a subordinate specie has finally settled in the appropriate higher latitude, it may undergo regional evolution adapting to the specific environment in that region.

This would be the evolutionary path taken by the hominids.

Initially, the Australopithecine hominid ancestors were driven out of the sea level equatorial altitude by the Australopithecine Bonobo and Gorilla ancestors. The hominid ancestors were forced first into the semiequatorial altitude on the equator, by moving up into the equatorial mountains in Africa. Then, under population pressure they would move east and west, still on the equator. Finally, they would move north and south to the semiequatorial latitudes.

Similarly, the proto-hominids (like Homo Habilis) would be forced out of the semiequatorial altitudes and latitudes by the ancestors of the Chimpanzee. These proto-hominids would be forced up into the equatorial mountains into the subtropical altitudes. Thereon the population pressures would force the subordinates east and west in the usual way. And then north and south into the subtropical latitudes. This is where the fossils of Homo Erectus are found.

The process continued with Homo sapiens Archaic forced up into the warm temperate altitudes on the equator, and thence north and south to the warm temperate altitudes. Another variant of Homo sapiens Archaic appears to have been forced up to the cold temperate altitudes and latitudes.

Homo sapiens Sapiens

Finally, Homo sapiens Neanderthal was forced up into the tundra equatorial altitudes. Population pressure forced their subordinates east and west on the equator; and then north and south to the tundra latitudes. As there were no accessible tundra regions in the south, we only find Neanderthal fossils in the northern hemisphere.

The process continued with the subordinate Neanderthal individuals being driven out of the equatorial mountain tundra regions. However, these subordinate Neanderthals could not go higher up the equatorial mountains - as the polar altitudes are devoid of food. The only way out of the equatorial tundra altitudes was down - into the cold temperate equatorial altitudes.

This was awkward, as these regions were already occupied by a Homo sapiens Archaic specie. The Neanderthal subordinates were forced to coexist with the older Homo sapiens Archaic tribes. They could not compete directly, as the existing Homo sapiens Archaic specie was well entrenched in the cold temperate altitudes. So Neanderthal subordinates had to exist on the food which Homo sapiens Archaic did not want.

In this context, it should be noted that all the hominid specie, until the evolution of Homo sapiens Sapiens, gathered plant food and hunted animals which were smaller than themselves. This was sensible, as large animals were dangerous. However, the Neanderthal subordinates had no choice in the matter.

It was a case of adapt, or move, or die.

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They couldn't move, so they adapted. It is proposed that these Neanderthal subordinates became the first specie of hominid to regularly kill animals larger than themselves. It is further proposed that these Neanderthal subordinates became a robust form of Homo sapiens Sapiens.

When Homo sapiens Neanderthal adapted to the highest altitudes in the equatorial regions, the hominids' life-cycle would have remained similar to that of predecessor species. Thus, they would be gatherer-hunters, whose main diet was plant food. They would still seek small animals and insects, but these are relatively limited in the high mountain tundra regions. There are very few birds which nest in these very high altitudes, so eggs would also have been scarce. The main predator is the Eagle, which nests in relatively inaccessible, rocky crags. All other predators are usually very small, or rare in numbers.

It is proposed that Homo sapiens Neanderthal supplemented their plant food diet, by stealing eggs from the Eagles' nests. This would be a hazardous exercise, but hungry people will go to great lengths to gain food. In this regard, the regular harvesting of Eagle eggs would lead to a consequential decline in the Eagle population -- and a corresponding increase in the Eagle's prey animals. As a result, the high mountain hominids would find a substantial increase in small rodents etc., with which to supplement their diet.

It is unlikely that the hominids would immediately realise that there was any relationship between the stealing of Eagle eggs, and the subsequent increase in the small animal population. However, when the association between these two events was eventually realised, it is proposed that this would lead to a complete change in the hominid life-cycle.

First Cultural Change

As a result, the Homo sapiens Neanderthal specie would become a hunter-gatherer, rather than a gatherer-hunter. This would represent the first cultural change in the hominid species.

In this context, it may be noted that many mountain tribes, in all parts of the world, wear Eagle feathers in their hair. The head dresses of the North American Indians are probably the best known examples; but the Aztecs and the Mayas of Central America also wore similar head-dresses. This tribal practice implies that the killing of an Eagle was considered a public service - as this would lead to a consequential increase in the prey animals of the mountain tribes.

It is proposed that Homo sapiens Neanderthal method of killing their main predator competitors, in order to feed on the predators' prey animals, would be continued by Homo sapiens Sapiens. It appears that Homo sapiens Sapiens concentrated on killing cave dwelling predators first. This would make good sense as such predators are relatively easy to kill. (The hominids would wait for the predator to enter the cave to hibernate, or give birth to cubs; and then block up the cave entrance with logs and boulders).

The progressive removal of competing predators led to a consequential increase in the numbers of prey animals. The typical prey animals were woodland browsers which fed mainly on leaves in the forests. However, the increase in the population of the browsers led to a shortage of food which caused the browsers to supplement their diet with the bark of trees. This "ring barking" led to the death of many trees in the forest, with the result that large areas of woodland became prairies.

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Many browsers then adapted to the increase in grazing by evolving from browsers into graziers. The disappearance of the forests led to the extinction of species which could not adapt to the changed conditions. It appears that the main hominid casualty was Homo sapiens Archaic which disappeared from the fossil record at about this time.

Homo sapiens Sapiens continued to hunt the graziers on the plains, and extended their predator removal programme to cover species such as the sabre toothed tiger. The main prey of this predator were mammoths and mastodons.

In this context, archaeological evidence has shown that modern hominids certainly used Mammoth bones for making temporary tents, as well as for fuel for their fires. However, there is no evidence that these species were ever hunted by the hominids. In this regard, it should be noted that Mammoth skin would have been too heavy to be transported by nomads, although it may have been used as a covering for a temporary shelter.

It is proposed that the large increase in grazing and browsing animals, coupled with improved hunting techniques, encouraged the development of nomadic hunting, as the hominids followed the herds in the seasonal migrations.

However, the large herds would attract large numbers of lowland predators, whose young would not be born in caves or burrows. These predators would be difficult to kill, and the hominids themselves would become subject to predatory attacks.

These predatory attacks would encourage the dominant females of the hominid communities to develop polygynous mating systems, to reduce the predation risks to their young. This would lead to dimorphism, in the usual way. (See Chapter 7 *ibid.*). The resultant change in the perception of the individuals' facial triangles would lead to a reversal of the cold adaptation skull changes, in order to narrow the skull.

However, there could not be a complete reversal of the cold-adaptation changes, as this would eliminate the supplementary facial triangle of the forehead. As a result, in addition to the marginal front-to-rear lengthening of the skull, the head also lengthened from top-to-bottom. This resulted in the relatively tall and narrow skull, which is typical of many present-day cool temperate peoples.

Crime Prevention

Nomadic hunter-gatherers have evolved simple rules to prevent intra-communal competition. These people cannot carry more than their personal belongings, as they travel about their territory. Therefore there are no jails in which to imprison wrongdoers. As a result, all crimes are subject to either the death penalty, or banishment. This is basically the same system as is used by the hominoid Apes, and other similar mammal species.

In a very marginal environment, where food is so scarce that only a food sharing community can survive, the sentence of banishment is effectively a death sentence. As a result, nomadic tribesmen who are banished from present day hunter-gatherer tribes will often stop eating, and fast themselves to death.

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The death penalty is normally carried out on the vendetta principle. Thus it is the duty of the male next-of-kin to avenge the death of any member of the nomadic community. If anybody breaks a tribal law, it is the duty of the family patriarch to carry out the death sentence on the member of his family who has broken the law. If the wrongdoer is the patriarch himself, then the patriarch of the family which has been wronged by the crime must carry out the sentence. This normally leads to the implementation of the vendetta principle, which reduces the male complement in the tribe.

This is a simple system, which is easily understood by the members the community, and tends to promote tribal stability. However, it can create blood feuds between tribes which can last for hundreds of years. This often leads to intermittent tribal wars.

Medicine Men

It is proposed that this was the basic system of community control practised by the migrational humans in the temperate regions. These people would tend to increase in abundance and individual size, due to the increased food resource provided by the large herds of grazing and browsing animals. However, the hunting way of life would be more dangerous than gathering plant foods, and this would lead to the demand for specialist 'medicine men' to heal the injured hunters.

In this context, the vendetta principle would create problems for any practitioners of healing, as the death of a patient could be classified as homicide - and this could lead to the cycle of revenge killings. Therefore, it proposed that the 'medicine-men' resolved this problem pretending that the healing was carried out by a 'spirit' or 'god' . As a result, if the patient died, the vengeance would fall on the 'spirit' rather than the 'medicine-man'.

The curing of physical injury or disease, by the application of herbs, leeches or hot coals etc., would eventually be supplemented by primitive psychological methods to cure psychosomatic illnesses. It is proposed that eventually the human communities would require these 'medicine-men' to resolve community problems, as well as those of the individual or family.

It is further proposed that this would gradually lead to the development of community animist religions, as each major problem would require a different 'spirit' to effect a cure.

When Homo sapiens Sapiens had colonised the whole of the temperate altitude in the equatorial regions of Africa, their subordinates would gradually spread north and south, to the temperate latitudes -- where they would displace their hominid predecessors. When the process of latitudinal colonisation was complete, the subordinates in the equatorial regions would be forced down into the subtropical altitudes. See Figure 6(b).

The gradual adaption to the relatively hot and dry, subtropical altitude would lead to a reduction in the length of Homo sapiens Sapiens' hair. As a result, their hair would become curly, or frizzy, like that of the present-day hot-adapted people.

This would lead to the full exposure of the hominid forehead, and encourage the full development of the forehead supplementary facial triangle. As previously stated, this supplementary triangle contains both positive and negative triangles, so it allows both the males and females to improve the subtlety of their social interactions.

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This physiological development would enable the humans to create a much larger hierarchy, both within and between the specie communities. These hierarchies would be horizontal and vertical, with the development of social rankings where the more dominant individuals secured the best territories.

It is proposed that the development of the improved standards of social interaction would lead to the aggregation of the human family communities, to form tribal communities. This would be paralleled by the emergence of tribal chieftains and tribal priests.

The former would be responsible for the external protection of the whole tribe, while the latter would prevent intra-tribal conflict through the development of centralised laws and a tribal judiciary. In the absence of writing these laws would be memorised by the tribal priests, who would establish their judicial independence by demanding food for the tribal 'god'. In this way, the full exposure of the hominid forehead would create the second major change in the human lifestyle.

It is further proposed that the dominant females within each tribal community would seek to improve their security by manipulating the tribal chieftain. Eventually, this would lead to a symbolic extension of the polygynous mating system, as the rivalry of the dominant females would be resolved by having them all marry the tribal chief.

When the modern humans had colonised the equatorial subtropical altitudes, their subordinates would be forced out of the region, to adapt to the higher latitudes.

Agriculture

In this context it should be noted that the Earth's subtropical latitudes are subject to extreme changes of diurnal temperature, as well as seasonal variations of temperature and humidity. In addition, there can be severe droughts which may last for many years. As a result, the human subordinates would need to have developed substantial reserves of food to survive these occasional subtropical famines.

In these regions, plant species have evolved seeds which remain dormant when dry, but which sprout quickly when the soil becomes moist. It is proposed that the modern humans would eventually determine which were the most satisfactory seeds and nuts to store over long periods.

The extreme conservatism of these humans would encourage the development of extra large stores, to enable their survival in long term drought conditions. In this context, archaeological evidence has shown that such seeds and nuts were stored in large underground pits. These seed stores would form the basis of the agricultural communities which developed within the subtropical latitudes.

The subtropical humans would also need water; and in times of drought, they would tend to dig deeper and deeper to reach the falling water table. However, when the rains came, the flash floods which are typical of these regions, would tend to fill the water holes with silt. These floods could also wash away the shallow seed pits causing the seeds to sprout in the resulting alluvial fans.

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It is proposed that this problem would be solved by the building of wellheads, and grain towers. Any grain which was scattered by flash floods would be harvested when ripe. In addition, it is proposed that these accidental seedlings would eventually lead to the practice of planting seeds after flash flooding.

Furthermore, when these modern humans were forced to colonise the subtropical rivers and estuaries, these techniques would lead to the development of arable farming.

Empires

The development of river, or estuary-based agricultural communities, led to the third major change in the human life style. Thus, the evolution of technology relating to the storage of grain and water supplies, allowed the tribal communities to create tribal empires by invading the territories of the neighbouring tribes.

Previously, a hominid tribe would be unable to remain in a foreign territory, because they would have insufficient food and water for a long stay. However, the agricultural tribes could supply their soldiers with plenty of grain and water, which would enable the soldiers to remain in the foreign lands. As a result, the invaders would have sufficient time to locate all the local sources of food and water, which would enable them to stay in the foreign territory indefinitely.

The first agricultural empires were very successful, as the neighbouring nomadic hunter-gatherer tribes were unable to prevent their expansion. However, the empires eventually expanded to such a degree that they could only grow at each other's expense. This led to large scale wars which resulted in the dissolution of some of the early empires. As a result, their inhabitants were forced to develop smaller city states, in more marginal territories.

The early agricultural empires were the first examples of artificial environments created by the hominids. Other species of animals, such as Bees and Termites, have also created their own environments. However, the greater cognitive development of the hominids allowed them to develop much more complex technological and sociological systems, than the social insects.

These early civilisations developed socially into a mixture of horizontal and vertical hierarchies, based upon complementary division -- with the most dominant males and females adopting the best territories. However, the internal regulation of these civilisations mimicked the complementary union systems of the human body. For example, individual trade developed on the basis of mutual, or common exchange.

The SBI Brood

As the agricultural communities were still subject to predation from both wild animals and foreign tribes, the females still tended to group together, forming polygynous mating systems. However, in the poorer territories, the limited food resources would tend to restrict the mating system to minimal Polygyny, (i.e., one husband and two wives).

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Initially, the first wife would tend to stay at home with the children, while the second wife worked in the fields with the husband. However, when the second wife had a baby, it would have to be suckled by the first wife, to allow the second wife to maximise her work-output on the farm.

In this regard, as the second wife would no longer be suckling her baby, her lactation would cease and her breeding cycle would recommence. As a result, she could be remated by the husband, and eventually bear another baby. If this behaviour continued, the second wife would have one child per year, all of whom would be reared by the first wife. As a result, this brood of human young would be a S.B.I. Brood.

The evolution of the human S.B.I. brood was the fourth major change in the hominid life style. Previously, the tribes would have reared the usual hunter-gatherer L. B. I. broods, where all the babies would be suckled on demand. This would have prevented the females from recommencing their breeding cycles.

However, after the development of shared suckling, the non-suckling females could be remated shortly after the birth of each baby. This would result in a tremendous increase in population, which would only be limited by the productivity, or availability of the agricultural land.

In the early agricultural communities, the practice of transferring ownership of land from the father to the eldest son, created special problems for the dominant females. In this regard, the security of the dominant female was dependent upon her relationship with the owner of the land. As a result, it was essential that she bore the eldest son.

When the dominant females realised that the most fertile women were the ones which did not suckle their own young, they would reverse the previous practice of suckling the other wives babies, and pass on that duty to one of the subordinate wives. In this way, the (dominant female) first wife would have the S.B.I. brood, and therefore have the best chance of giving birth to the eldest son.

In the increasingly densely populated agricultural communities, there would be recurring famines and plagues. As a result, the dominant females would be unlikely to limit their families after the birth of their first son. Instead, it is proposed that the dominant females would only feel secure when they had given birth to several surviving sons. In this regard, it is probable that any daughters born to a (dominant female) first wife would be discarded, as they would have no value to such a female.

By contrast, the subordinate wives would probably favour daughters, as these would be able to marry a dominant male who owned some land. As a result, these subordinate females would probably discard their sons. In this context, it should be noted that infant mortality, infanticide, and child sacrifice were common features of these early agricultural societies.

Another common feature of these communities was the practice of inbreeding, and it made them particularly vulnerable to infectious diseases. As a result, the tribal priests developed very strict rules regarding personal and communal hygiene. In this regard, the Bible provides an early example of such rules, in the Hebrew Laws of Moses.

Psychological Reaction

In these river-based agricultural societies, most of the technological improvements were made by the subordinate tribes in the upstream marginal environments. In these peripheral territories the river banks were smaller; the valley sides steeper; the land drier; and the flooding more damaging. Furthermore, these upstream communities tended to be subject to more interference from migrating herds of animals, and the nomadic hunter-gatherer tribes of the temperate uplands.

In the poorest territories, the farmers were limited to a maximum of two wives, where the first wife had the S. B. I. brood -- which was suckled by the second wife. As the river banks were very thin, the farms were very long and widely distanced from each other. As a result, the homesteads were very secluded.

In such circumstances, it was possible for the eldest children in a S.B.I. brood to undergo a psychological reaction.

In this context, it may be recalled that in S.B.I. broods, the infants tend to be fiercely competitive, and if left unattended the elder infants may attack the younger ones. However, in a human S.B.I. brood, the continuous presence of the mother will usually prevent such attacks.

As the eldest children are the first born, they get all the attention from their mothers when they are born. At this stage of their existence they have no competitors, so they get priority of attention at all times. However, when the second baby is born, the mother will normally give the new born baby the priority of attention. If the elder child tries to compete, the new born baby can normally win its mother's priority of attention because new born babies have much stronger visual and vocal stimuli than older children.

In these circumstances, the first reaction of the elder child is to regress. This means that they will try to gain the priority of attention by behaving in baby-like manner. For example, they will cry, scream, and throw terrible temper tantrums to try to gain priority of attention. However, if the mother is normal, these antics will fail, and the mother may send the child out of the house, or banish it to a separate room. There, the elder child will normally cry, sulk, and exhibit signs of rejection.

In due course, these children normally develop 'withdrawal' symptoms, such as rocking, daydreaming, and the creation of imaginary friends. This is relatively harmless, and providing these children are not totally rejected by their parents, they will develop into quiet, introverted, but responsible juveniles.

However, such elder children retain a preconscious desire to return to the times when they were the centre of attention. As a result, they tend to create 'dream worlds' where they are the most important people, who are praised by everybody.

The eldest child's continual desire to become the centre point of parental attention, leads it to attempt to convert the real world into the child's own 'dream world'. To the child, the dream world is always perfect a place where anything is possible. By contrast, there is always something wrong with the real world -- and therefore the real world can always be improved.

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This would not be the attitude of anybody in a hunter-gatherer tribe. They would accept the real world as it is, and try to survive within the constraints of the natural order. However, the hunter-gatherer tribes only have L. B. I. broods of young. As a result, their elder children do not have to compete for their mother's attention until they are at least four years old, by which time they are mature enough to accept a rival with equanimity.

In this regard, when the mother of a L. B. I brood gives birth to a younger baby, the elder child will already be spending most of its time playing with other infants, or juveniles. As a result, the elder children in a L. B. I. brood do not feel rejected, and do not undergo any long term psychological reaction. Thus, they accept the real world as a normal reality.

In terms of cultural evolution, the psychological effects on the elder children of the hominid S.B.I. broods are sufficiently important to warrant a separate designation for such people. Thus, where the elder children have actually undergone a psychological reaction, the author classifies them as 'Knowledge Seekers' .

Furthermore, as all children are originally either Individual Response Seekers, or Public Response Seekers, depending upon whether they were reared by a Single adult in privacy, or in a multi-adult environment: the 'Knowledge Seekers' may be either Individual Knowledge Seekers, or Public Knowledge Seekers.

In this context, the Individual Knowledge Seekers have a desire to improve the real world on behalf of an individual, while the Public Knowledge Seekers have a desire to improve the real world on behalf of everybody.

Improve the real world

The Knowledge-Seekers are strongly motivated by their psychological reaction. However, because the reaction takes place when they are still in their infancy, the motivation is a preconscious one which the Knowledge-Seekers are unaware of. Nevertheless, they are always looking for ways to "improve" the real world.

As a result, if anybody complains about any problems, the Knowledge-Seekers will dream about imaginary improvements which could resolve the problems. Then they will try to invent new ways of doing things to resolve the perceived imperfections of the real world.

It should be noted that the dream-worlds of the Knowledge-Seekers are very personal, idiosyncratic perceptions. Thus, for anyone other than the Knowledge-seeker, the dream-world may be perceived to be far worse than the real world. Furthermore, many of the Knowledge-Seeker's inventions will ultimately prove hopelessly impractical.

However, the Knowledge-Seekers tend to be persistent, and if any of their improvements are genuinely helpful, their inventions may be adopted by the rest of the community.

All modern human communities tend to be dominated by Public Response Seekers, as the latter usually form the popular majority in all communities. In addition, the Public Response Seekers invariably become the leaders of Government, Religion, the Armed Forces, Industry and Commerce. In this context, their social skills enable them to manipulate large numbers of people, and accede to the highest positions in society.

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As these people have not undergone any psychological reactions, they tend to be extrovert, confident and gregarious individuals, As infants, the Public Response Seekers gradually learn which methods bring them the greatest and most consistent mass response. When they determine the most appropriate methods, they tend to adhere to these throughout their lives. As a result, all Public Response Seekers tend to be conservative.

In this context, the dominant Public Response Seekers tend to be fearful of any change in their community's technological or social environment, as this could adversely affect their ability to maintain a consistent social response - and thus their control of the community. As a result, the Public Response Seekers tend to oppose any changes in technological, or social systems.

In this regard, whenever the hominid S.B.I broods are reared in conditions which produce Knowledge-Seekers, the latter are consistently at odds with the Public Response Seekers. The Public Response Seekers are consistently trying to maintain the real world as it is, while the Knowledge-Seekers are equally consistently trying to 'improve' it. However, as the Public Response Seekers tend to be dominant at all levels of a communal hierarchy, most communities tend to remain relatively unchanged - unless they are faced with extinction. However, during epidemics of disease, or during wars, when the individual extinction rates tend to increase, the inventions of the Knowledge-Seekers tend to be tried out.

This is because the individual's natural desire to survive will tempt people to try anything to avoid death. For example in an epidemic, a dying individual will try a new cure - if the only alternative is death. Likewise, if the armed forces are losing a war, the thought of community extinction will encourage them to try out new weapons, or tactics.

In this regard, the pattern of cultural evolution is similar to the pattern of species evolution. Thus there are long periods of stasis, when the extinction rate is low, which are interspersed with short periods of rapid change when the extinction rates are high.

The evolution of the hominid Knowledge-Seekers represented the fifth major change in the hominids' lifestyle. The Knowledge-Seekers contributed to the tremendous increase in the rate of technological, and sociological development of the hominid communities.

In this context, the marginal agricultural societies in the upstream river environments would be faced with many problems which could cause individual, or communal extinction. As a result, the inventions of their Knowledge-Seekers were gradually adopted, and the marginal tribes made rapid technological advances to solve their problems. In this regard, they developed irrigation techniques, by terracing the hillsides; and flood control techniques through the construction of embankments, and run-off pools.

Eventually, most of the upstream civilisations invaded the estuary civilisations, and formed large, technically advanced agricultural empires. When the upstream societies moved into the lowland territories, they took their animist religions and temples with them.

As a result, the temples of the Incas, Aztecs, Mayas and Egyptians, are all based upon the step pyramid pattern, which symbolically recreates the mountain terraces and steep valley sides of these peoples' original upstream environments.

Shaving

The individuals on the periphery of the early civilisation tended to be raided by nomadic hunter-gatherer tribes, and therefore developed a high degree of skill in personal combat. As the attackers tended to be swift-moving bands of tribesmen, the farmers were forced to develop relatively lightweight defensive equipment.

Furthermore, to prevent their enemies from achieving any advantage in hand-to-hand fighting, they developed the practice of shaving their hair and beards. In some cases as in China and Japan, the hair was tied above the head to form a topknot.

The elimination of the male beard enabled the males to use the negative facial triangle, which is normally only available to the females. This allowed the marginal farmers to reduce their normal level of personal antagonism, and co-operate to form relatively large armies of disciplined soldiers.

Eventually, these soldier farmers took over the leadership of the agricultural societies, where their improved levels of social interaction and control allowed them to create a disciplined and stable empire.

As this improved level of community control depended upon the leaders' personal interaction with the other dominant males in the community, these agricultural empires created a high demand for shaving technology. However, the utilisation of the negative facial triangle, by the males, created problems of manipulative control for the females. As a result, the development of male shaving technology was paralleled by the evolution of female cosmetics, and the utilisation of jewellery to improve the degree of female attraction and control. In this regard, the females started to apply make-up to their eyes, cheeks and lips to enhance their negative facial triangles.

They also used earrings. These helped to emphasise the horizontal line of the lips, as the onlooker's eyes glanced from one earring to the other. The development of shaving represented the sixth major change in hominids' lifestyle, and vastly improved the specie's degree of social control and interaction.

These new personal requirements of the dominant males and females, led to the development of extraction industries to mine obsidian, copper and tin. Obsidian is a glass like material which was used for shaving, while copper and tin were used to make bronze mirrors and knives.

There were similar developments in the use of dyes and ochres for cosmetics. When the local sources of these items were fully utilised, the prospectors developed new sources outside the empires. The precious minerals were transported by sea to the empires, and this led to the development of sea trading communities.

These people were able to diffuse the agricultural empires' technological, and social developments to the surrounding communities, and this led to the gradual spread of civilisation.

The development of the Mediterranean civilisations of Crete, Phoenicia, Persia, Greece and Rome, all followed the usual pattern of evolution. Thus all of these societies were originally marginal tribes, which developed on the basis of sea trading. They all infused the advanced ideas of the early agricultural empires into their own environments.

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As their soldiers developed lightweight fighting equipment, they learnt to shave, and this allowed the development of relatively large and sophisticated civilisations. However, like the mainstream species of plants and animals, these early mainstream civilisations combined an excess of inbreeding with extreme conservatism. As a result, they were all eventually reverse-colonised by the marginal subordinate variant tribes which existed on their borders.

Accidental Nature

There were some variations which indicate the accidental nature of evolution. For example, the Hebrews, despite living in Egypt for over four hundred years, did not appear to have appreciated the importance of shaving. Thus they could never develop, or sustain, a large scale civilisation. Likewise, the Vikings, Goths and Vandals, who overcame the Western Roman Empire, were as hirsute as the Hebrews. As a result, they could only form relatively small tribal empires.

The major religions of the world are generally confined to certain geographical areas. This implies that they are the cultural equivalents of geographically isolated species, which have specifically adapted to localised environments.

The agricultural communities of China, Korea, Japan and India, developed sophisticated civilisations whose religions were based upon the animism of the nomadic hunter-gatherer tribes. Most of these religions comprised a mixture of pantheism and monotheism, which helped to maintain a social system based upon a complementary hierarchy.

However, the tendency of the dominant females to overproduce sons led to an excess of males in these communities. This excess tended to lead to banditry and civil wars, when the surplus males were driven from their father's lands.

In this regard, the emergence of Buddhism helped to stabilise the situation. The Buddhist 'way of life' was acceptable to the existing religions because it did not bring any competitor gods. In addition, the Buddhist monasteries helped to reduce the number of surplus males.

This resulted in a considerable reduction in the level of endemic crime and civil war. As a result, the dominant females tended to support Buddhism because it helped to provide a useful existence for their surplus sons, while indirectly helping their eldest sons to prosper on their farms.

Judaism was the religion of the Hebrews. These people were a cattle herding tribe who practised polygamy, and allowed the husbands to divorce their wives. This is essential in a herding society, as the herds tend to attract predators. Thus the females tend to group together for safety, and must be able to practice a polygamic mating system in order to survive.

In addition, as the herds may be decimated by predators, or famines, the females must be able to transfer to other more fortunate herdsmen in such circumstances. This allows the burden of misfortune to be shared between kinsmen, who can share their families -- providing each herdsman can get an easy divorce. In this regard, if a herdsman was unable to get an easy divorce, his reduced stock would have to feed too many dependants -- and they could all die of starvation.

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Christianity

When the Hebrews developed into an agricultural civilisation, their towns housed many tradesmen and other professional people, who tended to move around the country from town to town. As these townspeople were free from predation, the females did not have to continue their polygamic mating system, and most townspeople became monogamous.

However, if a female married a travelling tradesman, merchant, soldier or priest etc., she might have to move a long way from her parents. Furthermore, if such a female had some children, and was then divorced, she might have a difficult and dangerous journey to return to the safety and support of her parents. As a result, many of the townswomen felt very insecure, because of the easy divorce which could be obtained under the old cattle-herding laws of the Hebrews.

Thus when Jesus Christ started his new sect, he and his followers were supported by many townswomen. This was because they approved of Christ's interpretation of the Bible, in which he claimed that marriage should be indissoluble. Jesus Christ did not disapprove of polygamy; but the early Christian Church quickly confirmed monogamy and indissoluble marriage, as basic creeds of the Christian Religion.

As a result, the early Christian Church was supported by the wealthy wives of travelling tradesmen, merchants and soldiers, and these women converted their husbands to the new religion.

This pattern of religious conversion is perfectly normal, as the dominant females are invariably able to manipulate the dominant males, in all mammal species.

The concept of monogamy and indissoluble marriage, also suited the wives of the arable farmers in the subtropical and temperate regions of Europe. These people tended to live in fortified towns and villages, and did not need a polygamic mating system.

Furthermore, under the Christian religion, the wives could not be divorced through a failure to produce any sons. In addition, their surplus children could be sent to the Christian monasteries or convents. As a result, the Christian religion gradually spread throughout the agricultural areas.

The monotheistic aspects of the Judaic religion, which were inherited by the Christians, made the administration of empires much easier and cheaper. In addition, it tended to prevent the religious civil wars, which were a persistent feature of empires which had many competing animist religions.

As a result, Christianity was eventually adopted by most of the agricultural empires in the temperate regions of Europe. Nevertheless, Christianity was not successful in the hunter-gatherer regions of North Europe, nor in any of the cattle herding regions of the world.

Islam

When Muhammad transmogrified the Judaic and Christian Religions to establish Islam, he emphasised the Hebrew Laws which allowed polygamy and easy divorce. As a result, the herding communities of Africa, Asia and Europe could utilise a monotheistic religion to establish large unified empires throughout the subtropical regions.

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However, Islam had no appeal for the agriculturists in Europe or Asia. As a result, it was confined to the herding environments of the world. In this regard, polygamy and easy divorce would not be attractive to the wives of the Christian farmers of Europe.

It should be noted that it is always the women who determine the hominid mating systems, and they base their decision upon the requirements of life within each environment. This effectively determines the success or failure of any religion.

In this context, it appears that the philosophical concepts of the world's religions count for nothing -- if their laws on marriage and divorce make life untenable for the females. It appears that the most successful religions are those which enable life to maintain its optimum level, within any specific environment.

Judaism

The ability of women to convert their husbands to their own religion was demonstrated to the Hebrews on many occasions. As a result, the Hebrew Patriarchs kept on inveighing against the marriage of Hebrew males to foreign women. Eventually after a period of exile in Babylon, where nearly 90% of the Hebrew males were converted to the Babylonian religions by the indigenous women, the Judaic laws were changed -- in order to ban mixed marriages. Thereafter, the Jewish religion was based upon ethnic isolation.

Schism

The Christian Catholic Church failed in England, when its leaders failed to annul a King's marriage. As the continuation of the marriage could have led to a civil war, the English King formed a Protestant Church of England. This is another typical example of how the environment determines the religion.

The survival of the Christian Protestant Churches of North Europe implied that independent religious behaviour was permitted by the Christian God. This led to the development of even more independent Christian sects, which became known as nonconformist Protestants.

These nonconformist creeds were based upon the concept that individuals could worship in an independent manner, and determine their own ideas of religious rectitude. As a result, the children of these nonconformist adherents were reared upon the basis of independent reasoning.

Basic systems of child rearing

In this context, it should be noted that there are two basic systems of child-rearing, namely: the deterrent system of child-rearing; and the reasoning system of child-rearing.

The deterrent system of child-rearing is the system used by most mammals, where the rules of survival within the specie's ecological niche are taught to the infants. In the Human specie, the parents make up a series of rules of good behaviour. If the infant obeys the rules, nothing happens. However, if the infant breaks the rules, it is punished.

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The deterrent system of child-rearing tends to reduce learning ability, because the infant is generally not prepared to experiment on a trial and error basis. This is because if it makes an error, it knows it will be punished. As a result, it tends to adopt a conservative, defensive attitude to any new situation.

Furthermore, as parental punishment is only administered if the child is caught making a mistake, a child may break the rules if it thinks it can escape detection. In adulthood, such children may become criminals.

The reasoning system of child-rearing is also based upon a set of rules of good behaviour. However, the child is provided with an intellectual framework to the rules, which explain why the rules exist. Thus, the child learns to understand both why and how the present systems of civilised behaviour came into existence.

In the reasoning system of child-rearing, if the child obeys the rules, it is praised. If however it breaks the rules, it is restrained - but not punished.

Thus the reasoning system of child-rearing tends to encourage the process of learning by trial and error, as the child knows that if it makes a mistake, it will not be punished -- although it will be restrained. However, the child also knows that its success will be rewarded with praise, and this creates an incentive for more learning. As a result, these children tend to do much better in school, and usually have better careers and lifestyles.

The evolution of the non-conformist Protestant, reasoning system of child-rearing was the seventh major change in the hominids' lifestyle. It led to the Agricultural and Industrial Revolutions of North Europe and North America. In political terms, it is the basis of democratic systems of government, and the concept of an independent judiciary.

In the late 20th Century, most children are still reared mainly by the deterrent system of child rearing. Thus most countries are governed according to the rule of fear, and most political systems are based upon the concept of hierarchical dictatorship.

However, where a proportion of children are reared by the reasoning system, government is usually practised by a mixture of fear and reasoning, and these political systems tend to produce an alternating elected hierarchical dictatorship, (i.e., pluralistic multiparty democracy).