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*Natural Drift and the  
Evolution of Culture*

*Dedicated to the Memory of Joseph Goguen*

When cultural historians speak of ‘the evolution of culture’ or ‘the evolution of consciousness’, they are, of course, speaking metaphorically. It is one thing to talk of the evolution of the small Ice Age horse shown on the walls of Lascaux to the modern long-legged race horse, but quite another to talk of the evolution of Renaissance perspectival painting into the abstract landscapes of Kandinsky and Pollack.

Evolution itself is no simple matter. Maturana and Varela have argued in *The Tree of Knowledge* that evolution itself can be thought of as ‘Natural Drift’, that is, a bifurcation with downstream consequences sometimes expressed as speciation in an isolated niche, but never simply Nature ‘selecting’ and the organism ‘adapting’ (Maturana and Varela, 1987, pp. 94–117). When one adds Baldwinian evolution that considers the feedback of culture on biology, in that the use of an organ — say, the brain or the hands — encourages its further development, then our understanding of evolution takes on a new dimension. If grannies and aunties start helping their primate offspring to survive, for example, by showing them how to wash tubers in the sea, then the process of Natural Selection is impacted by the cultural behaviour of Grannie and Auntie, and not just the genes of Mom and Dad.

In this essay, I will be using the evolution of culture in Darwinian, Baldwinian, and metaphorical senses. A complex dynamical system deserves a complex dynamical narrative.

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### I. Hominization: From Hominid to Hominin

<i>Victim:</i>	The Animal
<i>Spiritual complex:</i>	Sacred Moods and Felt Presences
<i>Technology:</i>	Simple Tools and Markings of the Body and Tools
<i>Mode of Consciousness:</i>	Waking Dream and Waking Consciousness, often at same time
<i>Mode of Identity:</i>	Sanguinal
<i>Mathematical/Artistic Mentality:</i>	Arithmetic
<i>Gebser's Structure of Consciousness:</i>	Archaic and Magical
<i>Archetypal Human Examples:</i>	Chauvet, Laussel & Lascaux

Let me begin by drawing a distinction between an historical event and a cultural transformation. An event is crisp and singular and occurs in historical time. The atomic bombing of Hiroshima was an instantaneous event; the French Revolution was a longer event, or collection of events, from the Storming of the Bastille to the Reign of Terror. A cultural transformation, such as the Hominization of the Primates, does not take place in historical time; it takes place in the imagination of the scientist or cultural historian and is expressed in narrative, indeed, often in quite unconsciously mythic narratives. Any narrative, Marxist or mystic, that answers the three questions: 'Who or what are we?, Where do we come from?, Where are we going?' will be inescapably mythic. Mythic thinking is macro thinking. Like the quark of the physicist in the narratives of quantum physics, the 'hominization' of the anthropologist is an imaginative construction. In Ludwick Fleck's 'Denkstil' (Fleck, 1979), palaeo-anthropologists have two distinct styles of thought that have been termed 'lumpers' and 'splitters'. In the profession of anthropology some of the members are willing to create a new species on the basis of a tooth; others are more conservative and prefer to lump the fossil under the category of an existing species: which only goes to prove that an artifact is not, by itself, a fact. Just as a flame requires an atmosphere, so does a fact require a theory. And nowhere is this truer than in the fragmentary evidence of a tooth in Ethiopia and a bone in Kenya that supports the imaginative narratives of hominid anthropology.

When I was an undergraduate, tools were considered to be a unique sign of humanity. Now, however, we know that chimps make tools, and that different forms of chimp tool-making indicate different 'cultures'. Yes, chimps have culture, so there is no great gap separating primate

and hominid. And thanks to Jane Goodall, we also know that chimps have rituals (van Lawick-Goodall, 1971, pp. 66–67). When the ionization of the atmosphere shifts and a thunder storm is felt to be looming, the chimps also feel something and line up in two rows to display their order of social ranking. The alpha dominant male chimp runs down the aisle shaking his branch in a meta-epigamic act of display, presumably not to the females, but to the felt Presence in the atmosphere. Then other alpha males run down the aisle. This ritual reminds me of an academic graduation ceremony, one in which the Marshall goes down the aisle holding the mace, and then the faculty process, attired in their silk finery of doctoral robes, and in order of rank and tenure.

The Presence, or presences, the chimps feel expresses the pre-animistic mentality in which no long-enduring tradition has transformed presence into the personifications of animism. Here the sacred ritual can be defined as a way of connecting the part to the whole, the Big Picture. The personification of a presence probably requires the presence of some sort of shaman. At this level of origin, I do not yet think we have reached the formation of shamanism, so I would reserve that term for the next cultural transformation of *Symbolization*, in which we have language and a tradition of artistic/sacred imagery in caves and on rocks. The shaman exists in the shift from Archaic and ‘Ever-present Origin’ to what Jean Gebser (1991) termed the Magical structure of consciousness. But whether we wish to speak of the proto-religion of the chimps with their ritual rain dance, or humans with their mythologizing of moon and menses that I will explore in the next section, we have to recognize that religion is basic to the evolution of consciousness and the development of the brain. It is utter nonsense on the part of Professor Richard Dawkins (2006) to look upon religion as an aberration in human cultural evolution. A large brain provided the hominids with the capacity for facial recognition and pattern recognition in ranking hierarchies. It also provided them with the evolutionary surplus that could be directed to systems of explanation, and religion is nothing if not a system of explanation. It really doesn’t matter whether the explanation is fact or fiction; it is the process itself of explaining events that is important. We may, at least some of us, have outgrown the historical forms of religion that held sway from 3500 BCE to 1945 CE, and recognize now that some philosophers, such as Jean Gebser, have looked upon religion as the *deficient* structure of consciousness and the Integral as the *efficient* form carrying us forward, but religion was still an absolutely necessary stage to go through. We could not have jumped over religion, as Whitehead argued long ago (Whitehead, 1948), directly into the

scientific mentality without the interval of religious faith in the inherent rationality of the universe.

So I would prefer to trace the origins of religion all the way back to the cultures of the chimpanzees and bonobos. But the simultaneous presence of the dreaming mind in the waking state takes a little more explanation. We see this state in the opening section concerned with the Anger of Achilles in Homer's *Iliad*. When Agamemnon 'disses' Achilles in front of the assembly of warriors, Achilles is enraged and reaches for his sword. (Remember, we are still in the shame culture of the archaic Greeks and have not yet shifted to the guilt culture of the Athenians Plato and Aristotle [Dodds, 1951, pp. 28–65].) The goddess Athena appears and restrains Achilles. Only Achilles sees Athena; the others see only Achilles. This scene has always interested me — and Jean Gebser as well — who makes much of the individuation process of anger in his *Meisterwerk*. Recently I was hospitalized for three attacks of tetany and hyper- as well as hypocalcemia. Now, the calcium gates are the regulators of all neural activity, and what I found out was that I could sustain two modes of consciousness at once in states of high calcium. Consciousness broke in half into what Julian Jaynes called 'the bicameral mind' (Jaynes, 1976). In one consciousness, I was sitting in a hospital bed in Santa Fe, New Mexico; in the other, I was hearing a conversation outside my room of an East Indian father and mother, who were displeased with the behaviour of their 'sinful' daughter for wearing jeans and dating boys, as the father felt it was his paternal duty to choose a husband for his still virgin daughter. The next morning I heard a flute, coming from outside the walls of the hospital, and when I closed my eyes I was in India on the shore of the Ganges river, observing some ritual, perhaps a funeral.

Both the trance state and the waking state were equally vivid, but at no time did I simply accept the visual or auditory delusion, and I kept asking the doctors and nurses if they shared my perception and were able to hear the flute. They did not. So it was an epistemologically questioned delusion, and never a totally accepted hallucination. When they brought my calcium levels down — cold turkey by taking me off calcium for my hypoparathyroidism — the patterns I saw on blank walls disappeared, but I also slid into miserable attacks of tetany. So now I feel I can understand Achilles' mode of bicameral consciousness — as did Julian Jaynes. As Jean Gebser would term it, because I was a modern man coming out of a highly developed sense of perspectival space, I experienced the visionary space as 'out there'. What I discovered is that the dreaming mind is going on all the time, along with other completely unconscious processes, and that

consciousness is an attractor floating at the top of all the other dynamical processes with their competing attractors. Achilles probably experienced this parallel space of the waking dream as the realm of the gods and not necessarily as 'out there'.

Before I had had these personal experiences of this hypercalcemic bicameral mind, I never truly understood Jean Gebser's point that ancient humans were in the dream state, for I felt that if they had been they would have been eliminated by predators and enemies. But when I was in this dream state and having visionary experiences, I could competently walk around or talk to the doctors and nurses. I now believe this state of mind is also what Rudolf Steiner was pointing to when he claimed that ancient humans had a clairvoyant capacity and could see the gods (Steiner, 1959, p. 93).

In the hominization of the primates, there is a logarithmic progression in the rates of evolutionary changes. Hominization, from primate to hominin, takes place over millions of years — from Proconsul to Archaic Homo sapiens. Symbolization takes place over hundreds of thousands of years, from roughly 200,000 BCE to 20,000 BCE. Agriculturalization occurs over thousands of years, from 10,000 BCE to 3500 BCE. Civilization takes place also over thousands of years, from 3500 BCE to the fifteenth century CE. Industrialization takes place over centuries from the fifteenth to the late nineteenth and twentieth centuries, but Planetization takes place over decades, sped up by electronics and genetic engineering — or from natural selection to cultural intrusion.

When we look back over the process of Hominization, we see that it is really a natural drift of small bifurcations with enormous consequences. First comes the shift from knuckle-walking to upright posture. Standing tall indicates a shift from short sight lines in the forest to long sight lines in the savannah and over the reeds of lake shores. It also indicates a shift in emphasis of the sensorium from smell to sight. Sir Alastair Hardy and Elaine Morgan (Morgan, 1997) have argued that walking in the bouyancy of water helped support the body's new upright posture and eliminate the surface hair of what Jared Diamond calls 'the third chimpanzee' (Diamond, 1993).

With the climate change and dessication that prodded the movement to savannah cultures in Kenya and lacustrean cultures in Ethiopia, there also emerged a compressive force for hominids to gather protectively in small groups or bands. This bifurcation had several consequences. Facial recognition and pattern recognition for rank and hierarchy — whether matristic with bonobos or patriarchal with the chimpanzees — became critical for survival and thus encouraged the

development of higher cognitive skills. Also, food-sharing, as Glenn Isaacs (1978) has argued, encouraged social bonding and co-operation. As food was brought back to a base-camp, a sexually dimorphic behaviour pattern emerged — much like the Kalahari Bushmen of today — in which women performed food-gathering of plants and tubers and invented fibre technologies for their transport and clothing, and men ranged farther from camp in hunting and invented constantly developing systems of stone tool manufacture.

The shift in diet brought about by collaborative food production — as opposed to opportunistic feeding on fruits and nuts in the forest — also effected a change in encephalization. The massive mandibular muscles that had to be strapped down to the sagittal crest on the skull were no longer critical. The slow release of pressure on the skull enabled the brain case to expand and allow for the larger brain required for facial recognition, rank perception, and hunting in groups; the new meat diet aided an easier ingestion of protein that also encouraged the growth of a larger brain than was the case with Lucy, an Australopithecine (Johanson and Edey, 1981).

And then there is the little matter of sex. In the famous conundrum of the anthropological profession of ‘Who lost oestrus?’, we have to confront the mysterious shift from the chimpanzee’s oestrus cycle to the human menstrual cycle. Fortunately, we now have Franz de Waal’s studies of the bonobos, and not just Jane Goodall’s studies of the chimps. The bonobos certainly look and behave more like the third chimpanzee, in that they stand, and practice frontal intercourse and oral sex, both homo- and heterosexually (de Waal and Lanting, 1997). In fact, they have made sex into a culture, and use it for social bonding and conflict resolution. Humans certainly seem closer to bonobos than chimps, except, of course for Republicans, who in their love of militarism and national defence seem closer to the warring chimps. Bonobos, if they could vote, would more likely favour the nurturing role of Big Government, Social Security, and Gay marriage.

So, looking back, Hominization is an evolutionary process involving the shift to upright posture, encephalization, living in home-based bands, and a shift in diet from nuts and fruits to tubers and meat produced through collaborative hunting endeavours. The shift from oestrus to menstruation seems to be a bifurcation that holds the beginnings of Symbolization and art. Red ochre is mined and most likely used for decoration on women first, then statuary of women. Red ochre becomes iconic and symbolic of the menstrual flow of women (Dunbar *et al.*, 1999).

## II. The Natural Drift from Symbolization to Agriculturalization

<i>Victim:</i>	Men
<i>Spiritual complex:</i>	Matristic (not Matriarchal!); Shamanism
<i>Technology:</i>	Fibre skirts and baskets for food-gathering to garden agriculture
<i>Mode of Consciousness:</i>	Dismemberment    Sacrifice    Incarnation
<i>Mode of Identity:</i>	Territorial
<i>Archetypal Examples:</i>	Dolne Vestonice and Çatal Hüyük

The act of human thinking has two great sources — the production of stone tools and fibre technologies and the mythologizing of menstruation by women. To pick up a rock, examine it, and then make it correspond to the class of Acheulian fist hatchets is to engage in abstract thinking in sets. It also presents us with the incipient classes of nouns and verbs in rock selection and pressure flaking and thus the emergence of grammatical thought. To create a fibre matrix of strands and knots for baskets and skirts, such as we see on the reverse side of the statuette called the Goddess of Lespugue, is to begin to think in numbers and recurring patterns. Also, to take menstrual blood and daub it on the skin of the girl in menarche, first literally, then symbolically with mined red ochre in the dance of all the young women in the tribe (Dunbar *et al.*, 1999, p. 128), is to mythologize a natural act in a cultural ritual and performance of symbolic thinking. Menstruation reveals ‘the wound that heals itself’ in a monthly cycle that corresponds to the lunar cycle. ‘As above, so below.’ Men, knowing the slash of the wounded animal, would be in awe of the red vulva, and a system of ‘Old Ma’s would develop to manage the awe and dread of the men in new mystery rites. Indeed, we see such a system of matristic authority in the culture of the bonobos. And most certainly we see it in the Venus of Laussel, which is daubed with red ochre, and shown holding up the lunar crescent with markings probably expressing the thirteen lunar months of the year. So the origin of the mace of the Marshall in an academic procession may not be phallic, but an older calendrical stick of the O’Ma and midwife that was adopted by males later to appropriate a prestigious symbol of the authority of the female (Thompson, 1981).

And now we need to confront the contentious issue of matristic versus matriarchal. Recently in Phoebe Eaton’s article on Courtney Ross and the Ross School in the April, 2007 issue of *The New York Magazine*, Harvard’s Professor of Education, Howard Gardner, was

quoted as criticizing the curriculum that I had designed for the school by saying ‘that there is no historical evidence that a prehistoric matriarchal culture ever existed’. Matriarchal, certainly never; but matristic, most certainly. Matriarchy is a fearful male projection and is simply the mirror-image of a patriarchal, military state with a nightmarish image of an Amazon woman at its head. A matristic culture is a culture of symbolic authority, not military power, with a council of O’Mas at its head. We see this sort of culture still surviving in contemporary sub-saharan Africa. The arm of defence is the mother’s brother and not the father. We see can detect this archaic formation present in Plutarch’s retelling of the myth of Osiris, Isis, Seth, and Horus. This myth is all about the shift from the mother’s brother to the father and the emergence of paternal dynastic succession. But the problem comes from the fact that behavioural scientists like Howard Gardner and Steven Mithen are not poets with an understanding of the mythopoeic mentality. For example, Professor Mithen, in *After the Ice* (2006), claims that there is no evidence of the imagery of the Goddess at Göbelki Tepe. This is an outright falsification, for on one of the stone plinths there is an engraving of the Goddess spreading her legs in an act of urination that produces the rivers. James Joyce would have understood instantly what this image *means*, for he uses the image of the Goddess in micturation as the emblem of his Great Goddess, Anna Livia Plurabelle in *Finnegans Wake*. ‘Great-Bladdered Emer’ is a kenning in ancient Irish literature and, as well, in the poetry of William Butler Yeats. When Mithen goes on to discuss the religious imagery of Çatal Hüyük, he actually freaks out, and most unscientifically, calls it ‘a neolithic hell’, and projects his personal hang-ups on us and gives us a cultural historical narrative that is biased against women. James Mellaart and Marija Gimbutas were Mithen’s opposite; they were imaginative and knew how to read images (Mellaart, 1967; Gimbutas, 1989). Mellaart was quick and intuitive, and saw in the Twin Goddess of Matron and Maid at Çatal Hüyük, the neolithic prototype for the Greek Demeter and Persephone. Todd and Hoddart have spent two generations at work on Çatal Hüyük since Mellaart, but they are more conservative in making generalizations and merely report on artifact X and stratum level V; they seem to fear the archaeologists’ disease of Schlieman’s Syndrome — named after the wildly imaginative and amateur businessman who dug up ancient Troy — and refuse in their self-inflicted aphasia ever to make a generalization.

There is plenty of evidence for a prehistoric matristic culture, but you have to know how to read poetry and myth. I suspect that Howard Gardner probably had lunch once in the Harvard Faculty Club with

Harvard's reductionist evolutionary psychologist, E.O. Wilson. Wilson probably dismissed my book, *The Time Falling Bodies Take to Light* and its criticism of him with the words, 'Thompson's a romantic' — as he did so later in print. The sneering use of the word 'romantic' is a behavioural scientist's dismissal of the poet and his ability to read literature. If the word 'romantic' was meant by Wilson to lump me in the company of Wordsworth, Shelley, Keats, Goethe and Beethoven, then I would be honoured. But I think the final word about me in the old boy's club of Harvard was that I was not to be taken seriously, but was 'New Age'. However, if one cares to read the Babylonian *Enuma Elish*, the Egyptian myth of Osiris and Horus, Aeschylus's *Oresteia* and Plato's *Timaeus*, one will find ample evidence of the presence of a prehistoric *matristic* society. The shift from matristic to patriarchal is also expressed in the *Rig Veda* and the *Ramayana* (Thompson, 1996/1998). By the time of the Axial Period of the *Upanishads*, we have truly passed over into the culture of the sadhu and monk — which is archetypally expressed in the life of the Buddha. On McLuhan's terms, we have also passed from the oral folklore of the O'Mas to the power of the written text in the hands of monks, and the portability of the new sutras helps to transform Buddhism into a new universal religion, spread along the silk road from northern India and Tibet to China, and then on to Korea and Japan.

But all these cultural shifts occur much later than the emergence of Symbolization, which is a developed mystery religion based upon menstrual blood and the symbolism of the treasured colour of red ochre.

From 200,000 BCE to 20,000 BCE — the assigned date of the Venus of Laussel — the process of Symbolization has abundant time to develop — even on the terms of Darwinian evolution and its slow time. But the log of humanity has now taken a big step and shifted the rate of evolution from millions of years — from Ramapithecus to Archaic Homo sapiens — to hundreds of thousands. Cultural, Baldwinian evolution is showing up as an acceleration of time through the feedback of culture on 'nature' — which is its own kind of mythic narrative construct. The more humans there are, the more innovators there are; and the more they communicate, the more the process of innovation is accelerated. And so the feedback of culture on natural selection generates an acceleration of the rate of evolution.

Endocranial casts of human fossil skulls now begin to show that the speech centres of the brain are becoming more highly developed. Anthropologists speculate that Neanderthals and modern Homo sapiens would not have had the same levels of speech and complex thought — indicated by the presence of art in Ice Age sites. So, please,

abandon any notions that art is about feeling and science is about knowing; art is a highly developed cognitive process.

The presence of musical instruments and engraved tools and statuary in Ice Age settlements indicates that naming the species with the use of the Sanskrit word 'Manas' — meaning 'mind' — hit the mark, literally. 'Man' derives from 'Manas' and not 'men'. Indeed, men — male humans — begin to serve as the cultural victim. Considering 'the wounded man' scene from the pit in Lascaux, we can say that: We slay with technology and then save the victim with art. The animal is the victim for Ice Age cave art, but men begin to become the victim in Upper Pleistocene to Neolithic art. Imagine when, in some 'rites of spring', the dying male is offered to the enduring Great Mother in a sacrifice of time to eternity. For another poet's imagining of the sacrificial culture of the Neolithic, consult 'The Rain Maker' at the end of Herman Hesse's novel, *The Glass Bead Game*.

Closer to the Palaeolithic side of this transformation, we are confronted with a mythological reconstruction of human sexuality. The shift from oestrus to menstruation is emphasized with a mythological system of 'the wound that heals itself', and the colour red, is highlighted first with menstrual blood, then symbolically with red ochre. The menstrual cycle — and the likely menstrual synchrony in which all of the women of the band express menstruation together, probably with menstruation at the dark of the moon, and ovulation at the new moon — sets down the foundation of matristic authority. A mythological system is imagined in which the female is the symbol of enduring time — the classicist Nietzsche's Eternal Return of the prehistoric Goddess — and the male, with the shorter time of the rise and fall of the penis — is reconstructed as the phallus. Since crescent sickles were used by women for gathering wild grains in the foothills of the Zagros Mountains, the association of the lunar crescent, ovulation, and the mysteries of childbirth and food-production would have been further energized. The androgynous figure that can exist in the gap of the contradiction between red vulva and the phallus is constructed as the shaman, 'the wounded healer' who holds in his magical nature both bleeding wound and phallus. It is at this point we enter the full culture of shamanism, with its transformation of the Sense of Presence of the chimps and bonobos to the personification of Presences in the spiritual culture of Animism. This is the world's first universal religion, the religion of the Great Mother, and its artifacts are wide-spread from Iberia to Siberia. Years ago, I bought a statuette of Matron and Maid similar to that of Çatal Hüyük that the Native Americans were

selling to the tourists at Tiahuanaco in Bolivia. The Bolivian Indians of the Andes called this epiphany of the Great Goddess, 'Pacha Mama'. At the beginning of this cultural transformation, the animal is the Victim that is slain with technology and saved with art, the art of, Chauvet Cave, Dolne Vestonice, and Lascaux. At the end of this transformation, it is men who are reconstructed as the Victim, something we see in the ithyphallic stick figure in the scene from the pit in Lascaux.

In an artifact from the Chauvet Cave, we encounter a stone engraved with a bear's paw, moving to touch an ithyphallic half-animal and half human figure — presumably the shaman with 'the touch'. When humans first took over the caves of the enormous Cave Bear — probably by killing them in hibernation — they used the jaw to decorate an altar and the shaman took on the skin of the bear as a sign of his powers with the animals — perhaps the first expression of the pattern, 'We slay with technology and save the victim with art.'

Toward the Neolithic side of the cultural transformation, we see the transfer of the mythological system from caves to the walls of constructed settlements, first on the plinths of Göbelki Tepe at 9500 BCE in modern Turkey, then on the walls of the settlement at Çatal Hüyük, 6500 to 5400 BCE in modern Anatolia. But there have been other technological, and not just artistic shifts, going on, so here we need to pass on to the downstream effects of the natural drift from food-collection to food-production.

Mithen's emotional reaction to Çatal Hüyük, in calling it 'a neolithic hell', is quite strange for an archaeologist; generally, archaeologists avoid emotions and generalisations and stick to non-committal reports such as 'figurine found at level V'. But perhaps Mithen is on to something, and just doesn't know how to use or trust his instincts or intuitions. Perhaps he is feeling an aura of human sacrifice. The Olmecs certainly give me the heebie-jeebies, and when I visited their sites in Villahermosa and looked at their jaguar baby statuettes, I shivered in dread, as if these were artifacts of black magic and sorcery having to do with the human sacrifice of fetuses (Blumenthal, 1999; Tate and Bendersky, 1999).

When the practice of human sacrifice arose, we don't know yet. The Celts were certainly into decapitation and carrying the heads of their enemies at the front of their chariots, and Colin Renfrew (1987) has made a case that Turkey is the original homeland of the Proto-Indo-Europeans. So whether human sacrifice arose at Göbelki Tepe, Çatal Hüyük, or Newgrange, we certainly do know it is present at Stonehenge and described in Homer's *Iliad*. What Mithen may be reacting to is evidence of the privileging of women over men at the

site. Women are buried in the largest section of the domestic shrine, with the top artifacts their technology can produce — highly polished obsidian, showing under microscope no signs of their fine technique, and the new metalurgy of copper ceremonial daggers. The men are buried in a smaller corner with out-of-date, ceremonial stone instruments of the hunt. The male figurines are always buried in the shrine of death under the vultures that are used for scaffolds dedicated to excarnation by birds — after the fashion of Zoroastrians and Tibetans today. The ceremonial obsidian is the source of the economy of this large neolithic town, and it appears to have been traded to places as far away as Jericho. In the murals and shrines, the representation of the Great Mother giving birth is found more often than the small figurines of men.

At Çatal Hüyük, we probably see the male in birth, the male riding a horse, and the male with mature beard and wearing a cap. Then in the murals, we see a head presented to the vulture shrine. In another mural we see a headless being, painted half black and half white, surrounded by priestly figures holding musical instruments and wearing costly leopard skin skirts and dancing, with some figures without heads — presumably the dead ancestors — in some sort of ritual. Perhaps the mirror is used for seeing the realm of the dead and the costly ceremonial dagger is used to send them there. On the whole, the culture seems similar to the pueblo cultures of Chaco Canyon, Taos, and Santa Fe. We appear to be seeing the climax culture of the matristic, or its sunset effect. In the fourth millennium BCE, we will see evidence of the full shift from matristic to patriarchal, and the shift from the Sumerian Goddess, Inanna to the god Enki, but we will hold this discussion for the next section.

What we have here in this climax culture of the matristic is the archetypal pattern of 'the king must die'. The female represents the enduring mode of time; the male represents the vanishing mode. A cultural pattern or motif is called archetypal if it is present in the previous culture, or cultures disappearing into the depths of time. The female is not simply obese, she is cosmically immense, as we see with the Goddess of Willendorf and the Goddess of Laussel, or — interestingly enough in our time — that the Ovum is huge and the spermatazoon tiny. The Great Mother is the cosmic One becoming the many, the female 'matrix' able to produce the dependent male. The rise and fall of the male is the primal story of time: all the way up to the Mississippi Delta Blues of Frankie and Johnnie, in which a male in display is cut down by a female. And so we can see why male scholars, from C.S. Lewis to Steven Mithen and Howard Gardner, are often nervous in the presence of the matristic. Nevertheless, we often encounter this archetypal motif in song, literature, and film.

### III. Civilization

<i>Victim:</i>	Woman
<i>Spiritual complex:</i>	Religion
<i>Technology:</i>	Writing, Irrigation Systems, and Militarism
<i>Mode of Consciousness:</i>	Belief in Doctrine Faith Individuated Ego
<i>Mode of Identity:</i>	Linguistic
<i>Gebser's Structure of Consciousness:</i>	From Magical to Mythic
<i>Archetypal Examples:</i>	The Oresteia and Enuma Elish

At Çatal Hüyük, the domestic architecture and the sacred architecture were one and the same. There was no temple set apart, and, presumably, no specialists set apart as a class of priests. Çatal Hüyük gives one the feeling that it was the sunset effect of shamanism and matristic culture that, perhaps, had its beginning at the ceremonial centre of Göbelki Tepe in 9,500 BCE and lasted until the end of the fifth millennium BCE. As rituals became more elaborate, and the space for them as well, the small domestic shrine became inadequate and there was a natural drift from shamanism to religion. With an elevated ziggurat as the temple, and a communal grain storehouse, one suspects there also was a new elevated class of literally 'high' priests who were supported by the food surplus created by irrigation agriculture and not merely by simple gardens. The tokens that were used in the late fifth and early fourth millennium BCE have been shown to be the precursors of the cuneiform signs that are impressed on the clay pots for storage in the temple granary (Schmandt-Bresserat, 1996). In the ancient Sumerian literature, the men are described as leading the oxen into the fields for plowing, and the plow itself is presented as the penis and the furrow as the vulva. The Sumerian word for 'semen' is the same as for 'water,' so we are now presented with a new sexually-based remythologizing of the prehistorical menstrual/lunar mystery rites. Irrigation technology is masculine, the writing stylus is phallic, and the wedge-shaped vulva character of cuneiform is a performance of the sex-act, with the inscribed wet clay tablet serving as mark of the vulva and field for plowing. Walls and standing armies with a warrior class arise, so Civilization is a new cultural process of the linkage of the classes of literate priests and warriors. When patriarchy domestically, and patriarchal dynastic succession, politically, replace folklore, oral culture, and matristic authority, we have crossed over into the great bifurcation of patriarchal civilization.

Even before the rise of Sumerian civilization in the fourth millennium, we have evidence of the beginnings of a social transformation in the fifth millennium BCE in Syria (Akkermans and Schwartz, 2003). The small round house, that we saw in early neolithic Jericho, that argues for a social complex organized around the O'Mas and the whole village, gives way to rectangular and more complex houses with private storehouses. The private storehouse, perhaps, indicates that the family and its property, and not the village as a whole, is the organizing force for the settlement. From Turkey, down through Syria, and into the riverine valleys of the Tigris and Euphrates, the neolithic of prehistoric society is transformed, over two millennia, into Civilization.

At Çatal Hüyük, we have to read the story of the rise and fall of the male through a reading of the imagery. This is better work for poets and art historians than data-processing scientists, so it is little wonder that Robert Graves and Marija Gimbutas have provided greater insights here than Brian Fagan or Steven Mithen. When we come to ancient Sumer, we can read the love cycle of the humble shepherd Dumuzi and the Goddess Inanna straight from the clay tablets. Dumuzi is humble, rises to the favour of the Goddess, becomes proud, and then is cut down. This story is also written in the sky by the movement of the planets Mercury and Venus and the stars, and the priests would now be the ones to chant the story, perform the ritual atop the ziggurat, and keep to themselves the hierophantic ability to read the stars in what over the millennia will become astrology and Chaldean lore (Thompson, 1981, pp. 174f.).

But this story of the powerful goddess is more the archetypal narrative for a zodiacal period in precession of the equinox — a month in the Great Year — or from 4000 to 2000 BCE. By the time of the rise of Akkadian and Indus civilizations, the goddess is in descent and the god — whether Enki or Indra — is in ascent. By the time of the Assyrians and Babylonians, patriarchal warrior society, whether nomadic and based on the horse, or urban and based upon the fortress and ceremonial centre — is triumphant.

With the rise of the city and the imperial ceremonial centre, the prehistoric Arithmetic Mentality begins to give way to the new powers of the Geometric Mentality. The Arithmetic Mentality revolved around the Great Mother — the One who became many — and held the power of generation — of creatures and numbers. But to draft plans for ceremonial centres with monumental statuary and imposing fortresses required geometry. This process of transformation is recorded in the Babylonian *Enuma Elish*, which shows the male war god Marduk

tearing apart the body of the Great Mother in order to build the city of Babylon, and it is shown in Aeschylus's *Oresteia*, in which the warrior goddess Athena, born from the head of her father Zeus, revokes the power of maternal custom with its avenging furies to build the new power on the written text and the law courts of the city of Athens.

This structure of urban civilization is not unique to the fertile crescent. From Babylon and Athens and An Yang China to Carella in Peru and Teotihuacan in Mexico, warriors and high priests become the universal social structure of civilization.

#### IV. Industrialization

<i>Victim:</i>	Religion
<i>Spiritual complex:</i>	Art and Science
<i>Technology:</i>	Print and Mechanization
<i>Mode of Consciousness:</i>	Collective knowledge (Knowing) The Genius
<i>Gebser's Structure of Consciousness:</i>	From Mythical to Mental
<i>Archetypal Example:</i>	Descartes

When I was a cultural historian at MIT in the sixties, I worked on redesigning the Institute's freshman humanities curriculum, and also on the high school curriculum for the public schools in nearby Newton, which at that time was a national showcase for innovation and excellence in public education. Indeed, many of the MIT faculty members chose to live in Newton so as to be able to send their children to its good public schools. While I was redesigning the freshman humanities course into an interdisciplinary course on the culture of cities from ancient Sumer to contemporary Los Angeles, I noticed a strong English bias in the scholarship of the previous course on the Greeks — designed, of course, by Anglophile Harvard-educated professors. When I shifted my attention to the high school curriculum in Newton to design an interdisciplinary program on the Industrial Revolution, I noticed, once again, a strong English bias in which the Industrial Revolution was described as having begun with the appearance of factories in England in the eighteenth century. Nothing much was said about the change in finance through capital formation and debt management that were all influenced by the Dutch in the seventeenth century. In the so-called 'Bloodless Revolution' — which was only bloodless in England and not Ireland — William of Orange also brought with him Dutch thinking, and the model for the new National Bank of England was the Bank of Amsterdam (Schama, 1987).

Not only were the Dutch ignored, but so were the Italians. The great French cultural historian, Fernand Braudel, set the origins of the Industrial Revolution back to the workshops of Renaissance Florence in the fifteenth century, and the new capitalistic mentality of the Medicis back to the introduction of Indo-Arabic numerals and double entry bookkeeping in the thirteenth century (Braudel, 1984, p. 272; Crosby, 1997).

It certainly makes sense to follow Braudel, especially if one looks at cultural transformations not so much as events but bifurcations that express ‘the long wave’, or a natural drift over centuries. We were all, for the most part, raised to think of history as a collection of military dates, 1066 and all that, so if we wish to pamper our need for dates, then let us take 1500 as a dividing point in the shift of mathematical mentalities from the Geometric and Algebraic to the Galilean Dynamical Mentality (Thompson, 2004). The medieval Geometric Mentality is one in which motion is a fallen state, charging interest on loans is *usura* and sinful, and static humours are seen in Galenic medicine to affect the health of the body. The new mentality is one in which motion is constitutive of value. The movement of money with interest increases value, and the movement of trading ships — from the Chinese Ming Global Expansion in 1423 to Columbus in 1492 — expands the whole world picture. Kepler shifts Ptolemy’s world-picture of perfect circles to less perfect ellipses, Harvey discovers the motion of the blood, Galileo computes the motion of falling bodies, and at the end of the shift from medievalism to modernism, Newton and Leibniz work out the new mathematics of calculus to describe the movement of the planets, and then everything really gets going, as the future, and not the past, becomes the locus of value when your ship comes in.

The Chinese eunuchs who administered the Ming Empire did not understand this new dynamical mentality, and tried to continue to rule the empire with a medieval Geometrical Mentality. The world was fixed and derived from the Emperor’s Mandate from Heaven, so all value derived from the past in a Confucian system of ancestor worship. Trade was tribute, and foreigners were suspect. The Muslim Admiral Xeng He was, therefore, a personal threat to the imperial court when he expanded its world picture. And so he was recalled, the records of his twenty years of costly world travel were burned, and the capital was shifted from coastal Nanking to inland Beijing. But meanwhile the Portuguese were sailing down the coast of Africa to Asia, and, on African currents, across to Brazil. And so the global projection of a new world civilization fell to the hands and minds of the

Europeans and not the Chinese; and, at that time, China was the world's most advanced civilization. The Europeans were then still a scruffy and unbathed smelly lot to both the Chinese and the Aztecs.

In the global projection of Western European civilization, three different societal structures were used in an attempt to control and manage the new world-space: the kingdom, the empire, and the newly emergent industrial nation-state. The Dutch and the English discovered, in their Anglo-Dutch wars of the mid seventeenth century, that war stimulated maritime innovations, and that expanded trade and maritime innovations also stimulated competition and war. Thus a co-dependent process evolved in which capitalism and war fed one another. The feudal kingdom fell by the wayside, and it was left to the military empire and the nation-state to determine which structure was most suited for the development of 'the military-industrial complex'.

But as the feudal kingdom, exhausted and out of breath, fell back in the race of modernization, so did one of its chief supports and aides. Religion just couldn't keep up with Art and Science. The new prophets of the age were Blake, Wordsworth, Goethe, and Beethoven and not the Pope or the Archbishop of Canterbury.

The hungry 1840s had been a hard time for the Masters of Industry. The Tories were slow to catch on to the fact that the Gross National Product was not the sum of the rents on all the land in Great Britain (Macaulay, 1979, pp. 488, 505). The protectionist Corn Laws tried to protect the farmers, but some of the Scottish Lords were beginning to cotton on to the idea that putting sheep rather than peasants in the fields could produce the wool for the mills of Manchester and Birmingham, and thence on for global export — if those damn Gaelic-speaking crofters and Indian calico cottage industries could be just gotten out of the way of free trade and British industry. It took a few minor adjustments, such as the Luddite riots, the Peterborough massacre, and the Irish Famine for the Liberals to teach the Tories how to protect and develop the industrial system in the interests of capital formation and investment, but by 1851 they were ready to celebrate and show off in a big way with The Crystal Palace of 1851.

The site chosen for the Great Exhibition by the Members of Parliament was Hyde Park in London. The problem was that there were a lot of lovely trees in the Park. Then one of the members came up with the idea that there was this chap Paxton, who had built some quite large structures for the green houses of the landed gentry. Thus it was that Joseph Paxton, not even an architect, but an amateur constructor of green houses and solariums, was about to build one of the most important works in architectural history. Thanks to the new materials of

industrial-strength glass and wrought iron, Paxton came up with an ingenious solution. The trees would not need to be cut down; they would be enclosed.

For the first time in history, nature was no longer surrounding culture; culture was surrounding nature. But the Great Exhibition did not stop at miniaturizing nature, it went on to miniaturize religion in Pugin’s Medieval Court. ‘We slay with technology and save the victim with art.’ Or, as McLuhan would phrase it: ‘The sloughed-off environment becomes a work of art in the new invisible environment.’

The harshness of the new iron technology was to be softened with decorations in which the content camouflaged the structure. This Hegelian dialectical process of *aufheben* shouldn’t surprise us, for Queen Victoria was able to hide behind her Neolithic Great Goddess imago the reality of a modernizing industrial nation-state.

### V. Planetization

<i>Victim:</i>	The Mind
<i>Spiritual complex:</i>	Global Music and Personal Meditation
<i>Technology:</i>	Electronics
<i>Mode of Consciousness:</i>	Noise (Participation) Rapture
<i>Mode of Identity:</i>	Planetary and Sub-national Noetic Polities
<i>Gebser’s Structure of Consciousness:</i>	From Mental to Integral

In 1851, London became the capital of the world, but by 1889, the year of the Universal Exhibition, the French had caught up, and Paris, in the words of the cultural critic Walter Benjamin (1974) became the ‘intellectual capital’ of the nineteenth century. For this exhibition, the Eiffel Tower was created, and it was the first human structure to pass the Great Pyramid in height. Edison showed his moving pictures, and Satie heard Indonesian gamalan music for the first time, and was so impressed by its complex rhythms, that he eliminated mechanical time markings in his own compositions to strive to express a tonal *durée*. *La durée* also became the focus of Bergson’s philosophy of time, as both Bergson and Proust worked to explore the new space of consciousness, particularly, time consciousness. In the year 1889, the mathematician Poincaré single handedly invented complex dynamical systems and won the prize from the King of Denmark by proving that the solar system was not truly elliptical in Kepler’s sense, but was a chaotic system.

Florence, Venice, Antwerp, Amsterdam, and London had all been great trading metropolises, but late nineteenth-century Paris was something new under the sun. With its painters, poets, scientists, philosophers, and mathematicians, Paris was becoming the world's first noetic polity. With many minds thinking about related ideas in an open and non-ideological fashion within a quite novel ecology of mind, Paris became an example of the parallel-processing of art and science that produced, not a religious ceremonial centre like ancient Hellenic Alexandria, but a noetic polity — one based not upon tribe, territory, or trade, but participation in shared states of consciousness. So let us once again satisfy the student's of history's love of dates by saying that 1889 is the year in which global music and planetary culture were born.

Cultural history tends to overlook the contribution of mathematicians like Poincaré, unless like Einstein they serve the invention of a new sort of bomb, but in the long view, the general, whose statue may be in the park, is an insignificant figure, and the mathematician or scientist who is not there is the unsung avatar of an age.

Music is an invisible architecture. Noise, therefore, is a medium of communication, indeed, the ground of our new electronic being; but silence is fearful and makes us feel as if we were suspended in a disturbing free-fall of consciousness. Satie prophetically understood this new relationship between music, noise, and information, and long before the music of Varèse and Stockhausen, or the information theory of Shannon, he incorporated the clatter of typewriters into his ballet, *Parade*. Now noise has been promoted to a background for thought, and teenagers prefer to do their homework with their headphones on. So we have *ipods* everywhere, from subways to planes, and *Muzak* in restrooms and elevators. With a commitment of time to the fitness gym, the restaurant, and the club, no one — except professors who are paid to do so — has time to read anymore, so believing that the informed citizen is going to make rational judgments about the best qualified candidate to send as his or her representative to Washington or London is a relic from a print-based farming past. No wonder the more traditional Canadians still call their political districts 'ridings'. In the shift from the technology of print and the mentality of *representation* to the technology of electronics and the mentality of *participation*, one now votes for the celebrity of one's choice, one who is able to raise the most money for ads on TV, and thus the American Presidential Election has become only another version of America's favourite TV show — American Idol.

In this shift from *representation* to *participation* in a global medium of noise, one needs to recognize the paradoxically contradictory nature of a global ecology of mind composed of the distributive lattice of noetic polities. Representational space was constructed around a centre/periphery dimensionality; but participatory space is constructed around node/lattice circulations. Like a rocket with its small nose cone pointed to outer space, but all hell breaking loose in the other direction, the emergence of noetic polities is also characterized by a new dumbing-down in the mass-media. Queen Victoria and the neo-medievalism of Pugin, the Pre-Raphaelites, the Oxford Movement of Cardinal Newman, and the Arthurianism of Tennyson all served to camouflage the structure of Industrialization with the content of the Middle Ages. So now our new mathematical mentality of complex dynamical systems and our new global electronic technology are camouflaged with the mindlessness of comic book movies, rock music and pseudo 'Country Music', Clear Channel opinion radio, Creationism, and a general anti-scientific attitude. But just as the fire of the rocket and the navigation systems of the nose cone both serve to move the rocket away from Earth, so do the noetic polity and the new mass stupidity serve to take us away from the stability of the territorial nation-state into the chaos dynamics of a new planetary culture.

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