

Harmony and Tension in Early Human Ecology: From Prosopocentrism to Early Theocentrism

Manussos Marangudakis

Department of Sociology
University of the Aegean
Mytilene
GREECE¹

Abstract

The Stone Age constitutes a substantially and symbolically decisive era of human development. Substantially, since it informs us of the ways our archaic ancestors perceived and treated the natural environment. Symbolically, since primordialism is considered by many to be the stage of human purity and uncorrupted expression of human psyche. An investigation of the Upper Palaeolithic period leads us to question the “ecocentric” thesis, that is, the alleged stage of harmony between primitive homo sapiens sapiens and nature. Instead, by distinguishing between nature-as-resources and nature-as-symbolism, and by stressing the open-ended nature of human bio-psychology, we arrive at the tentative conclusions that palaeolithic egalitarianism facilitated a “prosopocentric” (person-centred) Cosmic Order characterized by the conflation of subject and object. It was not ecologically sensitive and thus it did not prevent economic exploitation and environmental damage. During the Neo-lithic period the band became socially, economically, and politically caged. Symbolically, it meant the shift from pro-sopocentrism to theocentrism (god-centred cosmic order). Though the passage to hoe and agriculture shifted attention from fauna to flora appropriation, the economic attitude itself remained opportunistic and exploitative. We conclude that while social structures were at the heart of Stone Age worldviews, opportunistic appropriation of scarce resources depended on both knowledge of the local environment and social competition.

Keywords: ecology, ecocentrism, Stone Age

Introduction

Prehistory fascinates normative political theory as no other single period in our history, as it constitutes the defining moment of our entrance into the world, the state of innocence, and in the Judaeo-Christian tradition, the Paradise Lost. No wonder then that it also constitutes the foundation of political, moral, and social discourses, the explicit or tacit

foundation of political theories, and movements for maintaining or altering social structures.

Recently, the Palaeolithic Age has once again been mobilised, this time by radical environmentalism, to suggest that primitive or tribal communities of hunters and gatherers show us the way to build a benign and ecologically sound society. The argument is not new. Since Rousseau introduced it as a political alternative to Hobbes' idea of primitive life being “nasty, brutish, and short,” a number of modern western thinkers (Marx, Adorno and Horkheimer, and Levi-Strauss among them), have perceived primitivism as a state of “harmony” in the social and the ecological realms. The predominance of egalitarianism and group values, the ritualistic and bloodless attitudes toward warfare, and the apparent political equality between sexes constitute attractive cultural properties and an alternative to the evils of modernity.

The Stone Age: A Modern Arena

The latest appraisal of preliterate, egalitarian societies, and the alleged harmonious relationship they keep with nature, started in earnest in the 1970s with Marshall Sahlins' book *Stone Age Economics* and its “original affluence” thesis (Sahlins 1972). Sahlins declared that primitive egalitarianism was not synonymous to economic harshness. Instead, the deep knowledge these bands possessed about their local ecosystems allowed them an easy and affluent life based on the demand, rather than the supply, of goods.

... the [Stone Age] economy is seriously afflicted by the imminence of diminishing returns. Beginning in subsistence and spreading from there to every sector, an initial success seems only to develop the probability that further efforts will yield smaller benefits. This describes the typical curve of food-getting within a particular locale. A modest number of people usually sooner than later reduce the food resources within convenient range of camp. Thereafter, they may stay on only by absorbing an increase in real costs or a decline in real returns: rise in costs if the people choose to search farther

and farther afield, decline in returns if they are satisfied to live on the shorter supplies or inferior foods in easier reach. The solution, or course, is to go somewhere else. (Sahlins 1972, 32)

Affluence was thus achieved not by producing more, but by wanting less. Furthermore, Sahlins asserts that Palaeolithic communities essentially applied similarly economic criteria for portability of possessions and individual band members. Anything or anyone that was too costly to be moved or cared for was left behind. This selective possession/population trimming reduced the general impact on the environment. There was a practical utility sensibility to their calculations — they maintained a stable collective ecological impact in order to sustain their desired standard of living. In other words, by living according to ecological rules, by living *in* nature, they were living a good life. The impact of Sahlins' original thinking was enormous, influencing a plethora of other similar studies, which eventually turned the "original affluence" thesis to a new anthropological orthodoxy (Desveaux 1995; Wall 1994; Chagnon 1992; Lee 1979; Krader 1979).

It was only a matter of time before radical social movements drew on primitivism to reflect and challenge modernity and its institutions. The battleground this time was not the ancient regime (Rousseau), capitalism (Marx), or the dark side of modernity (Adorno and Horkheimer), but modernity as such, and the fundamental divisive line that modernity draws between nature as dead matter and extraneous of ethical value, and male domination, hierarchies, and aggression. To this bleak picture, prehistory offers an alternative worldview, a time when nature and humans were interlinked and depended on each other as humanity was the steward of a living, divine planet (Capra 1996; Merchant 1995; Gaard and Gruen 1993; Plant 1989).

Archaeologists and anthropologists sympathetic to the "paradise lost" thesis, mostly eco-feminists, provided support to this argument reinterpreting certain Palaeolithic sites and artifacts as evidence of lost matriarchal civilizations where female deities, pacifism, and egalitarian politics ruled up until the 5th millennium, when they were overthrown and replaced with male hierarchies, masculine deities, and endemic warfare (Gaard and Gruen 1993; Plant 1989; Gimbutas 1982). Other scholars went even deeper into our past locating the rupture between society and nature to our primeval biological makeup. Accordingly, an important evolutionary transformation took place 200,000 years ago when males "adopted" behavioural traits to fit their hunting activities (Collard and Contrucci 1988; Haraway 1989; Fisher 1979). The violent and competitive behaviour of the hunter toward his prey was the element that dissociated him from the rest of the natural world, and yielded the sense of hierarchy, violence, and death. Civilisation, as a matter of fact, is ori-

ented toward violence and death, and this is the reason why in all civilizations both women and nature are perceived as inferior to men. The message is clear: primitive, Palaeolithic bands had developed an *ecocentric* worldview with their eyes fixed on the spiritual value of nature living in harmony with each other and their surroundings.²

The way of primitivism, the natural and harmonious way, is thus mobilized to save us from the sins of capitalism, patriarchy, technological oppression, and even civilisation. Yet, as the pendulum started to swing in the opposite direction, and in a genuine dialectic fashion, an avalanche of "revisionist" archaeological data and anthropological findings forcefully rejected any genuine tribal eco-sensitivity. Instead, it is argued that tribal life, both in our past, as well as among contemporary tribes, involves environmental mayhem and ecological vandalism that escapes evolutionary or adaptability reasoning (Ponting 1991; Ellen 1986). As far as Palaeolithic bands are concerned, available data confirm that the infamous "Pleistocene Overkill," the deforestation of Europe and large areas of Northern America, the extinction of most of the large mammals in both the Old and New World, the transformation of large parts of New Guinea to grasslands, and local ecological collapses (e.g., Easter Island, Malta), were at least partially caused by human action. In all, controlling for ecological-atmospheric changes independent of human activity, and considering their small numbers, our ancestors did damage their ecosystems extensively (Anderson 2002; Mannino and Thomas 2002; Ponting 1991).

Thus, we are obliged to ask the overwhelming question: Are we right to identify notions of nature with environmental attitudes? Should we associate ecologically sound practices with egalitarian societies? Is it justifiable to assume that "nature" and "environment" are the two sides of the same coin, and then move on to discover how men and civilization destroyed it? In spite of the widely shared assumption, notwithstanding the Hollywood images of the "noble savage," that if you respect the environment you love nature, and to do both you should aspire to simple, small-scale, and egalitarian life, we have to rethink the issue from the very beginning.

Social Behaviour and Environmental Action in the Old Stone Age

At first glance, the apparently middle-of-the-road palaeoanthropological conclusion that there is no straight link between egalitarian bands and ecologically sound and benign practices, leaves us closer to Dante's purgatorium rather than to Hegel's synthesis. If primitive life were not ecologically wise, and if the natural environment were perceived as a warehouse of economic resources, then how do we explain the unquestionably central role nature played in

primitive life, the worship of nature in a million different forms, and the forceful fusion of nature and society in Stone Age art, in cosmic myths, legends, stories, and worldviews? How could we make sense of the apparent contradiction between an environmentally unaware behaviour (to put it mildly) towards the natural environment, and the domination of nature's discourse in matters of social life? How is it possible to reconcile environment and nature?

The riddle becomes less paradoxical if instead of conflating nature and environment, we start treating them as two distinct categories, one being "nature as morality," and the other "nature as material resources." We could thus start the inquiry afresh with a working hypothesis, that *nature is a moral category providing guidance for social action and environmental contact*. In respect to "social action," nature shapes normative standards and cognitive categories; it serves as a tangible reservoir of exemplary images and metaphors, as an ad hoc "abstraction-maker" facilitating the formulation of authoritative patterns of social behaviour. In respect to "environmental contact," nature offers us the cognitive means to identify, to interfere with, and to appropriate the resources the physical environment provide us with to acquire wealth, status, and prestige.

The argument needs further clarification. Nature serves as a heuristic concept, as a normative lens informing us of what is proper social behaviour. As Kant noted, and the Gestalt psychologists later demonstrated, understanding and acting upon the world is impossible by sense perception alone. Human communication, as well as appropriation and manipulation of material resources, depend on shared *meaning*, and the establishment of certain meanings produces a set of acceptable and unacceptable rules of social action and order. We could hardly find in our history any social system that, consciously or not, does not assume to be a reflection of "naturalness." The reason is generic. Societies are constructions of individuals who share long-term bonds, established and maintained by symbolic communication. Thoughts and actions take place in particular "symbolic universes." By definition, these symbolic universes dictate non-reflective, routine social interaction, while by default they distinguish between the "obviously" correct and natural, and the unnatural or deviant. "Natural" behaviour, especially before the advent of high, *contra* nature, morality, is behaviour that follows implicit rules, regulations, and perception drawn on particular symbolic-cognitive maps (Eisenstadt 1986). It provides normative guidance as to how people should act toward each other, largely dictating what is, or should be, aesthetically pleasing and ethically desirable, thus delineating the boundaries of morality.

Morality is embedded in, yet not exhausted by, matters of social action. It also embraces the natural environment.

The reason is that action upon the world is not genetically fixed, as instinct does not exhaust contact with the environment. Any action is learned and transmitted from one generation to the next. Action has to be impregnated with meaning before it occurs. But meaning is socially constructed through communication with other members of the band who constitute moral agents always "knowing" what really exist. This vernacular ontology is manifested in particular worldviews, in Cosmic Orders. A Cosmic Order is the perceptual-moral arrangement of the physical and social environments, which corresponds to a specific understanding of reality. Thus, a Cosmic Order is a symbolic universe that has incorporated the natural environment as a self-aware and voluntaristic agent. Yet, there is a qualitative difference between the moral character of the social and the moral character of the natural environment that most ecological discourses tend to ignore. On the one hand, the social environment is made up of human beings, cognizant subjects who take an active part in the construction of the social self. On the other hand, the physical environment is composed of passive objects that, *contra* Latour, do not take an active part in the above process, though they *could be* meaningful and intentional in the eyes of the social actor. Ingold's description of the bear is instructive:

The fact that the bear, of all animals, is universally singled out for special treatment probably has less to do with its size and strength, or with the desirability of its meat, than with its extraordinary anthropomorphic qualities. They are, like human beings, omnivorous. The traces they leave behind them, in the form of footprints and excrement, are much like those left by men. They are manifestly intelligent, and display very human-like bodily and facial expressions, even weeping when upset. Their sitting posture resembles that of a man, and so does their capacity to stand erect upon their hind legs. Almost without exception, observers have noted the remarkably human form and proportions of the bear's carcass after it has been skinned, lending credence to the idea that the animal is really a man in disguise. (1986, 257-8)

The objective resemblance of bears with humans has not changed since the species first made their appearance. Yet, neither agrarian, nor industrial societies consider bears as humans in disguise, not because the actual knowledge of the animal has changed, but because agrarian and, especially so, industrial social organization, does not allow such species shifting. Perception of the bear depends upon human imagination, communication, negotiation, and ritualistic incorporation of the beast into the human community. Thus, symbolic interaction with the physical environment is neither genuine,

nor complete. Instead, it stands mute on the borderline between symbolism and appropriation waiting to be invited into the social domain by social organization. The ambivalence is brilliantly captured in Durkheim's (1915) treatment of nature as an element of symbolic communication taking place inside the social domain, manifested in rituals, ceremonies, and myths. By and large these matters are reflected in particular worldviews, images of Cosmic Order and notions of Wilderness or Otherness. As for the connection between "social behaviour" and "environmental contact," between symbolism and economic appropriation of natural resources, it can be found in the support that social actors offer to particular discourses about nature. In the Stone Age environment, the undifferentiated, non-specialised band guaranteed a basic consensus. But what could be the features of such a communal organization, and what kind of discourse could it facilitate?

Human Uniqueness and Primordial Social Organization

The investigation of the Palaeolithic period will start with two axiomatically given simple variables: human physiology and the demographically meager bands roving on an apparently vast planet. The question that follows is, what could be the relationship between economy, politics, and perception of the environment? Apparently, all three subject matters were interconnected to some degree since they were part of the same social milieu. Yet, which one of them was the driving force? Our investigation will show that none of them had the power to control the rest. Instead, the key point of the relationship was the small human population itself.

Up until 5000 BC, which counts for two million years, or 99.6% of the lifetime of the species, the human population numbered approximately five to ten million. And for most of this time humans lived as wanderers, as gatherers, hunters, or scavengers. This kind of life enabled the species to spread around the continents, and to learn to survive not only in favorable areas but also under the harsh conditions of the desert, the steppe, the tundra, and the pole. Cultural adaptation meant that the first human communities had developed a variety of diverse social practices and technologies. Yet, we became distinct as one species, and different from all other species by a series of unique biological and technological features that *homo erectus* had already mastered in limited, yet, certain ways: uprightiness, tools, and the domestication of fire.

Uprightness (c. 2 m.y.a.) combined with frontal vision invites a spatial organization in a structure prohibited to other mammals: in four horizontal directions radiating from an up-down vertical axis. The experience of feeling oneself "thrown" into the middle of an apparently limitless and threatening extension, the vertigo of disorientation, invited methods of orientation and space organization around a center, the original one being the human body itself. Distribu-

tions of territories, agglomerations, habitations and their cosmological symbolism derive from this principle (Eliade 1987, 3; Mithen 1996, 235). It structured space around us in a particular and unique way, opening new pathways to be explored, and new opportunities to be exploited. Even by "being there," our uprightiness facilitated curiosity, exploration, and superior control of the environment.

Use of tools came after bipedalism, almost 1.5 million years ago. The first tools served as extensions of our body. Cutting stones, the earliest-known worked stones, or the later bow and arrow tips do not resemble any part of mammal anatomy, as for example does the long stick used by chimps as an extension of their fingers. These tools represented both manipulation of the natural environment and innovation — an "escape" from constraints that other animals faced. The effort embedded in the task signified an all-present creativity that humans had to employ vis-à-vis the behavior of animals. The domestication of fire, that is, its production, preservation, and transportation came at around 700,000 BC. Fire did not only allow night sociability, and movement of humans into harsh climates (Simmons 1993; Clark 1976), but in addition it possessed a unique symbolic value that was appreciated later on, at around 40,000 BC. Fire could perform peculiar, yet vital tasks for the survival of the band, such as keeping predators away, altering substances by cooking, as well as altering the appearance of the natural surroundings. It became the spatial focus of the social group, perhaps even the first sign of the Culture vs. Wild perceptual dichotomy which will be further developed in the Upper Palaeolithic period (Goudsblom 1992).

These abilities were qualitatively different from the ones other species possessed in that they were specific expressions of a "general intelligence," facilitating generalizations based on experience. Yet, there was something peculiar to these abilities; they were compartmentalized. Arguably, single-program intelligence is slow in acquiring and processing new information since the latter is chaotically stored with every other piece of information the mind collects from its environment. Acquisition of knowledge above a certain level needs specialized intelligences, or specialized programs (Mithen 1996). Mithen argues that indeed, our ancestors possessed compartmentalized programs that he calls "intelligences." The first one the homo genus came to possess was *social intelligence* (10 m.y.a), intelligence that was needed to understand social hierarchies, as well as to empathize with members of the social group. Social intelligence made the group more cohesive, strengthening emotional bonds, and more effective, enhancing organizational efficiency. The second compartmentalized program was *natural history* (1 m.y.a.). It facilitated expansion of our observation of the surroundings, and effective orientation. Natural history intelligence made hunting and gathering more efficient, while it allowed our ancestors to explore and inhabit

a vast variety of geographical settings. During the same period a third specialized program made its appearance, *technical intelligence*. It enabled humanoids to fashion tools and use them in complex ways. To these three intelligences *linguistic intelligence* was added 100,000 years ago. Peer communication did not have to remain visual and tactile any more. Mithen reasons that it was linguistic intelligence that finally forced all four separated programs to merge together at around 30,000-40,000 years ago, creating the mind of modern humans. This new integrated intelligence precipitated the ability of the individual and the group to manipulate social and physical environments and enlarged the material and symbolic gap between humans and non-humans.

Bipedalism, tool-making, and integrated intelligence have something in common: they do not refer to boundaries and limitations, as other biological features do, but to opened possibilities. There is no predetermined limit in tool making, bipedalism “opens-up” the horizon to investigation and cognitive manipulation, and integrated ante-compartmentalized intelligence allows specific information to be stored efficiently and still be able to communicate with the rest of the “intelligence departments” facilitating endless combinations of imaginative thoughts — *gestalt ad infinitum*. In practice they became “coordinates” creating, *ex nihilo*, an unmapped cultural domain, a world of potentialities common to all tribes on the globe. Due to these biological foundations, our species was from the beginning doomed to escape its ecology, as it was opportunistic, knowledge cumulative, and susceptible to innovation.

There is general agreement that the first fully human communities of hunters and gatherers that appeared 40,000 years ago were confined to small, egalitarian, mobile groups of about 200-300 people. As mentioned before, unlike the popular belief in the harshness of conditions, current anthropological studies have shown that successful bands enjoyed a long-term nutritionally adequate diet, with most of their time devoted to leisure and social activities rather than to economic ones, accompanied by a certain freedom concerning the kind and span of their social attachments. Making tools and providing shelter required low levels of labor investment and effort. Furthermore, material resources (wood, stone, food) were found “outside” the socially controlled environment (where some kind of individual or kin power differentiation might occur). Internally, any serious dispute could end with the “exit” of the aggrieved side from the group (Woodburn 1982). The “immediate” return of the labor investment (killing an animal, gathering fruits) reinforced the ease of the exit strategy. Cooperation was based on choice of habitation and on the ability of the individuals to provide for themselves. This loose formation meant a loose social structure. Hierarchical differences between persons and between age-

related and gender-related roles did exist, but they were not institutionalized. Those in ad hoc higher positions could not order the group as a whole, and thus lay their hands on its collective resources. Since each and every able-bodied individual added significantly to the chances of the band to survive, egalitarianism was prevailing. On the other hand, the wondering life of the band, the absence of permanent settlements, and thus of fixed boundaries between culture and nature made human contact with nature immediate and omnipresent. What kind of worldview did this social life invite?

The Mechanism of Building a Cosmic Order

In *sui generis* social groups, such as the Palaeolithic ones, all kinds of worldviews are potentially possible as long as they satisfy one condition: to help the small and fragile band to survive. Since all social species are able survive only by cooperation, the worldview should have stressed social cohesion. Thus, we start with a simple model of natural selection: our ancestors possessed the social skills of empathy and long-term reciprocity, as well as the four specialized and integrated intelligences. Sociability and empathy promoted cooperation, but these skills could not operate without symbolic representations. As *homo sapiens sapiens*’ cognition is plastic, cognition alone does not determine symbolism. Apart from fallible sensory observation there is no secure way of knowing the external environment as anything else but “possibilities” or “affordances.” Will the stone be used as a landmark or as a weapon? Will the tree possess a protecting spirit or will it be recognized as firewood? But our biology does not name these functions; we have to provide each and every possible entity with a name.

The raw materials have to be organized in accordance with a scheme, economic and cognitive, of our own device — the process is voluntaristic, but is not boundless. Indeed, there is a key mechanism hidden in brain structure and social empathy that combined with the social organization of egalitarianism channeled cognition to a specific path. The integration of “social” and “natural history” intelligence (40,000-30,000 BC), combined with the absence of cultural caging, created a propensity to develop “social relationships” with plants and animals, structurally similar, but not identical to those developed between people. As abstraction remained limited without the aid of the written word to facilitate a fully reflective vocabulary, natural elements, animals, plants, and landscapes became not only means of abstraction, traits of which are found later on in pictograms in all high civilizations, but concrete ends in themselves as well.

The argument deserves further elaboration. Social structure, perception, language, thought, and sense of the self are interrelated, linked by “shared presuppositionality.” High levels of shared knowledge, such as the knowledge possessed

by Upper Palaeolithic egalitarian bands, reduced the need for highly explicit linguistic coding of information for functional communication. Low levels of linguistic sophistication provide few resources for the handling of complex problem-solving or symbolic abstraction. Prehistoric linguistics verifies the above argument claiming that the first words to be uttered by humans were *phememes*, minimal units of sound that became more elaborate only during the Neolithic Period (Foster 1996). Absence of social caging and lack of writing guaranteed that collective representation was unable to move beyond a gesture-vernacular minimum unable to emphatically distinguish between culture and nature, the necessary step to the subjugation of cultural arrogance to nature. The external non-human environment was negotiated phememically rather than reflectively among members of the tribe who shared a common living, common hopes and fears, and then renegotiated by other bands with equal power of conviction to arrive at a common worldview shared by distinct cultures such as the Mousterian, the Auringnacian, and the Gravettian.

Shaping a Worldview Ex Nihilo

In a nutshell, empathic negotiation among roughly equally powerful band-members was the mechanism of creating a Palaeolithic worldview. The actual context of the worldview was shaped by more specific variables: the constant movement of the band, low levels of specialization, contextual experience, observational learning, and group conformity. This worldview was firmly situated in the concrete, the immediate, and the tangible, void of reflection, abstraction, and objectification. Our palaeolithic ancestors were “conceptual realists” ascribing objectivity to their dreams, and believing that the name of a thing is attached to the thing itself (Hallpike 1979, 31). Douglas (1988) calls it “pre-Copernican,” and Hallpike “pre-operational.” Both authors perceive it as pre-scientific. Such reasoning, notwithstanding its western-centric bias, misses the point that it was void of *any* concrete categorization. A first condition of the Palaeolithic Cosmic Order is that the world evolved around the subjective condition of its observer. The person did not differentiate the object from the subject, and the observer from the observed. In this case the external environment is not definite. Causality was recognized as intentional forces: humans, animals, vegetables and minerals acting upon, and affecting other beings. Furthermore, “self” and “agent” did not coincide. An individual could be made of multiple personalities, or of agents other than a unitary self. Spirits, bad fortune, or other amoral agents could easily take the responsibility for what had occurred in a person’s life. Lastly, intelligence was attributable to any constituent. This could be a tree, an incident, a disease, or a limp. Any action toward it would involve the same process as communicating with another human being. In other words, symbolic communication was unitary.

A feature of this worldview was that the “universe,” as it was revealed in cognitive constituents, could discern and make purposeful judgments concerning social affairs. Yet the universe itself was amoral; it had authority because it possessed forces that affected human life. In this manner hunters and gatherers regarded animals as similar to humans. Eliade summarizing ethnographic studies notes:

They believe that a man can change into an animal and vice versa; that the souls of the dead can enter animals; finally, that mysterious relations exist between a certain person and a certain animal... As for the supernatural beings documented in the religions of hunting peoples, we find that... (they) protect both the game and the hunters; spirits of the bush; and spirits of the different species of animals.
(Eliade 1978, 7)

On the other hand, a social life based on free movement and loose attachments abhors *nomos*, a dogmatic, definite, and authoritarian approach to the order and meaning of the world. The profane and the sacred could not be clearly distinct in this case. In a wandering hunting and gathering society where female exogamy was a standard social practice, the order and meaning of the world was fluid. The symbolic world of hunters and gatherers, the social and natural domains as we would call them today, was mythopoeic, as it included stories of creatures not clearly separated from either the natural world or human beings. Some religions merged a human clan, natural phenomena like rocks and birds, and mythical ancestral persons in totemic, loose classification. Since social and natural surroundings were symbolically a single domain, “religious” action was, necessarily, participating in the world, not acting upon it. Ingold’s analysis of tribal appropriation of nature highlights the homology of culture and nature:

On the one hand the human community may call upon one of their number, especially credited with mystical power, to visit the spirit guardians of the animals, often with an appeal for help. This man is of course the shaman. On the other hand, the community may be visited by an emissary of the spirit world, and the usual form he takes is that of a bear. Indeed to all intents and purposes, as far as the people are concerned, the bear is a shaman; or in other words, a shaman may just as well be a human masquerading as a bear, as a bear masquerading as a human.
(1986, 257)

Spatially, the Cosmic Order was perceived as a homogenous maze, void of vertical and horizontal order, with no preference for a right-angled frame of composition (Laing and Laing 1993). In Palaeolithic cave art the subjects, though

structurally ordered, do not have to take a vertical posture with their feet pointing to the lower side. Instead they are depicted as flowing into space free from gravity or any landscape features (see parietal figures in Ucko and Rosenfeld 1967). Following causality and space, time was also blurred. Hunting and oral communication facilitated a life based on “tactics” rather than on “strategy.” It depended either on short-term decisions based on the movement of the herd on which the band relied on for its existence or a foraging pattern to be repeated *ad infinitum*. Such conditions did not allow an elaborated distinction of past, present, and future or the qualities that follow from this distinction. Primitive time was specialized and bound-up with particular events and thus highly heterogeneous. Acknowledging the intermediate links in a chain of events was very difficult, even unnecessary. Concrete operations lacked the sense of simultaneity and obstructed the coordination of duration and succession.³

Technology and Environmental Degradation

As it was mentioned in the previous pages, diffusion of human and non-human world has invited the morally loaded suggestion that the Palaeolithic worldview was “ecocentric,” ethically bounded to nature and symbolically diffused around space rather than centered on the social domain. Yet, while “nature as morality” remained operational due to continual absence of social caging, “nature as resources” was open to exploitation to the degree that technology allowed for. Let us examine then the technological innovations of the Upper Palaeolithic bands.

The passage from Middle (100,000-40,000 BC) to the Upper Palaeolithic period (c. 40,000-10,000 BC) corresponds to the demise of *homo sapiens neanderthalensis* and the forceful appearance of modern humans, *homo sapiens sapiens*. The transformation of the human mind with the merging of the four intelligences to a supra one corresponds to archaeological evidence which speaks of rapid expansion and elaboration of previously known technological skills, ultra-specialized tools for hunting and fishing, food processing and storing, camp building, sophisticated economic techniques (sites of “central place foraging”) with a wide radius of territorial appropriation, increased levels of social cooperation, and a subsistence economy relying heavily on hunting rather than on gathering or scavenging (Mithen 1996; Fagan 1995; Foley 1991). The precipitation of cultural evolution is intensified as we move closer to the end of the last Ice-Age (10,000 BC). The people who lived in central and eastern Europe invented the bow and arrow, and developed specialized weapons and tools. In just one of their camps, 1,000 skeletons of mammoths were discovered. The cultural evolution in Europe continued with the Solutrean (c. 23,000 BC), and Magdalenian cultures (c. 15,000 BC) with a further spe-

cialization of tools and weapons. The common aspect of these “advanced” Palaeolithic cultures was their dynamic character as it is reflected on the level of their technological innovations; the tools unearthed from this era are much more complex and specialized than their predecessors. Instead of one-for-all uses that characterizes the Neanderthal tools, now there is a series of axes, spears, hooks, and arrows made of bone, ivory, horn, wood, or flint to be used on different occasions and for different food species. The construction of the spear-thrower and the perfection of the bow were the most significant of these developments. In functional terms they meant more successful hunting. Advanced stone technology and population growth combined with global warming (c. 10,000 BC) put serious pressure on the environment. Though the significance of each factor is disputed, the end-result was the vast alteration of the global ecosystem (Elston and Zeanah 2002; Dobs 2002; Simmons 1993).

The most impressive environmental alteration is the massive extinction of large mammals between 12,000–10,000 BC, also known as “Pleistocene Overkill” (Martin 1987). It corresponds with the end of the Ice Age and the colonization of northern Europe and the Americas by invading bands of hunters and gatherers. The fact that the extinction of most of the lost large mammals (200 genera of herbivores with an adult weight of >50 kg) was rapid in places recently colonized by humans, suggests that human incursions did not allow the herbivores any chance of natural adaptation (Simmons 1993, 3-9). As far as gathering is concerned, the key development in the new post-glacial era was the selective facilitation of edible crops’ growth and fertilization. Fire, flint axes and ring barking were used to promote some plants over others, thus disturbing the food chain of large herbivores, and the “naturalness” of the ecosystem in general on a global scale. Forest clearing also occurred in many isolated places to facilitate the hunt for specific species (such as the red deer in Britain). We cannot ignore some positive interference such as irrigation, or fire management of the forest, to improve the productivity of the land. Yet, this seems to be the exception rather than the rule. The relatively high mobility of the band did not allow heavy investment of a local character.⁴ Nevertheless, the most serious impact occurred on the animal population. A good reason for this is that:

...it is much easier to damage this part of an ecosystem because the numbers are smaller and populations, particularly of larger animals or carnivores at the top of the food chain, usually take a long time to recover from any over-hunting. Although there is some evidence of attempts by groups not to over-hunt, there is far more of uncontrolled hunting and even the extinction of species. (Ponting 1991, 33)

Tannahill, speculating on the amount of meat necessary to keep an average band of forty people alive suggests that:

...at least two pounds of boneless meat per adult per day must have been needed, and by that reckoning a mature modern bull — weighing something like three-quarters of a ton on the hoof — would have supplied enough to feed the group for about ten days. His wild ancestor, very much smaller and bonier, may have provided enough for only three or four days. (Tannahill 1973, 8)

If we consider the small chances a hunter or a group of hunters had to be successful then it is not surprising how seriously the hunting was taken. Indeed, most of the depicted animals in caves are ruminants, from mammoths and deer, to wild goats. What are absent in almost all cases are plants; gathering, as among modern hunters and gatherers, was played down.

As Simmons (1993) argues, respect for nature was opportunistic — it was expressed when no economic interest interfered. Desveaux (1995) reasons that this opportunism was deeply embedded in the domain of social organisation of predation and reciprocity. At times of scarcity the bands were careful not to deplete the few available resources, only to forget their sensitivities in times of abundance, or when they entered in uncharted localities. The world, for mobile people, would have certainly appeared limitless, with a virtually unlimited supply of food — much the same attitude industrialised nations employed until very recently with respect to available natural resources or the earth’s ability to absorb industrial waste. And some, such as the U.S., still resist change. This behaviour could hardly be called “ecocentric,” as we understand it today, since no particular respect or consideration was shown to other species. Nor could it be called anthropocentric, since no clear concept of humanity or its supreme destiny could exist in such a social milieu. A more accurate description of this worldview would be “person-centric,” or, to follow the standard usage of Greek terms, “prosopo-centric.” The members of the band recognized themselves as being made of, and surrounded by, personalities — that is entities with a character, specific psychological features, and intentional patterns of behavior.

Table 1. Paradigmatic human-nature encounters.

	Cosmic Orders		
	Anthropocentrism	Ecocentrism	Prosopocentrism
Source of Ultimate Meaning	Humanity	Nature	Subject-Object
Utility	Nat. Environ.	Nat. Environ.	Nat. Environ.

Table 1 clarifies the argument. While natural environment in all three “Cosmic Orders” remains the domain of economic utilization, the source of ultimate social meaning varies. In the anthropocentric paradigm humanity becomes the source of meaning thus conflating “nature” and “environment” into one subject matter. Consequently, anthropocentrism treats nature as if it were environment, which is by definition void of symbolic and moral meaning. In contrast, Ecocentrism upgrades “nature” as the ultimate symbolic and moral domain, thus restricting the utilization of the environment. But to arrive to either anthropocentrism or ecocentrism we must first *acknowledge* them as two distinctive cognitive domains. This was not possible 30,000 years ago due to absence of appropriate linguistic and social-organizational means. Instead, their world was prosopocentric. It blended subject and object into a multiplicity of purposeful entities void of high morality.⁵

The Cultural Manipulation of Matter and Space

We have seen how bipedalism, advanced brain structure, speech, the domestication of fire, and specialized technology were *de facto* distinctions between the species *homo* and the rest of the living organisms. The brain enlargement and the changes in the mouth cavity that follows our evolution from *homo habilis* and *homo erectus* to *homo sapiens neanderthalensis*, and changes in brain structures which lead to *homo sapiens sapiens* increased our ability for communication, consciousness, and representation. When the specialized intelligences finally merged, rudimentary abstraction and imagination took hold of the human brain. Thus, an object, such as a cutting tool, could also potentially stand as a symbol for its function, such as “killing,” “strength,” and so on. Since some functions were perceived as more valuable than others (evidence of which is the elaboration, or the stylistic and aesthetic emphasis on a selected array of tools, such as axes and cutting stones), objects could objectify the desire for social prestige (Laing and Laing 1993; Hodder 1990).

Though Upper Stone Age language was too crude, too contextual to extract symbolism out of their material or situational context, the act of shaping material into a cultural form was probably enough to create an embryonic, contextual, binary opposition. While this opposition itself cannot be easily disputed, its meaning and use is a matter of speculation. Hodder (1990), for example, argues that prestige derived from a manipulation of the wild (e.g., hearths in caves, burial sites, elaborate hunting points), brought forward a *sui generis* cultural order against the wild, against the natural domain. But his suggestion for a Culture vs. Wilderness *polemic* interaction is not plausible in a prosopocentrically unified and contextual world incapable of uttering “culture” or “nature.”⁶

Yet, if we bypass this programmatic part of the argu-

ment, we could still acknowledge the social significance of the cultural manipulation of natural objects. The order created by manipulation could indeed be used socially and functionally to remove fears and satisfy needs, and it could also be used to create respect for individual domination and social hierarchies (Sieber 1966). Indeed, there is evidence that with the beginning of domination of *homo sapiens sapiens* 40,000 years ago, social competition among bands, clans, and families for prestige and higher status via gift exchange, redistribution of group-resources, luxury goods, and acquisition of wives was intensified (Bender 1978). As long as authority was vernacular, the control of natural objects and their symbolism could become a playground where various social elites could compete for, and manifest their equally contextual and immediate, uncertain supremacy.

This cultural space became the available playground for the development of symbolic bipolarity between the sexes. There is evidence that during the Upper Palaeolithic (40,000-10,000 BC) extensive dependency upon large mammal resources (e.g., mammoth) invited intensive male cooperation and facilitated male provisioning (Foley 1991). On the other hand, the abundance of meat hunters brought back from their expeditions allowed them to provide for females and youngsters, and thus reduce the energetic demands of reproduction for the benefit of mothers and infants. Male provisioning increased paternal investment and husbandry, leading to patrilinearity and exclusive male privileges.⁷

Division of labor among male hunters and female gatherers, as well as initiations and ceremonies marking manhood and womanhood (increasingly important in the presence of diverse gender behavior and mild dimorphism), marriage, and death, intensified and polarized the biological differences of the sexes through gender-specific rituals (Helskog 1995). Again, elements of the natural environment played a central role in the drama of symbolic social order. Initiation into adulthood usually included a journey beyond the known surroundings into the "wild," and identification of the initiative with the forces of wilderness. Natural elements such as the sun and the moon, and a series of animals were symbolically manipulated (like the Lascaux horse-bison bipolarity) and quite possibly politically loaded. The location of parietal Palaeolithic art provides us with an example: while part of it was exposed to everyone by being located close to the opening of the caves, and thus near habitation, another part is far down in the most remote, darkest parts of the caves and in no way associated with habitation. Such location by definition prohibits access but to a few, privileged ones (Ucko and Rosenfeld 1967, 112). The way this privilege was becoming operational is unknown. Yet, judging from the energy consumed to culturally shape and access dangerous and remote spots, we can assume that the act could not have a trivial purpose.

Durkheim (1915), and more recently Rappaport (1971), have suggested that human organization is impossible without the presence of ritualistic sacred propositions since they alone can guarantee sincere communication, undisputed organization, and emotional bondage. Rituals sanctified social interaction, but they also sanctified the pursuit of prestige in the form of feasting and gift exchange, which multiplied during the Upper Pleistocene. We end up with the sanctification of the environment (natural and social) in a sexually divided, yet not very cohesive and not very systematic, worldview, informed by implicit knowledge, immediate experience, and restricted abstraction.

Standing Between Harmony and Tension

It follows that as a general statement, prosopocentrism facilitated reverence for the natural environment, even for wilderness. Yet, reverence was placed in the Cosmic Order scheme of things, and it was a matter of symbolism. Symbolic fraternization with nature did not necessarily translate into a harmonic relation with the natural environment, since symbolism cannot be collapsed onto economic activities. A concrete example of distinction between symbolism and economy is mentioned by Mithen in the case of an encounter between an Inuit hunter and a polar bear. "This animal is thought of as a fellow kinsman, but it is also killed and eaten with delight. This combination of a deep respect for the animals they hunt, often expressed in terms of social relationships, and the lack of any qualms about actually killing them appears to be universal among hunter-gatherers" (Mithen 1996, 216). He proceeds to explaining this apparently contradictory behavior in terms of brain structure: two different cognitive domains, namely "natural history" (seeking food), and "social intelligence" (social bonds), operate independently from one another to produce two contradictory attitudes towards the same subject matter. We could explain the same kind of ancient hunter-gatherers' behavior employing sociological concepts. While the social organization/space nexus was organized around natural objects and "supernatural" forces of spirits to produce a voluntaristic Cosmic Order, the vernacular economic culture of hunters and gatherers was opportunistically driven by the all-pervasive struggle for survival hard-pressed by population pressures and ecological fragility. We do know that hunters and gatherers possessed a great deal of knowledge about their environment, particularly if they settled in a specific area for a long period of time (Fagan 1995, 155-173). They knew the best kind of location for hunting, how to approach the animals, where to look for vegetables, shells, birds' nests, etc. Due to brain development, *homo sapiens sapiens* also developed a series of tools which made them much more successful hunters than their predecessors. Yet, climatic changes and low but steady pop-

ulation pressure kept the bands mobile. It facilitated opportunism rather than long-term conservation strategies. Furthermore, the limits of oral communication, and the inability to systematize knowledge beyond interpersonal and immediate communication meant a static attitude toward the environment inapplicable to a novel climatic/ecological situation. We find evidence for such an attitude on two occasions. First, specialization of the band in hunting one type of animal until its extinction. Second, it was the ecological degradation that followed entry of the band into a new locus. Lack of knowledge about specific ecological conditions usually led to ecological micro-disasters.

There were two chances for hunters and gatherers to live in relative balance with the environment. When a band lived in a place for a long period of time, it was possible to develop a systematic knowledge of the environment which could lead to “conservation practices” (Simmons 1993, 57). Certain places, such as coastal, tropical, polar, tundra, or desert areas, did not allow their over-exploitation. Coastal areas became the first spots to be inhabited by sedentary hunter and gatherer bands. Such marginal places are still the locations where hunting and gathering remains alive today (e.g., Siberia, Central Australia, the Amazon). Permanence invited ecological knowledge.

Nevertheless, even in situations where some kind of stability is obtained, we cannot talk about harmony. If harmony means an interlocking and mutual coordination of all local species for the benefit of all, then harmony has never been achieved — not even in the absence of humans. The reason is demographic pressure. All species have the ability to produce offspring in numbers that exceed local resources. Balance is the end result of demographic checks and balances that keep the species population away from “realizing” their full potential. For our Palaeolithic tribes, demographic balance meant female infanticide, senilicide, and sexual continence for the duration of the nursing period, etc. Arguably, these are all “unnatural” precautions — it was only a matter of time, or chance to call them off.

Thus, while permanence-in-harshness was a stable condition, permanence-in-abundance was not. Abundance of resources led to higher than usual population pressure and “environmental circumscription” (Carneiro 1970). Concentration of resources in specific areas led to new developments in technology and complex forms of organization that eventually unsettled the old balance of the ecosystem and facilitated a new one. The balance-in-harshness was kept in the extreme environments. For example, today the Australian Aborigines show full knowledge of their natural environment. Their seasonal movement into vast geographical areas follows the life cycle of the plants and animals they depend on. Their hunting and gathering skills are unsurpassed. Yet,

this was achieved with an immense loss of fauna, which included most of the large ruminants (Clark and Piggot 1980, 130). Some of them can be seen painted on interiors of caves — their current inhabitants are unable to identify them. After an over-kill, fauna and flora move closer to less “expensive” forms of life (closer to photosynthesisers) and an ecological balance is easier to maintain. To put it as an aphorism, hunters and gatherers could wipe out the mammoth but not the lizards. For this reason we have to be cautious when we use modern hunters and gatherers as a role model to reflect on our future prospects. True as it is that many current tribes were forced by farmers to move into marginal lands, others live in a stabilized environment because they have already depleted the depletable — now they live with the rest. In these cases structures and action appear as “natural” because they have become so environmentally constrained. Thus, what appears to be a choice of living in harmony with nature is the result of either extreme environmental restrictions or of wrong environmental practices.

Back in Palaeolithic times, exit, eugenics, and rituals maintained social stability. The first two kept the numbers low; the latter guaranteed the group cohesion on which group cooperation and the survival of the band depended. Nevertheless, in the long run, population control practices and ritualistic camaraderie failed to solve the basic problems of population pressure and food insecurity. These cultural forms might seem to be stable for a long period of time, but the hunters and gatherers were gaining time spreading into still virgin lands. Homeostasis could not be achieved; the human-environment relation, in the long term, was kept out of balance. A better way to describe it is “opportunistically stable.” The development of technology and knowledge of the environment had one common denominator: to increase the control of food resources. And since the Palaeolithic people were inventive, the limit of their ability to extract and appropriate resources was based upon the specific ecology of their foraging places — not on any ecological sensitivity.

On Palaeolithic Social Organization and Cognitive Abilities

Empathic and vernacular negotiation among egalitarian individuals with elementary kin social organization, and group mobility facilitated a prosopocentric world. It allowed for opportunistic economic tactics and facilitated the symbolic blending of nature with the social domain — the entrance of natural elements into the cultural domain, which in any case was weak, and vice versa. Prosopocentrism does not imply a chaotic world where no action can be taken, and accumulation of knowledge is prohibited. On the contrary, there is an abundance of new evidence of the complex and sophisticated technologies that Upper Palaeolithic people

developed in the fields of medicine, surgery, astronomy, stone, pyrotechnology, food processing, and so on, that is nothing less than astonishing (Rudgley 1998). Yet, as abstraction remained limited and vernacular, and no distinction between humans and nature could be guaranteed, action could be neither institutionalized nor regulated. *In toto*, this was not a stable, harmonious world. It was a world of necessity where numbers were obliged to remain small, resources were precarious, decisions were tactical rather than strategic, and environmental knowledge remained less than perfect.

True, 30,000 years of hunting and gathering is an awfully long time for an “unstable” period in our history, but it is also true that as soon as horticulture and agriculture became available, in the post glacial era, people settled down and started multiplying unreservedly (another unstable condition in its own right!). A second reason for this instability was, and by all means still is, our compartmentalized mind. Since we shift from one perception to another freely (e.g., from “natural history” to “social intelligence”), the Palaeolithic world could never be definite, but instead, it was always a set of open-ended possibilities; satisfaction could shift to frustration, and frustration to need, opening up new paths for social action. Last, but not least, was the yearning for rising above the many. The rituals that modern marginal tribes use to play down the hunting success of a fellow hunter are common knowledge. But 30,000 years ago this ritualistic “equalization” was failing. Natural elements were culturally appropriated and turned into symbols of prestige and status. Competition over these natural and, after their transformation, cultural resources, constituted the arena where proto-elites could strive for social control.

Political competition over meaning and symbolic representation of social order became more certain and tangible with sedentism and agriculture. It started in some areas during the 10th millennium BC. It became a general practice four to six millennia later, during the Neolithic era.

From Old to New Stone Age Social Organization

The fragility and opportunism of the Palaeolithic social organization became obvious at the end of the latest Ice Age (c. 10,000 BC) that brought major changes in climate and vegetation. The post-glacial era brings the expansion of forests and contraction of tundra in sub-polar areas, and the spread of grass (e.g., wild cereals), in the south. With the extinction of large mammal species, due to a combination of human action and environmental change, hunter-gatherer societies developed highly localized adaptations to new and more predictable environmental conditions. Between the 10th and 3rd millennia BC, more complex forms of social

organization gradually arose with permanent or semi-permanent settlements flourishing across the world, from Mesopotamia and the Yellow River to Mesoamerica. In those settlements people started to experiment with systematic cultivation of the land and to attach animals to their camps while they still depended on hunting and gathering. This period in human adaptation, the “Mesolithic” period, heralds the passage of some bands from nomadism to sedentism.

Sedentary hunter-gatherer societies were another aspect of the long history of *homo sapiens*’ efforts to adapt to novel ecological realities. They were developed as a response to two factors. First, certain localities now offered an abundance and predictability of resources due to the recent retreat of the steppes in the north and forests in the south. Second, and due to permanent settlements, nomadic movement became restricted due to adjacent bands (“social circumscription”) and/or geographical obstacles (“environmental circumscription”). Environmental circumscription was not a novel geological development. Instead, it was the predictability of *new* resources, especially of cereals, nuts, and stationary game (e.g., forest deer), as well as *social* circumscription that were new phenomena. By 15,000 years ago the world’s population was approaching 10 million people, the maximum number that could be supported as hunters and gatherers.

Abundance and diversity of *stationary* resources allowed a more elaborate and sophisticated environmental knowledge and appropriation of resources. This in turn allowed a demographic growth until the resources-population balance reached a critical point of food shortage. Social reorganization was a logical response to the apparent impasse. Indeed, in these sedentary hunter-gatherer settlements there is evidence of intensification of food movement and technological innovation that could only be mastered by few individuals (e.g., canoe building, navigation). But it also meant a parallel power intensification in the social domain, as an increase in the exchange of goods and materials with adjacent bands and long-distance cultures, and clear signs of increased social complexity and differentiation. These social phenomena became more prominent, stable, and universal as fully sedentary bands started cultivating the land.

The Unintended Consequence of Opportunism: Agriculture and Social Caging

Between the 8th and the 4th millennium BC many of the hunter-gatherer communities had become farmers and pastoralists. The reason for such a cultural shift is not yet entirely understood. The most widely accepted group of models, ecological in nature, points to different combinations of climatic, psychological, economic and social factors which attached people to some territories even before they thought of a sedentary life (Fagan 1995, 228-230). Some resources

were seen as attractive. People started using them in increasingly systematic and habitual ways until both resources and bands became domesticated. Such could be the case of domestication of wild cereals or the herding of animals. The mellowing of the climate after 12,000 BC facilitated the spread and maturation of fast-growing plants. This opened new opportunities for humans, but also meant a considerable amount of hard work. For example, the nature of wild grain did not allow any time wasting. It had to be gathered as soon as it reached maturity or it would be lost in less than a week. This problem had far reaching consequences. People had to be on the spot at the right time. Semi-permanent camps became the rule of appropriation. Threshing and winnowing also kept people busy and immobile for some weeks after the harvest. More time was spent moving some of the produce to the home base leaving the rest in some temporary cache (Tannahill 1973, 21). This process was satisfactory as long as the area was not crowded. But population growth brought some changes. The most significant change was that the bands began to move their dwellings to the food and stay there for fear of losing the fertile land and its produce to other bands. The transformation was slow. In the beginning it was just another economic activity, probably accomplished by the women of the band while the men dealt with hunting. The nutritional poverty of the first harvests did not encourage more effort or attention. Yet, humans altered the genetic make-up of the cereals by selective planting. Only when harvesting provided an adequate source of food did agriculture become the central economic activity.

The domestication of animals came either simultaneously or soon after. Humans were aware of animals' potential for domestication for a long time. The "germ" was already there — the idea that humans could manipulate animals for their own benefit. This potential was now exploited with large-scale selective reproduction of docile animals. Animals were first domesticated for meat; later on they were used for wool, traction, milk, etc. (Sherratt 1997). For the people who implemented domestication, it meant a very close and sharp observation of the life cycle of the herds, and a very acute, scientific approach to the quality of the animals. Deliberate selective reproduction indicates that those people understood that phenotypic and genotypic aspects of the individual animal are determined by heredity. Apparently, they also understood that they could control the process. Wild goats and sheep were the first animals to be domesticated, about 8500 BC (Fagan 1995, 237).

A mixed economy did more than address the late Palaeolithic problem of food. As a process, it was characterized by what Woodburn calls "delayed return of the investment" (1982). Management of labor, protection of investment, and the nature of the tools of production of the Neolithic econ-

omy meant territorial and social *fixity*. Increasing commitment to the land, normative solidarity, and immobile and relatively expensive tools, fixed people territorially and socially to a group of households committed to the land. We could call it a "side effect" since it was not planned, but its effects changed the social structure of the Palaeolithic society with far reaching consequences. The first of these consequences was a population boom. The second was a new Cosmic Order. The third was the firm establishment of social inequality.

Agriculture and food production did not offer a straight and final solution to the "short and brutish" life of the people, nor did it solve the problem of surplus population. Instead, due to the low nutritional quality of cereals, agriculture decreased the standard of living, and created new demographic problems, such as epidemics and famine. Yet, predictability of resources and some surplus production facilitated population growth. A central cause was that children's value changed, and from being a burden, they became economic and social assets. Infant mortality rates were high, but large families became the rule, or at least the target. Thus, while a Middle Palaeolithic band numbered roughly 50 members and an Upper Palaeolithic band 200-300, horticultural communities counted 2,000 to 3,000 inhabitants, and in a few cases such as Jericho or the Iroquois settlements even more (Lenski 1966; Ucko and Rosenfeld 1967).

Sedentism, Agriculture, and the New Cosmic Order

We can identify two major factors shaping the Neolithic world-view: sedentism and agriculture. The former altered perception of space, the latter affected perception of time, identity, and the numinous. Sedentary living slowly but surely created a perceptual distinction between the familiar landscape and what lay beyond it. On the one hand stood the domesticated, cultural space of the house, village, and cultivated fields. On the other hand stood the increasingly distant, strange and untamed wilderness. Such a visual bipolarity simplified cognition by dividing the diffused Palaeolithic world-view into fixed spatial zones. The cultural appropriation of the natural and social environment, symbolically significant to proto-elites, was now extended. Ancestors were buried in the domesticated zone, spirits of vegetation were invited to protect property, stone monuments stood as landmarks of a clan's spatial domination, and domesticated animals and plants were mystically associated with farmers.

Immobility restricted the scope of the experienced world as a whole, while it magnified the significance of the home. Quite literally, the village became the "center of the world," and the opening in the roof of the house the "Gate of the Sky" (Eliade 1978, 43). Neolithic habitats became the reflection of social structure and the arena of social conflicts. If not the center of the world, they were indeed the center of social imagination.

While sedentism established a sharp spatial division and the celebration of domesticated space, farming itself altered perception of time, identity, and the supernatural. By controlling the whole process of food production, humans had to make their plans several months before they were to be implemented. They had to perform a series of complex activities in view of a distant and uncertain harvest. And they had to make sense of, to symbolically appropriate, “agriculture” — the phenomenon they had unintentionally initiated and that was increasingly becoming the focus of their social life. Economic necessity forced the Neolithic people to systematize their techniques for calculating time by developing precise solar and lunar calendars in contrast to Palaeolithic times (Hallpike 1979). The need to make sense of the new reality forced them to reconsider their own being in relation to the world. It was not a “scientific,” but an identity exploration. As Eliade stresses, “...religious creativity was stimulated, not by the empirical phenomenon of agriculture, but by the mystery of birth, death, and rebirth identified in the rhythm of vegetation” (1978, 41). In this existential quest people associated seasons, vegetation, and their own life cycle and sex divisions in order to arrive at a mystical solidarity between themselves and domesticated vegetation. In principle, the Neolithic motif remained similar to the Palaeolithic one: the world is engaged in the all-embracing drama of life and death, growth and decay. Nevertheless, and quite understandably, attention now shifted from animals to the world of vegetation. This shift triggered an existential crisis.

Farmers in Europe and the Near East reasoned that the food plant was not a “gift,” as the animal, but a product of an abnormal and dramatic event. While the hunter may have attributed the killing to another, to a “stranger” for fear of the dead animal’s revenge, the cultivator associated his peaceful product with a murder. The mysterious transformation of substance (dead as seeds but alive as plants) was explained as part of a divine drama where earth, or soil, was consolidated as a female and divine entity, Mother Goddess, in need of fertilization by male Gods.⁸ The “marriage” of the previously parthenogenic Goddess with a male God reflected a preoccupation with the myths of creation (the making of the world) and resurrection (the annual rebirth of life). Pastoralists preferred the former, while resurrection preoccupied the agriculturists. A mixed economy, or the invasion of nomad tribes to agricultural areas, lead to friction and the eventual merger of the two myths into one fertility myth.⁹

The position of male and female deities in the fertility myth is somehow confused. Aggressive pastoralists, obsessed with selective reproduction and the virility of the stag preferred male deities, creators, Gods that interfere at will and change things. Farmers depended on stable seasons and the repetition of an annual process. Interference in the weather pattern

meant a bad harvest, even famine. The fertility of the soil on the other hand (a feminine metaphor) was of greater importance than the quality of the seed (a masculine metaphor). All these facilitated a preference for female deities.

The focus on few natural substances and sedentism simplified the cosmic forces. The plethora of personal, *ad hoc* spirits became less important than the few, but all-important, daemons of domesticated vegetation. These creatures inhabited cereals, tubers, and fruit trees. Eating them was similar to eating the substance of the divinity. Yet, their existence, their *élan-vital* could not be taken for granted. While the substance of the earth was divine, it needed the aid of humans to sustain itself. The universe was conceived as a living organism that must be renewed periodically by repetition of the primordial cosmogony. Repetition invited circular time, and circular time invited particular, mystical notions of knowledge that could bind together the three levels of the new cosmic religion, that is, the heavens, the earth, and the underworld.

The relative simplification of the supernatural, as well as the ordering of time, space, and economic action, allowed a first distinction between subject and object. Identification of key “personalities” in a caging social environment allowed for the formation of cults with gods as masters and people as subjects. The new social hierarchies combined with the sharp division of subject and object, and the new ancestral religious beliefs, facilitated a hierarchical communication system between gods and humans, which took the form of formalized worship and sacrifice. The immediate and diffused Palaeolithic supernatural became remote, confined, and schematic. The consequences are summarized by Bellah: “The main difference is that instead of a relatively passive identification in an all-encompassing ritual action, the sacrifice process ... permits the human communicants a greater element of intentionality and entails more uncertainty relative to the divine response” (1970).

These were largely cognitive transformations resulting from a changing landscape, intense and changed forms of social interaction, and productive activities. Collective representation under these new perceptual conditions became more social and ordered. Economic, political, and military cooperation on the one hand, and the continuation of ritualistic feasting and gift competition among clans on the other, strengthened the idea of the group as *the* point of reference. Gods lived in proximity to the community, and their habitat became the village or the town. They became caged, bounded to the village’s common land, protectors of the tribe, and facilitators of inter-tribal communication. The divine, if not in essence at least in form, became sedentary.

As far as the new perception of nature in the new Cosmic Order was universally accepted, the new economic and perceptual realities opened up new possibilities for social orga-

nization, and conflict became located around the issue of control and access to the supernatural. The supernatural became chained by social and political hierarchies, and so did human perception of nature.

Sedentism, Ecology, and Social Hierarchies

In Neolithic times the development of social hierarchies and inequality depended on both surplus production and sedentism. The members of a nomadic band could always move away to avoid factional disputes. Farmers could not afford to leave behind their investment and move to “badlands” — they had to find ways to solve these disputes, even if this meant their subjugation in a hierarchical social order. In addition, farmers were faced with the threat of a bad harvest and famine. Both of these new emergencies demanded long term, normative social cooperation. For this people turned to their families. Kinship ties became an institution of paramount importance and systems of reciprocal obligation became the crucial mechanism to nourish them. Palaeolithic tribes were accustomed to both kinship ties and reciprocal obligations, especially during of the Upper Palaeolithic (Bender 1978). Yet, during the Neolithic period kinship and reciprocity added a new provision to their services: the delineation of property and inheritance.

Kinship ties facilitated social bonding in the form of mutual support, as well as social inequality. The older and respected members of the clan became the focal point of requests, the arbitrators of family disputes, and the ceremonial representatives of the clan. Communal tombs and ancestral worshipping discovered in the first permanent settlements around the world stand witness to the new significance of Linearity, and for the moment it was a quasi-mythical continuation between past and present. More permanent and institutionalized hierarchies were developed in particular locations, such as Polynesia, where environmental circumscription and the abundance of resources prohibited exit, and intensified clan competition in feasts and gift-exchange. Less circumscribed, and poor areas, such as New Mexico, retained egalitarianism and inter-kin social cooperation. In some areas where environmental circumscription was weak but resources plentiful, such as central Europe, group ideologies were later countered by individuality, probably derived from personal wealth and military expeditions (Shennan 1996).

Still, we cannot talk about “power” yet, in the sense of differentiated abilities of social control — of some “special” individuals exercising *coercive* force. In all three cases common people possessed freedoms mainly through custom, lineage, and family alliances that the proto-elites were not unitary or strong enough to abolish (Fagan 1995, 273). The elites were in a tentative position, and the way to exercise some kind of authority was by inspiring, not by ordering. The shaman,

the medium between the social and the supernatural, was always under the scrutiny of the community, facing expulsion or even death if he or she failed to protect the band from hazardous situations. On the other hand, the political authority of the big man, or the chief-warrior, was often challenged by the shaman; he could be forced to leave his office by challengers, and his offspring rarely inheriting his position.

A solution to this insecurity was the combination of political and religious functions. Usually, it was the political elite who stepped into the ideological realm — not the opposite. The chief would claim divine descent, an absolute demarcation point between himself and his people. This practice is still to be found among simple horticultural communities (Lenski 1966, 129). But again, in Neolithic times the chiefs could not fully exploit its potential. The community had the power to check their chiefs’ ambitious imagination by protesting or moving away (Woodburn 1982). The claim was used to full effect later on when agricultural empires became able to lock the social cage and throw the key away.

Even this weak and dispersed authority of kinship and *pater familias* entailed a much greater potential than any Palaeolithic group could ever exercise over its destiny. Environmental and social fixity were responsible for the development of new social relations whose major characteristic was strong group identity. The latter increased the inclusion/exclusion nexus reinforcing both the collective and the distributive aspects of power, such as the power to simultaneously organize the collectivity for the benefit of the whole, *and* the benefit of the few over the many. Group leaders could organize people to work together for both utilitarian and symbolic purposes for the benefit of the group and of themselves. While utilitarian projects served the physiological well-being of the group, projects of symbolic significance, such as ceremonial buildings, played a key role as visual markers of dominance and hegemony vis-à-vis other groups (Kirch 1990).

Ritualistic rivalry was the direct outcome of a set of factors contingent to sedentary life: long-term kinship, sedentism, residential contiguity of related lineage, protection of land use rights, profitable alliance making, and trade-exchange affairs. Manipulation of the above institutions and practices by individuals and kin groups brought them prestige (Bonanno et al. 1990). In some extreme cases, a few individuals achieved such a privileged status that they claimed direct links with the numinous and exclusive access to it. Yet, this power had to be materially manifested and socially sanctioned.

The Neolithic Cosmic Order: From Prosopocentrism to Theocentrism

The fusion of subject and object, and of the social and natural domains could not be maintained in a condition of

social, cultural, and economic caging. As mind and economy became caged so did the numinous. In all, we detect a hesitant, though irrevocable movement toward a “god-centered,” or in Greek terms (once again), “theocentric” Cosmic Order (Marangudakis, 1998, 2001). Its features, which will become much clearer during the 1st millennium BC, are: 1) the vital force of nature is provided by anthropomorphic or zoomorphic “daemons” that, perceptually, stand between humans and the natural environment; 2) these daemons are “accessible” by some individuals or families with special, charismatic or traditional powers; 3) though they do possess the power to render the natural environment productive, paradoxically, they are also in need of human offerings to remain potent.¹⁰ More concretely, the theocentric Cosmic Order exemplifies *uneven* power relations, both in gender and kinship terms. It heralds the beginning of gender double standards, whereas a female member of a privileged clan would most likely be inferior to her father and her husband, but superior to members of less privileged clans, males and females alike. It also heralds the era of organized and caged forms of social competition providing impetus to conspicuous consumption and thus intensification of natural exploitation. Its manifestation was the Stone Monument.

If the cave and its cultural arrangement were the Palaeolithic reflection of the social domain, stone monuments reflected the Neolithic social domain as well as Cosmic Order. In its ideal form, it was an *imago mundi*, incorporating notions of the divine, the three levels of the world (numinous, human, and environmental), and the delineation of space and time. Yet, its ideal function does not explain the elaborate, expensive, domineering, and exclusive features it also manifested. These features are understood in less functional and more conflictual terms, by uncovering the competitive, though implicit, symbolism: stone or massive earth monuments, as a conception and construction, counter the ordinary desire to conserve energy. The stone monument is a comprehensive expression of conspicuous consumption, and thus, desire for power (Trigger 1990). Consequently, stone monuments became manifestations of the ritualistic competition of proto-elites, clans, and families for status and prestige. Quite clearly, stone monuments became the arena of social rivalries. For example, among Polynesian chiefdoms, the size and elaboration of ceremonial monuments reflect the ranking of political hierarchy. This was perpetuated by the ability of a few local chiefs to regulate the annual initiation of multiple ceremonial events at special ceremonial sites. The more stratified the society, the more elaborate was the structure of the monuments. The few very large monuments to be found are directly associated with paramount chiefs and mark central places of elite power (Kirch 1990).

The material conditions of the Neolithic period imposed

perceptual boundaries wide enough to allow particular social interpretations and expressions. Stone monuments of all kinds (temples, tombs, homes, burial sites) became the loci of evaluating cultural understandings (e.g., the experience of life and death, ancestral narrative script), and controlling the meaning given to certain cultural conditions such as dependency, alliances, and gift competition. Manipulation of space and time could privilege some people vis-à-vis others in terms of vision, hearing, posture, and strength, thus bringing differential access to important social events, and an all-embracing experience of the numinous to the privileged participants (Thomas 1990). The potential, or tentative inequalities among members of the palaeolithic band were now more intensely exploited.

The division of habitation and symbolic representation between the two sexes is perhaps the most important and universal among Neolithic communities with the dichotomy being at once classificatory and ritualistic (sky and earth, masculine and feminine) but also antagonistic (Eliade 1987). The cultivation of near-by fields and the rearing of infants by women, and the still important hunting practices and mystical initiations of men were the material aspects of the bipolarity. Yet, we do not know much about the meaning of it. Hodder, in an effort to decipher the meaning of the structure of domestic tools and utensils claims a certain association between man-wild-death-dark vs. woman-domestic-life-light (Hodder 1990, 10). Even if in principle this association were correct, how could we interpret it? It could denote a claim, such as, “feminine is domestic — masculine is wild,” or perhaps a desire, such as, “women are dangerous and should be controlled by men who already control the wild.” A gender-specific deciphering of the meaning would be arbitrary. The low level of the ability of the Neolithic people for abstraction, the most serious being the inability to distinguish between logical and narrative order, suggests that the message was not conceptualized, but firmly situated in the immediate and the contextual (Hallpike 1979, 114). Yet, since there is a general pattern, which distinguishes between the two sexes and between particular tools, we cannot reject the bipolarity itself even if it is subconscious. It suggests a cultural continuity with the Palaeolithic period, and a continuous effort to control the social domain by manipulating natural objects, space, and perceptual categories of the man-made and natural environments.

In future time such concepts would evolve according to new economic practices and social organization. Literary sources provide us with indisputable evidence of some periods when men identified with the wild (e.g., Victorianism), and other periods when they identified with the tamed (e.g., classical Greece). There are instances where certain societies were perceived as tamed or as wild, such as in the case of “civilized” farmers defending their land from “wild”

nomadic tribes. For the moment the distinction was denied the status of ideology due to the absence of high-culture, that is, of a coherent and articulated worldview produced and disseminated by scholars and bureaucrats. It remained entrenched in vernacular cultural expressions, and thus of limited action-inducing powers.

Agriculture and the Exploitation of Physical Environment

Did the Neolithic cosmology make any difference to matters of economic appropriation and exploitation of natural resources? On the one hand, preoccupation with the annual rebirth of the land did not allow a long-term identification of what can and cannot be reborn. The fertility myth instructed that what is today might not be tomorrow for no apparent reasons, and vice versa. Seed, plants, and soil as well as humans and animals were in the same category. The value of some plants (e.g., beans) to regenerate the fertility of the soil was well known and utilized, yet, since nature was understood as the domain of a female daemon, good or bad harvests were attributed to her presence or absence. We could recount the story of Inanna, a Sumerian goddess who set off to conquer the nether regions; “while she was away the land remained infertile, but when, after many adventures, she returned to earth, everything came to life again” (Tannahill 1973, 34). Ultimately control was in the hands of immortal, or semi-mortal gods and goddesses. The Palaeolithic Cosmic Order was rearranged according to the new social organization and the spirits *in* nature became gods *of* nature.

Neolithic practices such as building megalithic structures, farming, and goat herding were environmentally damaging since they resulted in deforestation and soil erosion. A general observation is that there was no radical shift in the opportunistic treatment of the environment, that is a shift from less to more domineering perceptions of economic appropriation, or vice versa. Yet, while in the Palaeolithic era it was the fauna that suffered the most, in the Neolithic times the burden fell on the quality of the soil and flora. Hoe-culture, as well as agriculture involved the clearing of parts of a “natural” ecosystem at the expense of specific plants and animals. Humans were interfering with, and upsetting ecosystems without a guarantee that this environmental “management” would prove sustainable — in some cases it did, in some others it did not; it depended on local ecological conditions.

Forests were the first to suffer the consequences. Burning, ringing, and goat grazing were widely used to bring forests down, to open new space for farming, to provide raw materials for the fast growing villages and cities and tools for the construction of the stone monuments. Clearing exposed the soil to rain during the wet season and the wind during the dry season, leading to soil erosion. Ponting (1991) records

that as early as the 6th millennium BC, 1,000-year-old villages in Jordan were being abandoned because of soil depletion. Easter Island fell into decline 1,000 years after its first colonization. Intense rivalry among clans led to a race for the construction of monuments, which led to deforestation and soil erosion. Spanish slave raids and epidemics of European disease introduced by sailors completed the process of depopulation and abandonment of the island.

Pastoralism and agriculture around the Mediterranean region meant its full ecological and aesthetic transformation (Van Andel, Zangger and Demitrack 1990). Around the 4th millennium the vegetation of the region was a mixture of oaks, beech, pines, and cedars. Yet, the clearing of the forests for agricultural use, fuel, and construction of houses and ships, and the extensive goat grazing which did not allow young trees to grow, reduced vegetation to a low and inedible bush. Soil erosion and silt completed the transformation with the formation of marshes, which then became an endless source of malaria.

Only the valleys had a longer survival span, sometimes indefinite (the Nile), sometimes not (Mesopotamia), due to floods that compensated for the lost nutrients. The Indus Valley, the Yellow River Basin, and the Nile belong to the always-fertile category. The Mesopotamian, Mesoamerican and much of the Far Eastern ecology does not include regular flooding; production could increase only with irrigation. There, soil erosion and salinization took a few hundred years to occur, allowing for the development of full-blown civilizations and, thus, for more epic disasters.

The most fragile soils moved people back into less caging social organization. There is evidence that the 3rd millennium BC in Europe was a period of evolution in reverse: megaliths, rituals, commerce, and pottery declined. Migrations, the revitalization of the band at the expense of the tribe, and the decline of chiefdoms are also evidence of the retreat from permanent settlement (Friedman 1982; Kristiansen 1982). In some cases the causes are attributed to the political failure of caging strategies; in some others to topsoil depletion. Yet, people did not return to palaeolithism. In most cases the still small number of people retained a mixed style of economy where hunting, cultivation of the soil, fishing, and animal herding coexisted. Technical knowledge and knowledge of the environment retained their value; whenever soil fertility permitted it, the band recovered its neolithic structure which happened at the beginning of the 2nd millennium BC. A second devolution occurred at the beginning of the 1st millennium BC. Only a few places of the Old and the New World were able to sustain intensive land use and the social system to exploit it. These were the places where hierarchical and centralized forms of civilization could and did eventually flourish.

Conclusions

The issue of “human nature” originates in normative political theory. Protagoras, Lock, and Spencer accepted the state of politics of their day, while Plato, Rousseau, and Marx wished to change them because they interpreted human nature in different ways. And there is no better period to speculate on human nature than the Stone Age. It might spread in many branches, but it all comes down to a simple half phrase: “In the beginning...” always manages to concentrate our attention. For a civilization, like the western one that believes in linear time, the beginning defines the essence and sets the tone of judging the whole trajectory that we have followed through time. We understand the present by going back at the starting point. Will we find benign people wandering freely, living their life without a care in the world a-la Sahlins? Or will we find brutes, sick, dirty, and ignorant a-la Hobbes?

If the analysis of the previous pages is on the right path, we find neither. Instead, we can recognize a world of open-ended potentialities shaped according to ecological conditions and the affordance of social organization. In a world of short-term, and concrete decisions, unintended consequence proved to be much more significant than individual intentions. There were no benign matriarchs, nor male rebellions. Yet, there was competition for prestige, and whenever possible, for social status. In all, perception of nature through Cosmic Order schemes and treatment of the physical environment depended upon local ecology, economic necessity, and the social arrangements of power. Economic necessity is clearly manifested through the demographic pressures and climatic alteration the Palaeolithic world faced around the 10th millennium, which ultimately forced its transformation. But this alone is not very informative. The numbers of most species do fluctuate for short periods of time but they do not escape ecological constraints. Famine or the evolution of new predators, finally stabilizes their numbers. The same did not happen with *homo sapiens sapiens*, at least not until today. Someone could claim that humans have escaped universal ecological constraints because of our ability to develop new technologies and defeat ecological barriers through innovation. Yet, the fact that most of the Neolithic economic methods of appropriation were known and practiced during the Palaeolithic times, such as hoe cultivation, or the manipulation of fire, plants, and animals, suggests that the era saw technological rearrangement rather than innovation. We have to turn to the social aspects of life to understand the movement from hunters and gatherers to sedentary, agricultural life.

During the Palaeolithic period we can detect the absence of distinct ideological, economic, or political networks. There is only one power network to which every member of the band belongs and in which everyone participates. There

are neither fixed political hierarchies, nor economic networks, nor “priesthood” with special interests capable of triggering particular symbolic and representational images of the cosmos. Instead, society remained egalitarian and common collective representation meant that everyone within the band and tribal areas perceived the natural environment in roughly similar ways.

I suggest that in such a *sui generis* social environment, the cognitive modeling of the universe is directly related to social organization. Culture and what we call today nature were not clearly distinguished, constantly checked by conceptual realism, and represented by tangible objects rather than concepts (e.g., images of animals in the place of strength, female figurines instead of fertility). Since the economic, political, and ideological networks overlapped and the boundaries of the community were spatially blurred, even limitless, politics were egalitarian. Nevertheless, we should not idealize the egalitarianism of the Palaeolithic social structure. As with everything Palaeolithic, it was contextual, practiced as “a matter of fact,” rather than deriving from a program. Let us pay attention to Woodburn (1982) once again. Egalitarianism was possible because of the ability of people to exit *uncomfortable* socialization. Rivalry for privilege and prestige was present as much as was cooperation. And while this rule applies to every social animal, humans are exceptional for the level of imagination they employ to achieve supremacy. *Homo sapiens sapiens* appeared 10,000 years ago, replacing our last ancestor, *homo sapiens neanderthalensis*, 40,000 years ago with revolutionary cognitive abilities, and accelerating artistic expression, technological innovation, and political competition. Most importantly, our ancestors blended all the above skills and abilities, mixing social, linguistic, artistic, and technical skills with the desire for political power.

This is where nature enters the picture in other than functional ways. Due to superior cognitive abilities vis-à-vis the previous *homo* generi and the other primates, the pursuit of power escaped the animalistic constraints of dimorphism, time and space. The reduction of “frightening” male physical features, such as prominent canines, suggests a selective pressure toward more social and latent, long-term power relationships (Tanner 1981, 190). It escaped the immediacy of the “elephant matriarch,” the “Alpha male,” or the “leader of the pack,” and embraced a milieu wider than the band itself to include the physical environment both in appropriational-economic and symbolic-political terms. In a sense, Palaeolithic culture was an open-ended blend of imagination and hormones. As such, it was an effort to grasp the meaning of life as well as a reflection of rivalry under the benevolent restraints of egalitarianism.

This social setting did not ban competition, as “ecocentrism” assumes. Instead, competition included every possible

form of intentionality, human or not. Competition was not institutionalized, nor focused around some tangible object but diffused in space and time. Such a worldview is called prosopocentric. The neologism deserves a final clarification. Prosopocentrism is a cognitive framework of similar quality to theocentrism, anthropocentrism, or ecocentrism. As an ideal type it captures the blurring of the social and the natural domains, and it is based on the assumption of small, egalitarian, and mobile bands whose members enjoy the immediate return of their light investment. Certainly, these social variables varied extensively resulting in cultural variation. It is impossible to know the extent of this variation, and thus the borderlines of prosopocentrism as such. Perhaps what we call prosopocentrism was much wider and much richer than this analysis suggests, or it could have been only one of many cognitive frameworks that the Paleolithic man and woman had adopted. For the moment, and assuming that the bands did not exceed the numerical threshold of face-to-face interaction, their members were not prospective investors of land and herds, and their societies were not institutionally hierarchical, nor sedentary. Prosopocentrism is a working hypothesis that allows us to make sense of an otherwise chaotic variation of Paleolithic social action and treatment of the natural environment.

During Neolithic times, as the band started becoming sedentary, ideology, politics, and economy claimed some autonomy. As sedentism and hierarchical organization became an ordinary cultural practice, cognitive developments moved towards a culture-nature bipolarity based on contextual, spatial and social distinctions. The manipulation of the natural environment for the symbolic representation of culture was slowly becoming tangible, both perceptually and politically: spatial, residential, familiar, objective, and hierarchical.

How social competition and domination shaped the Stone Age is highly disputed (Fagan 1995, 228). Was competition an observer of changing economic practices and social developments, or did it play an active and dynamic role? Bender (1978) and Hodder (1990), though from different perspectives, claim that intensification of trade, richly decorated burials, and a definite structuration of space found in late pre-agricultural societies are clues for the significance of social competition as a vehicle of cultural change. Bender argues that intensification of cultural exchange and expression signify a parallel intensification of political alliances between neighboring groups. Social competition created new social and economic pressures to produce more for ritualistic competition, as indeed evidence from Upper Palaeolithic Europe suggests, which eventually led to food production and specialization.

To this we could add social competition at the ideological level. Prestige and social control were maintained

through the ordering and embellishment of the wild (Hodder 1990, 291). As the ecological balance changed at the expense of the large game at the end of the glacial period, new features of the natural environment, such as vegetation and small game, became part of the political game for prestige. Simple products, such as cereals, or whole ecosystems, such as forests and lakes, were brought under the authority of the band to expand the symbolic power of the proto-elites. Indeed, there were socially and cognitively unintended consequences, but symbolically the shift *was* intentional.

The doubts that surround the Palaeolithic era do not disappear with the advent of the Neolithic era, although evidence becomes more numerous. Data from this period provide us with evidence of the interplay between social competition and symbolic representation of the natural environment. Social and political groups competed with each other claiming privileged access to space, vegetation, and the supernatural, thus the movement from diffused prosopocentrism to caged theocentrism. In the regions in which soil could sustain human interference for long periods of time, the symbolic framework became increasingly clear. A region could be full or void of the divine, the space could be cultivated or wild, the substance masculine or feminine. Everyone accepted it as accommodating their existence, as reflecting their own being and place in the cosmos. Yet, it was flexible enough to allow manipulation for some people's own benefit.

With the absence of written documents it is difficult to judge the degree of innovation social competition carried with it. Yet, even if social competition did not have a direct and critical impact on cultural evolution, Hodder and Bender remain suggestive in two ways. First, they reinforce the argument by unifying the Stone Age experience with the rest of our history and by insisting that competition does not depend exclusively on a complex, hierarchical society. Instead, competition can coexist with egalitarian as well as with ranked societies. What does vary is the particular ways competition is expressed due to dissimilar social arenas. Second, they alert us to the fact that cognitive clarity (i.e., logical abstraction) is not a necessary precondition for social action, just as knowledge of the theory of gravity is not necessary to ride a bicycle. Presence of rivalry turned the natural environment into a tool, an asset, a means for achieving status and prestige. The utilization of the natural environment could be direct (economic appropriation — gift exchange), or indirect (symbolic manipulation — structuration of space).

Ability for ideological *cum* political domination between the sexes, and among kin, age-groups, and chiefdoms, led to the manipulation of the natural environment, its spatial conglomeration, its substance, and its components over long

periods of time. The result was a schematic, organized, and exclusive conception of nature beyond what “neolithism” and horticulture imposed as an economic practice. The Neolithic era heralds the beginning of nature as sexually divided, economically responsible, politically aware, and morally judgmental — in all, a theocentric Cosmic Order.

Yet, neither ideological manipulation, nor economic appropriation of the environment moved beyond the vernacular, contextual level, and for the moment political and ideological control remained weak. The Neolithic political structure was fragile; it could only control appropriation superficially. Since no formal, coercive hierarchies existed, specialization and the authority and prestige of the “big men” and chiefs ceased to exist whenever the land failed to generate surplus production. In some cases, such as in pre-Colombian New Mexico, protective measures were taken and they were successful (Dominguez 2002). In many others the economy collapsed in spite of awareness of the problem, due to political instability and environmental mismanagement (Williams 2002). It must be assumed that a desire for social prestige usually proved more powerful than conservationist policies. It was the opening act of the tragedy of the commons — it is still with us today.

Endnotes

1. E-mail: m.marangudakis@soc.aegean.gr
2. The “ecocentric” paradigm is certainly much more elaborated and diversified than this short presentation allows for. Yet, for the sake of our argument it adequately captures its essence. For a more comprehensive presentation of ecocentrism see Devall and Sessions 1985, Maness 1990, Naess 1989, Rowe 1997, Stone 1988, and Taylor 1986.
3. For a series of examples of heterogeneous and contextual perception of time see Hallpike 1979, 280-340.
4. As soon as the land lost its strength, the band moved to adjacent territory. Clark and Piggot (1980) state that a camp was used for 50 years at most, to be reused 400-500 years later.
5. Ecocentrism as well as anthropocentrism could only have been developed after the emergence of reflective, second order thought, and thus high morality. The social conditions that facilitated high morality emerged much later, during the 1st millennium BC and the constitution of intellectuals as an autonomous class (Eisenstadt 1986).
6. The open-ended character of what we usually call “human nature” is emphasized by the most recent works of biologists and philosophers of biology such as Ernst Mayr (2001) and Davydd Greenwood (1984). Such an approach defies gene-level explanations of human behaviour, which usually lead to rational-choice, individualist theories. Emphasizing the social-organizational component of Palaeolithic human life, we suggest that our argument should be considered accountable to the extent that fluid and undifferentiated social organization was present and dominant.
7. In a less plausible scenario, if the camp were sedentary and male hunting or warfare exhibitions were long, matrilinearity could be the dominant social organization (offspring and property being under the authority of the mother or sister) leading to less pronounced political

inequalities between the sexes, but still resulting in significant cultural gender-divisions (Harris 1978).

8. Other forms of vegetation myths, connected more to the cultivation of cereals than vegetables, feature a primordial theft. Gods guard them in the sky, a hero steals them and returns to earth and bestows them on humans. Nevertheless, in most cases domesticated vegetation (vegetable or cereal) was related to sexual union, death, and resurrection.
9. The problematic relationship of pastoral and agricultural Gods, as well as their later merging, is manifested in the Book of Genesis and in general, in the Old Testament. There, the pastoral Gods (Eloheem) curse Cain, a farmer, for killing Abel, a herder. Immediately after this, the agricultural God (Yahweh) came to the aid of Cain. He put a sign onto his forehead, and threatened with death anyone who would hurt him (compare Genesis, D9-10 to Genesis, D14-15).
10. The daemonic weakness was fully reversed in the Abrahamic tradition of the omnipotent God with no shortcomings or needs that humans could satisfy.

References

- Anderson, A. 2002. Fauna collapse, landscape change, and settlement history in Remote Oceania. *World Archaeology* 33, 375-390.
- Bellah, R. 1970. *Beyond Belief*. New York: Harper and Row.
- Bender, B. 1978. Gatherer-hunter to farmer: A social perspective. *World Archaeology* 10, 204-222.
- Bonanno, A., T. Gouder, C. Malone and S. Stoddart. 1990. Monuments in an island society: The Maltese context. *World Archaeology* 20, 2, 190-206.
- Capra, F. 1996. *The Web of Life*. New York: Anchor Books.
- Carneiro, R.L. 1970. A Theory of the Origin of the State. *Science* 169, 733-738.
- Chagnon, N. 1992. *Yanomamo*. Fort Worth, TX: Hancourt Brace Jovanovich.
- Clark, J. 1976. The African origins of man the toolmaker. In G. Isaac and E. McCown (eds.), *Human Origins: Louis, Leakey and the East African Evidence*. Menlo Park, CA: W.A. Benjamin.
- Clark G. and S. Piggot. 1980. *Prehistoric Societies*. Harmondsworth: Penguin Press.
- Collard, A. and J. Contrucci. 1988. *Rape of the Wild: Man's Violence Against Animals and the Earth*. London: The Women's Press.
- Desveaux, E. 1995. Do native peoples naturally respect nature? *Anthropos* 90, 435-444.
- Devall, B. and G. Sessions. 1985. *Deep Ecology: Living as if Nature Mattered*. Salt Lake City, UT: Peregrine Smith Books.
- Dobs, R.R. 2002. The death of Smokey Bear: The ecodisaster myth and forest management practices in prehistoric North America. *World Archaeology* 33, 475-487.
- Dominguez, S. 2002. Optimal gardening strategies: Maximizing the input and retention of water in prehistoric gridded fields in north central New Mexico. *World Archaeology* 34, 131-163.
- Douglas, M. 1988. *Purity and Danger*. London: Routledge.
- Durkheim, E. 1915. *The Elementary Forms of Religious Life*. New York: Allen and Unwin.
- Eisenstadt, S.N. (ed.) 1986. *The Origins and Diversity of Axial Age Civilisations*. Albany, NY: State University of New York Press.

- Eliade, M. 1978. *The Encyclopedia of Religion*, Volume 1. New York: Macmillan.
- Ellen, R.F. 1986. What Black Elf left unsaid. *Anthropology Today* 6, 8-12.
- Elston, R. and D. Zeanah. 2002. Thinking outside the box: A new perspective on diet breadth and sexual division of labor in the Prearchaic Great Basin. *World Archaeology* 34, 103-130.
- Fagan, B.M. 1993. *World Prehistory*. New York: Harper Collins.
- Fagan, B.M. 1995. *People of the Earth*. New York: Harper Collins.
- Fisher, E. 1979. *Woman's Creation*. New York: McGraw Hill.
- Foley, R. 1991. Hominids, humans, and hunter-gatherers: An evolutionary perspective. In T. Ingold, J. Riches and W. Woodburn (eds.), *Hunters and Gatherers*, Volume 1, 207-22. London: Berg Publishers.
- Foster, M.L. 1996. The reconstruction of the evolution of human spoken language. In A. Lock (ed.), *Handbook of Human Symbolic Evolution*, 747-775. Oxford: Clarendon Press.
- Friedman, J. 1982. Catastrophe and continuity in social evolution. In C. Renfrew, M. Rowlands and B. Seagraves (eds.), *Theory and Explanation in Archaeology*. New York: Academy Press.
- Gaard, G. and L. Gruen. 1993. Ecofeminism: Toward global justice and planetary health. *Nature and Society* Greek Edition, 1, 4, 13-41.
- Gimbutas, M. 1982. *The Civilization of the Goddess: The World of Old Europe*. San Francisco, CA: Harper and Row.
- Goudsblom, J. 1992. The Civilizing Process and the Domestication of Fire. *Journal of World History* 3, 1-11.
- Greenwood, D. 1984. *Taming of Evolution*. New York: Cornell University Press.
- Hallpike, C.R. 1979. *The Foundations of Primitive Thought*. Oxford: Oxford University Press.
- Haraway, D. 1989. *Primate Visions*. New York: Routledge Press.
- Harris, M. 1978. *Cannibals and Kings*. London: Collins.
- Helskog, K. 1995. Maleness and femaleness in the sky and the underworld and in between. In K. Helskog and B. Olsen (eds.), *Perceiving Rock Art: Social and Political Perspectives*, 247-262. Oslo: Novus Forlag.
- Hodder, I. 1990. *The Domestication of Europe*. Oxford: Basil Blackwell.
- Ingold, T. 1986. *The Appropriation of Nature*. Manchester, UK: Manchester University Press.
- Kirch, P. 1990. Monumental architecture and power in Polynesian chiefdoms: A comparison of Tonga and Hawaii. *World Archaeology* 22, 206-223.
- Krader, L. 1979. The Ethnological Notebooks of Karl Marx: A Commentary. In S. Diamond (ed.), *Toward a Marxist Anthropology*. New York: Mouton.
- Kristiansen, K. 1982. The formation of tribal systems in late European prehistory: Northern Europe 4000 BC - 500 BC. In C. Renfrew, M. Rowlands and B. Seagraves (eds.), *Theory and Explanation in Archaeology*. New York: Academic Press.
- Laing L. and J. Laing. 1993. *Ancient Art*. Dublin: Irish Academic Press.
- Lee, R. 1979. *The !Kung San, Men and Women in a Foraging Society*. Cambridge: Cambridge University Press.
- Lenski, G. 1966. *Power and Privilege*. New York: McGraw-Hill.
- Maness, C. 1990. *Green Rage: Radical Environmentalism and the Unmaking of Civilisation*. Boston, MA: Little Brown and Company.
- Mannino, M. and K. Thomas. 2002. Depletion of a resource? The impact of prehistoric human foraging on intertidal mollusk communities and its significance for human settlement, mobility and dispersal. *World Archaeology* 33, 452-474.
- Marangudakis, M. 1998. Metaphysical uncertainties of political ecology. *Society and Nature* 12-13, 149-180.
- Marangudakis, M. 2001. The medieval roots of our ecological crisis. *Environmental Ethics* 23, 243-260.
- Martin, P.S. 1987. The meaning of Ice Age extinction. *AnthroQuest* 37, 10-13.
- Mayr, E. 2001. *What Evolution Is*. New York: Basic Books.
- Merchant, C. 1995. *Earthcare: Women and the Environment*. New York: Routledge.
- Mithen, S. 1996. *The Prehistory of the Mind: The Cognitive Origins of Art, Religion and Science*. London: Thames and Huston.
- Naess, A. 1989. *Ecology, Community, and Lifestyle*. Cambridge: Cambridge University Press.
- Plant, J. (ed.). 1989. *Healing the Wounds*. London: Green Print.
- Ponting, C. 1991. *A Green History of the World*. London: Penguin Press.
- Rappaport, R.A. 1971. The sacred in human evolution. *Annual Review of Ecology and Systematics* 2, 23-44.
- Rowe, J.S. 1997. From reductionism to holism in ecology and deep ecology. *The Ecologist* 27, 147-151.
- Rudgley, R. 1998. *Lost Civilizations of the Stone Age*. London: Century.
- Sahlins, M. 1972. *Stone Age Economics*. Chicago, IL: Aldine Atherton.
- Shennan, S.J. 1996. Social inequality and the transmission of cultural traditions in forager societies. In S. Shennan and J. Steele, (eds.), *The Archaeology of Human Ancestry: Power, Sex and Tradition*, 365-379. London: Routledge.
- Sherratt, A. 1997. *Economy and Society in Prehistoric Europe: Changing Perspectives*. Edinburgh, UK: Edinburgh University Press.
- Sieber, R. 1966. Masks as agents of social control. In Douglas Frase (ed.), *The Many Faces of Primitive Art*, 257-264. Upper Saddle River, NJ: Prentice-Hall.
- Simmons, I.G. 1993. *Environmental History*. Oxford: Blackwell.
- Stone, C.D. 1988. Moral pluralism and the course of environmental ethics. *Environmental Ethics* 10, 139-154.
- Tannahill, R. 1973. *Food in History*. London: Penguin Books.
- Tanner, N.M. 1981. *On Becoming Human*. Cambridge: Cambridge University Press.
- Taylor, P. 1986. *Respect for Nature: A Theory of Environmental Ethics*. Princeton, NJ: Princeton University Press.
- Thomas, J. 1990. Monuments from the inside: The case of the Irish megalithic tombs. *World Archaeology* 22, 168-179.
- Trigger, B.G. 1990. Monumental architecture: A thermodynamic explanation of symbolic behaviour. *World Archaeology* 22, 119-133.
- Ucko, P. and A. Rosenfeld. 1967. *Palaeolithic Cave Art*. London: World University Library.
- Van Andel, T.H., E. Zangger and A. Demitrac. 1990. Land use and soil erosion in prehistoric and historical Greece. *Journal of Field Archaeology* 17, 379-96.
- Wall, D. 1994. *Green History*. London: Routledge Press.
- Williams, P.R. 2002. Rethinking disaster-induced collapse in the demise of the Andean highland states: Wari and Tiwanaku. *World Archaeology* 33, 361-374.
- Woodburn, J. 1982. Egalitarian societies. *Man* 17, 431-451.