

Evolution and Archetype: The Biology of Jung

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The Archetypes And Human Culture

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In the previous two chapters we have seen that Jung's general notion of *archetype* as part of our phylogenetic heritage is consistent with the findings of evolutionary science in a number of ways. Using the language archetype as a model, we saw that we inherit a set of dispositions that direct our attention to specific things as well as what some have called a "computing algorithm" to sort out that experience and make sense of it. We have, therefore, seen that an archetype must be a pattern of behavior inherited through genes, that builds distinctive brain structures and neuronal networks, and finally that such human patterns have their precursors in our primate relatives. What sets us apart from our evolutionary cousins is above all a larger cortex that makes it possible for us to schmooze several allies in the time that a chimpanzee can groom only one. Modern humanity took off in a "cultural explosion" some forty or fifty thousand years ago when we learned that language is an all-purpose tool to be used in technology, love-making, political persuasion, philosophical reflection, artistic creation and much else besides.

The foundation has thus been laid in a general and sketchy manner for reconciling Jung's Complex Psychology with evolutionary science. Nevertheless, the strongly biological argument employed thus far is apt to leave Jungian analysts and other readers of Jung's works perplexed. Where, they will ask, are Athena, Gilgamesh, Shiva, and all the mythological figures that have played such a central role in Jung's *Collected Works* and in all the secondary volumes of dream interpretation, fairy tale analysis, and mythopoeic investigations that characterize the Jungian "school" of psychology? Should we expect to find some Zeus gene in our DNA, some Chinnamasta network in our brain, or are these mythic figures and narratives not "archetypal" in a fully biological sense?

Such questions have been explored -- albeit in rather different language -- by evolutionary scientists. The heart of the issue is this: In what sense can we say that *culture is inherited*? For if cultural forms are archetypal, they must be inherited, though they differ from one region of the world to another and from one era to another. Do people in different cultures inherit different archetypes? Or is culture something else altogether, something that has been added onto what we inherit, something simply learned? This "problem of the cultural archetypes" is not wholly foreign to what we have already discussed, for hints have been left in our discussion of the language archetype. We inherit the capacity for language-in-general and are born capable of learning any language on earth. But due to the accidents of nationality, class, ethnicity, and the like, we are exposed to a specific mother tongue; and that is the one that shapes our thinking. Surely this is how Jung saw things, for he always sought the meaning of an image in extensive cross-cultural comparisons. He sought to distill an archetypal essence from its many and varied manifestations across the world and down the centuries. Variations between cultures are evident; but what lies behind such variations, Jung maintained, was a universally human psyche. All cultures are built upon a single, inherited human nature.

The problem of "Solar Phallus Man." In arguing for the inherited nature of the archetypes, Jung can be extremely misleading -- most strikingly in the anecdote he told most frequently, the one that has become known as Solar Phallus Man,[1] a patient from the first decade of Jung's service as a psychiatrist. It was the only case he ever cited in which a modern individual dreamed an obscure ancient myth he could never have learned in his conscious life, and therefore must have derived it from an inherited collective unconscious. Indeed, the devoted reader of Jung's writings is likely to conclude that Solar Phallus Man is the only "real evidence" for the existence of inherited archetypes that Jung was able to advance. In the *Collected Works*, the story is told at some length three times, with a few variations in the details (*CW5*: ¶149-54; *CW8*: ¶317-18; *CW9i*: ¶105-7). Jung's student, colleague, and successor at the Jung Institute in Zurich, C. A. Meier, tells the story most economically, and in the process reveals that two of the crucial details in Jung's versions were not accurate. The Solar Phallus Man was not Jung's patient, but rather the patient of his assistant physician at the Burghölzli Asylum, J. J. Honegger; and the German translation of the crucial Greek text had been available in an earlier edition before the incident occurred[2] -- so it *need* not be the case that the patient had hallucinated an image straight out of the ancient Hellenistic world without first knowing and then forgetting it.

An uneducated paranoid patient, who had been interned for years in the Burghölzli . . . described one of his hallucinations to a Dr. Honegger. He said that he could see an erect phallus on the sun and that when he moved his head from side to side, the sun's phallus moved with it, and that was where the wind came from. It was only much later, in his mythological studies, that Jung came across a Greek text published by Albrecht Dieterich under the title *Eine Mithrasliturgie* (1903). On pages seven and eight there is, word for word, an identical vision of a solar phallus as the source of the wind. It can be safely assumed that the patient had no knowledge of this myth (Meier, 1995: 78).

Jung's hostile biographers have made much of the discrepancies in the story to debunk the theory of the archetypes and the collective unconscious by claiming that it was all a deliberate deception from the beginning. In the end, the story remains largely credible, however, for whether Solar Phallus Man was Honegger's patient or Jung's is immaterial to the vision; and even though the first version of Dieterich's book preceded the incident, it seems unlikely that an uneducated clerk would have been studying the ancient religion of the

Roman Legions or another volume where the image occurs, Bachofen's *Mutter Recht (Myth, Religion, and Mother Right)*, which had been published much earlier. Credible or not, however, the story makes no substantial contribution to a phylogenetic model of the psyche. It is but a single incident out of a lifetime of prodigious work, yet it is expected to convince us that every single human psyche operates this way at all times. Jung's examples ought to be infinite if this sort of thing were typical of us all.

Furthermore, the anecdote seems to imply that our brains store the images themselves and not simply the neuronal networks with their computational algorithms. Jung himself frequently denied that we inherit images (e.g., CW7: ¶101, 104; CW8: ¶417, 435). Thus the anecdote introduces several notes of confusion and contradiction into Complex Psychology. How is it that the vision could have been "word for word" identical with the ancient text? Should we imagine that the collective unconscious has recorded every product of human thought ever produced, even those formulated in languages foreign to us? Surely this is not a likely possibility, for at the very least it contradicts everything we have discovered about the language archetype.

Solar Phallus Man, evidently, was a wonderful coincidence that planted the idea of a collective unconscious in Jung's mind. But after he worked on the idea for a decade or two and refined his notion of what we actually inherit, the story lost its value as an illustration of cultural inheritance. It served rather as a rhetorical device that he employed to impress his audiences as he himself had once been impressed. It tells us nothing about culture, the inheritance of cultural paradigms, or the relationship that must obtain between genes and culture. We will have to start at the beginning.

The Issue of Culture

What is culture? The Standard Social Science Model (SSSM) that served as the central paradigm of the social sciences throughout most of the twentieth century, was reasonably clear about culture. It dichotomized "nature," what we inherit through our genes, from "nurture," what we learn after birth. Culture fell neatly into the category of "nurture." Humans were deemed to be different from animals because *they* had instincts that controlled their behavior completely, while *we* had culture controlling ours. Culture, too, was mostly unconscious; we picked it up largely without noticing it, for we lived within our culture as in an atmosphere and veritably "breathed" it. Because culture was thought to be imposed entirely from without, nothing internal to the individual was required for culture to be obtained. We were all born with an empty mind, a "blank slate" (*tabula rasa*), upon which culture wrote everything that we came to know.

The blank slate of the SSSM allows for no specialization within the brain, no "modules" by which we are able to learn some things more easily than others. It grants us nothing more than an unfocused "general intelligence." Consequently, the experts of the SSSM who dominated social science thinking in the twentieth century viewed Jung's attempts to determine the meaning of an image by investigating cross-cultural parallels as an exercise in foolishness. Cultures, they held, were essentially incommensurable with one another, though they might exchange elements with their neighbors or trading partners. There was no universal human nature; there were only separate human cultures.

The advance of the evolutionary sciences, however, has changed all that. Culture remains a body of socially transmitted information, and we are still deemed to occupy a "cultural niche" within the ecosystem. But the evidence that we inherit brain structures, networks, and algorithms rather than a blank slate places culture in an entirely new light. Every culture on earth is based upon our common human nature. We are born with mental modules or archetypes that predispose us for and facilitate our learning specific sorts of things. Every human culture, therefore, is a variant expression of the genome we all inherit. "Our genes have culture on a leash" (Lumsden & Wilson, 1981: 303).

For all that, the definition of culture remains a bit vague. Cosmedes and Tooby, the founders of evolutionary psychology, include an extremely broad range of phenomena under the designation *culture* any shared mental, behavioral, or material commonality, regardless whether the sharing involves an entire species or only two individuals (Tooby & Cosmedes, 1992: 117). They resist the idea that culture is "transmitted," for this implies that the agent of the cultural transmission, the teacher or exemplar, determines culture's content. Instead, they emphasize the primacy of psychological processes in the learner (mental modules), and hence prefer to speak of "reconstructed culture," "adopted culture," and "epidemiological culture" (Ibid., 118). The learning of culture, like the learning of language -- one of its components -- depends upon the inherited networks and algorithms in the brain of the learner, structures that enable us to distinguish significant items and events from insignificant ones. Thus the substance of culture is reinvented anew in every brain.

It is important, furthermore, to notice the dynamic nature of cultural interactions. Our genetic predispositions are shaped by the cultural "atmosphere" in which we find ourselves, just as our language networks are shaped by English or Russian. Therefore, it is misleading to think that we first get our human nature through genetic evolution and that culture arises secondarily as a sort of byproduct. Rather limits are set upon every cultural expression by the structures we have inherited. For although culture enables extraordinary flexibility and rapid adaptation to new environmental circumstances -- as compared with the work natural selection performs upon our genome -- these alterations can occur only within the range our archetypes will permit. Cultural developments that do not support our survival and enhance the propagation of our genes will not survive. People living ineffective cultural ideals will have to reinvent themselves through some sort of "conversion" to alternate ideals, or they will go extinct. There is nothing in human experience that does not result from the interaction of nature and nurture. The two are never found in isolation, and nothing is the product of one rather than the other. They are profoundly intertwined, and interactive. Their respective contributions to the lifestyle of an individual or of a group can never be teased apart.

Culture so much "invades" biology that it alters our physiology. Peter J. Richerson, an environmental scientist at University of California Davis, and Robert Boyd, an anthropologist at UCLA, discuss cortisol and testosterone levels in the blood of American men who have been deliberately insulted in a carefully controlled experiment.^[3] High levels of those two chemicals indicate, respectively, high stress and preparation for violence. Results show that males from the South experienced much larger increases in cortisol and testosterone than did males from northern states. Richerson and Boyd understand this to be due to the culture of personal honor and politeness that predominates in the South, where insults are more carefully given and pack a greater wallop (Richerson & Boyd, 2005: 1-4).

Culture organizes how we see things, how important they are, what we are expected to do about them, and does so in such a convincing way that we doubt its common verities at our peril. They drive our emotional reactions; and when emotions are involved, our blood pressure changes and our hormones flow. Culture effects biological changes within the bodies our genes have built.

The origins of culture. Discussion of human culture generally begins with the Holocene, the relatively warm, ice-free era that has prevailed since the end of the last Ice Age, comprising the last 11,500 years. But an absolute beginning point is impossible to set, for already during the Upper Paleolithic relatively short-lived tool-making styles emerged and then disappeared, showing that a tendency to develop different cultural traditions pre-existed the Holocene: the Aurignacian, Gravettian, Solutrean, and Magdalenian (Cook, 2003: 18). Further back, there are different painting styles evident in the various Ice Age caves. Chances are, if we had enough detailed information from hundreds of thousands of years ago, the dividing line would regress even further into the past. Indeed, there is a lively debate going on over whether non-human primates may be said to have distinct "cultures." Richerson and Boyd (2005: 56) describe regional variations in baboon cultures, as the dog-faced primates adapt to different environments and pass on the tricks of their survival strategies from generation to generation. They list ninety-seven examples of socially learned variations in animals that are as distant from us in evolutionary heritage as sparrows, lizards, and fish (Ibid., 104).

We humans differ from other animals not so much in the mere fact of regional variations as in our capacity for *cumulative* cultural evolution -- the ability to combine old customs with new discoveries and thereby to refine and improve upon the adaptations of earlier generations. None of us, as an individual, would have any chance of survival if suddenly abandoned in the Arctic or the Kalahari. Survival under such extreme conditions requires a group of conspecifics and a cumulative tradition of adaptation, for only this can provide accurate and sufficiently detailed information about the local environment and how to manage it (Ibid., 130).

When we say that humans inhabit a "cultural niche" -- much as monkeys inhabit an arboreal niche and green plants a photosynthetic niche -- we refer to our human capacity to accumulate cultural refinements and thereby to adapt more rapidly to a vast range of climatic, geological, and other conditions than would be possible if we had to wait for our genome to generate new mental modules. Imagine Eskimos waiting for a kayak-making module to appear in their genome. With such an archetype, they could have taken to the Arctic like beavers to a stream, but they would not have been able to survive the million years they might have had to wait for evolution to provide it. Furthermore, that module would be of no use to them a few hundred years later if the climate should change or a more powerful people were to come along and force them inland or south to temperate prairies. Culture enables adaptations that can arise and undergo refinement in the space of a few generations, while genetics alone requires vast stretches of time (Ibid., 160). "Culture is adaptive because it can do things that genes cannot do for themselves" (Ibid., 145). Probably cultural learning and refinement, as a species-wide strategy, was an adaptation to the extreme climatic fluctuations our ancestors experienced "during the last half of the Pleistocene" (the last Ice Age) and was made possible by rapid brain enlargement that began around two million years ago (Ibid., 135).

As long as we remember that an archetype is a complexity comprised of countless levels of complex patterns operating in tandem and nested within one another, we might well say that our human capacity for culture is itself an archetype. We have a mental module that does not so much provide a determined shape for our society, our technology, or our religion, as one that enables our experimenting with a variety of shapes and designs -- an archetype that facilitates our learning from one another and accumulating advances and refinements from one generation to the next.

Such, at any rate, appears to be the view of Richerson and Boyd, when they take issue with evolutionary psychology's "Big Mistake Hypothesis," namely the idea that because our ancestors evolved during an Era of Evolutionary Adaptation (EEA), our brains are well adapted only for hunting and gathering, and ill-adapted for all the experiments we have been concocting these past 10,000 years -- from subsistence agriculture to the United Nations -- because no new mental module has evolved to save us from our bumbling. Richerson and Boyd do not deny that our present difficulties in the world are largely of our own making: over-population, disappearing resources, global warming, pollution, increased dangers from disease pandemics, and the like. They just do not attribute these things to our having out-lived our evolved repertoire of mental modules. They propose, instead, a "Costly Information Hypothesis."

No doubt cultural maladaptations are rampant and unavoidable, but not because we lack a module for agriculture or capitalism, rather because what we have called the cultural archetype proposes strategies far more quickly than they can be tested. Our mistakes, in short, are "an inevitable byproduct of cumulative cultural adaptation." Cultures will try a variety of solutions to the ever-changing problems of survival, and some will surely fail. But the overall process of cultural evolution is so much more flexible and easily changed -- than is the biology of genome evolution -- that it serves us better in the long run. We cannot stop maladaptive customs from developing or being revived, for human beings are very unlikely to examine all aspects of every new strategy in advance. Such information would be "too costly" to obtain (Ibid., 150). The process of cultural evolution, therefore, works very much as natural selection does. New variations appear, and those that succeed become established, while those that fail are abandoned -- sometimes only in the wake of catastrophe.

Culture in the Upper Paleolithic

In the previous chapter, we traced four major archetypes through the phyla of the Animal Kingdom to see that the foundations of cultural achievements like physics, biology, politics, and literature have their genetic foundations in the adaptations of primates, mammals, birds, and so on down at least to insects. We laid a biological foundation, and then we found that the mere possibility of establishing relations between the four mental modules brought about an explosion of culture. We recognized that the modern human mind had established itself. The art of the Ice Age caves, its very existence, implies a great deal about the people who made it. It is not just that they became "aesthetic," whatever that might mean. They had to already have developed an ability to "see" images, and that itself required social agreement. There had to be shared values in the forms they painted, and shared conventions as to the meaning of certain shapes, certain animals. "One cannot 'notice' a representational image in a mass of lines unless one *already has* a notion of images. And such a notion must

be *socially* held . . ." (Lewis-Williams, 2002: 183; italics in original). There is always "a dynamic nexus of interdigitating factors" in art (Ibid., 73). The art of the caves follows the principle we have been discussing: Genes have culture on a leash. All communication -- and art is always communication -- must remain within the parameters set by our mental modules.

If artists wish to make personal statements about their relations with the rest of the community, they are enabled to do so by a generally understood *langue* [language[4]] of motifs and accepted ways of developing them. But they are, at the same time, constrained by the same *langue* if they step too far out of line, their visual statements become incomprehensible to the people whom they wish to influence (Ibid., 269).

Consciousness in the Upper Paleolithic. David Lewis-Williams sketches in the conscious capabilities of our Ice Age ancestors by comparing them with the Neanderthals with whom they shared Europe for some 50,000 years, right down to about the time the first caves were being painted. He says that if Neanderthals experienced altered states of consciousness, they never took note of them, never noticed the range of conscious states at their disposal, never conceived of an "alternate reality," never developed a language of imagery, never learned to communicate their non-ordinary experiences, and never attributed greater power to some individuals rather than others -- individuals who had a greater facility for cultivating and using altered states (Lewis-Williams, 2002: 93).[5] These capabilities are precisely what is required before one can entertain the idea of making such paintings. There had to be a language of imagery, a set of cultural values, most likely expressed in narratives, that lay behind the paintings and provided the context for the emotional impact they were intended to have. "Whatever the correct interpretation [of the art of the caves], no one doubts that the paintings reflect close spiritual relationships between the domain of the living and the forces of the supernatural cosmos" (Fagan, 2004: 20).

Archaeologist Brian Hayden finds all the cultural universals of the human race in the evidence of those caves: religion, language, kinship systems, technology, and political organizations (Hayden, 2003: 13). Although researchers can surely go too far in making comparisons between our little known Ice Age ancestors and contemporary hunter-gatherers, some things would have to be pretty much the same. For today's hunter-gatherers live in regions where the environment is in some ways as harsh as it was in Pleistocene Europe. Under such conditions, the sharing of food and other resources is absolutely imperative for survival. Private property is virtually non-existent; natural resources must not be exploited competitively; and egotistical behavior has to be suppressed in favor of the group's survival (Ibid., 93). The sacrifice of ego for the sake of communal solidarity is manifest, too, in initiation ceremonies -- where, as Hayden notes, the severity of the initiation increases as everyday conditions become more harsh. It is as though they say: "If you are not ready to put up with some pain to join us, we can't be sure that you will help us when times get tough" (Ibid., 104).[6] Extremely painful initiations would also be likely to induce altered states of consciousness, and this is what Hayden believes was going on in those caves:

I think that the use of these deep caves probably constitutes the first clear material indication in the archaeological record for ecstatic cults, although there is a very good chance that such cults existed hundreds of thousands of years before.

In all rituals and initiations, a sacred area is used or created to serve as the portal to supernatural dimensions (Ibid., 103).

The very idea, however, that some individuals might choose or be chosen to undergo more severe initiations than others or might seek out the small and isolated rooms within the cave complexes in quest of visions suggests that degrees of personal power and influence were already being acknowledged in the Upper Paleolithic. The immense organization that went into the decorating of the caves implies that Europe at that time was inhabited by *complex* hunter-gatherer groups. Although life was harsh for them, as it is for modern hunter-gatherers, they periodically enjoyed an abundance of animals to hunt and developed extensive trading networks and alliances. These things required some specialization and division of labor. Thus our Ice Age ancestors were not confined to small isolated bands like the Kalahari Bushmen or Australian Aborigines of the recent past, but resembled more the Kwakiutl hunter-gatherers of Canada's Pacific coast, with their large, permanent settlements, substantial division of labor, hierarchical social system, hereditary political rank, and extensive large-scale warfare (Richerson & Boyd, 2005: 227). The evidence for this sort of complex social organization in the Upper Paleolithic has been assembled by Hayden: magnificent carvings and paintings, unprecedented wealthy burials, undisputed evidence for elaborate rituals and religious conceptions, beliefs regarding an afterlife, pursuit of altered states of consciousness, animal cults, initiations, shamanism, and ancestor cults (Hayden, 2003: 122).

Thus the caves appear to be not so much about "beauty" as about social discrimination (Lewis-Williams, 2002: 95). The styles of tool-making and body-painting, not to mention burial practices, were statements of identity, affiliation, and hierarchy. As the organization of society grew, so did competition, and this surely had a mythic or religious dimension as well; for: "Although all people have the neurobiological potential to enter altered states of consciousness, those states are not socially open to all. The spectrum of human consciousness thus becomes an instrument of social discrimination" (Ibid., 196). Success in hunting, too, was probably associated with the unequal procurement of supernatural power (Ibid., 91).

Alliances and bonding. No primate other than *Homo* is able to overcome its fear and suspicion of strangers so as to cooperate in joint enterprises. Consider the subways of New York during a morning rush hour. Riders who are not only strangers to one another, but from different ethnic groups, speaking different languages, wearing the insignia of different religions and political persuasions pack themselves shoulder-to-shoulder for a jolting ride through dark tunnels without any noteworthy tension. Overcoming an instinctual fear of non-relatives has to have been a major accomplishment of our ancestors, for the instinct surely remains and gives rise to xenophobia, racism, genocide, ethnic cleansing, and class warfare even today.

Biologist Matt Ridley observes that our human capacity to enter into trusting alliances must extend at least as far back in time as evidence of trading networks among Archaic Humans can take us, hundreds of thousands of years. For trade requires a genuine permeability between groups. Chimpanzee troops are closed to emissaries and traders; they have no exchange with one another apart from violence and emigration (Ridley, 1996: 201). In contrast, it appears that the principal survival technique of human hunter-gatherer groups has been the establishment of alliances with other bands, both near and far (Hayden, 2003: 29). Each band would have had to range over vast territories if it were on its own in finding and procuring the materials for tool-making, ritual paraphernalia, dietary requirements, and

the like. It would necessarily have encountered strange bands on a fairly regular basis, and then have had to fight them or make friends. The complex hunter-gatherer societies of the Upper Paleolithic reveal quite clearly that they often took the route of friendship, and that had to have involved the cementing of relations and the establishment of trust.

Strong emotional bonds, more powerful than the ones binding us to our families were necessary. This, undoubtedly, was the primary function of altered states of consciousness: to establish and maintain bonds that seem "irrational," for why should virtual strangers assist us and we them? How can we trust people with different customs and that we encounter only rarely? The answer, according to Brian Hayden, is that our human capacity for altered states of consciousness has been naturally selected as a biological adaptation that confers significant survival benefits, namely the ability to form these inter-group bonds. "Groups that had the potential for such religious emotions and used them by holding rituals in which participants entered into ecstatic states . . . would be more likely to survive because of mutual help in time of need" (Hayden, 2003: 32). Altered states of consciousness generate powerful emotions that transcend the rational and introduce us to a world of euphoric oneness that seems self-evidently real and more meaningful and invigorating than the profane world. Our capacity for altered states of consciousness and our innate response to music and rhythm all belong to our biological heritage, and we have always used them for dedicating ourselves to projects, goals, and principles that transcend the concerns of the immediate present and make possible a "sophisticated sociability" (Ibid., 20-54).

Religion satisfies an inner craving for meaning, a feeling of wholeness or union with greater forces, and an inner satisfaction that comes only from ritual life, just as music and rhythm satisfy an inner emotional craving deep within our soul and mind for the trances, the ecstasies, and the profound experiences that only they can produce. These are fundamental adaptations of our biological heritage. To argue that advances in science and politics have eliminated the need for religion is tantamount to arguing that science and politics have eliminated the need for music or emotional attachments to family members (Ibid., 400).

Complex Ice Age society. In his best-selling overview of the rise and fall of human societies from the end of the Ice Age until the present, *Guns, Germs, and Steel*, Jared Diamond distinguishes four types of society by their size: "bands" with dozens of members, "tribes" with hundreds, "chiefdoms" with thousands, and "states" with 50,000 or more (Diamond, 1999: 268f). It seems likely that the societies that painted the caves were comprised of bands that had formed sufficient alliances to be able to function sometimes as tribes. But the organization required to paint the caves themselves must have required the hierarchy of a chiefdom. Someone had to provide the structure by which a throng of specialists from several different fields of expertise were able to cooperate successfully to produce an extensive micro-environment in which the founding myth of the Upper Paleolithic could be entered physically and explored. For the caves were clearly equivalent for their day of medieval cathedrals -- architectural embodiments of the myth that guided the consciousness of their builders.

The cathedrals are less enigmatic than the caves only because we know so much more about what those more recent builders of worship chambers had in mind. We have the writings of their theologians, their town records, and other official documents. We have no read-out of the builders' minds, themselves. But it is likely that humans are everywhere the same, that our beliefs vary both in their content and in the degree of certainty with which we hold them. Hayden's ethnographic experience among the Maya of Guatemala, the Abor of

Australia, and the Hill Tribes of South East Asia, suggests that about ten percent care nothing for rituals and supernatural beliefs, while another ten to twenty percent have abandoned traditional beliefs for some rival myth (the Christianity of the missionaries in Hayden's experience). Thus it is not unreasonable to think that a quarter of the Upper Paleolithic population was indifferent and another quarter only mildly convinced. Someone had to "drum cultural conformity into the skulls of their members"; and those societies that managed this feat had significant survival advantages over those who did not (Ridley, 1996: 189).

A society as large as a tribe cannot function unless someone is able to plan, someone to organize and command, someone to fight, someone to hunt, someone to distribute food and other necessities. There has to be a hierarchy of some kind. And an essential role within a leadership group will have to be the voice of the spiritual world, the one who ties it all together and reveals the transcendent meaning that guides the whole, binds the bands into a tribe, motivates the members to work in new ways, and rewards them with the conviction that they are participating in a process of transcendent significance. This was the job of the shaman, the specialist in entering altered states of consciousness and in mastering them, gaining enough conscious control over one's own ecstatic states as to alter the consciousness of others, heal them, reveal the transcendent world to them, introduce them to the experience of other parts of their brain (Hayden, 2003: 66).

Deep Communication Among Primates

Civilization even in the Upper Paleolithic might be described as a complex system of interlocking patterns of perception, interaction, and consciousness changing that exhaustively linked up and accounted for every detail within the experiential world those people lived. It gave meaning to every event, every place, every season, every encounter. If we humans may be said to have an archetype for culture, this would be what it is: the capacity to live our lives in society as a single, integrated, meaningful whole. It would be the pure capacity -- "empty" of detail -- to recognize and recreate anew in every incident of our lives a coherent participation in that whole. The set of meanings that fills that empty capacity, as English fills the language archetype, will be different from one culture to another.

We can recognize our ancestors of the Upper Paleolithic as having *had* a culture, because there was a good deal differentiation, hierarchy, and even implied dissent creating the sorts of tensions with which we are very much aware. Had there been no dissent, there would have been no need for persuasion, for preparing the minds of vision seekers with the painted scenes of the larger cave galleries. There may have been political factions, at least from time to time; but the greatest danger of dissent probably lay within, in the universal human tendency to become distracted. It is always easy to forget the mythic world in the face of the day-to-day anxieties the profane world is constantly able to mount. If we come away from this overview of Upper Paleolithic culture impressed at how successfully our ancestors were at generating such a harmonious result, we forget that the work is largely done *for* us by the archetypal structure of our brains.

In Chapter Two, we sketched a broad account of how language arose -- out of a capacity for intimate interaction that appears in the grooming behavior of monkeys and apes and in the gossip of humans. We imagined that grunts and gestures associated with grooming took on specific shapes and styles and eventually evolved into a highly differentiated tool for communication. Surely we have no reason to doubt this overview, but there is much to explore if we examine the process more closely. In doing so, we approach the huge question E. O. Wilson posed: "How did natural selection prepare the mind for civilization before civilization existed?" (1998: 52). Something more fundamental than gossip or grooming, a capacity for emotional attunement with others exists at a very primitive level in every newborn primate (and very possibly other mammals as well). Here is the place to look both for how linguistic communication was made possible, and why it is inevitable that cultures should be various -- even though they are built upon the same archetypal structure of the primate mind.

Stanley I. Greenspan, Clinical Professor of Psychiatry and Pediatrics at George Washington University, and Stuart G. Shanker, Professor of Philosophy and Co-Chair of the Council on Human Development at York University in Toronto, have provided an illuminating study of this question in *The First Idea: How Symbol, Language, and Intelligence Evolved from Our Primate Ancestors to Modern Humans* (2004). They establish stages in the development of communication capacities in human infants as well as their parallels in several primate species. They reject two common theories of language: (a) the idea that evolution provided us with a language gene that distinguishes us from our primate relatives and (b) the idea that we had first to develop a certain level of cognitive capacity before language development became possible. Greenspan and Shanker, by contrast, invite us to look deeper into the process of mother-infant interaction that begins at birth. They find that "verbal behavior emerges from and along with non-verbal communication to provide a new way of solving problems together with others" (2004: 209). In doing so, they make sense of a profound discovery that anthropologist Hugh Brody happened upon when he accepted an invitation from an Inuit named Anaviapik to learn the Inuit language, Inuktitut:

Again and again a lesson I had expected to be about language had also been, or become, a lesson about other things -- how to hunt, how to behave when talking, how to use the telephone, how to walk, how to sit, how to make jokes, how not to make jokes, how to play checkers. When I asked Anaviapik to teach me Inuktitut, . . . I had thought we were talking about words and grammar, about speaking, while he had supposed we were talking about a way of being. He had embarked upon the task of teaching me how to do and to be *Inuk-titut*, "in the manner of an Inuk" (Brody, 2000: 61).

Brody has vividly experienced the truth of Wittgenstein's seminal observation: "To imagine a language is to imagine a form of life" (Wittgenstein, 1958: §19).[7] What people mean by "talking on the phone" or "making jokes" refers to etiquette, customs, and associations -- the wide context of a whole world of experience that animates and finds expression in the words and grammar of its language. A people's culture is expressed in everything they do, in their goals, and in the style by which they pursue them. It goes far deeper than words, for Greenspan and Shanker report that efforts at establishing a universal dictionary of human gestures has run aground upon the discovery that the meanings even of gestures differ substantially from culture to culture (Greenspan & Shanker, 2004: 356). Thus Japanese children learn from the cold stares and unresponsive manners of their parents to avoid individualistic behaviors, while American children learn exactly the opposite through the warm smiles and supportive body language of their parents (Ibid., 324). The fundamental

attitudes that define a culture and shape its every expression are learned, not in the classroom, but in relationships of deep intimacy -- above all between infants and mothers

The protolanguage of emotion and gesture. All primates look attentively into one another's faces and make crucial inferences about the emotional state and intentions of the other. Such behavior is most pronounced between mothers and infants, where we learn the fundamentals of social communication in the first months of our lives. Greenspan and Shanker make this point in the introduction to their book (2004: 11f) by providing 300-word descriptions of two mother-infant interactions, using only the names of the participants. The two scenes are nearly identical. On the following page we learn that only one of those pairs was human, the other was bonobo. In another anecdote, Greenspan meets three bonobos at the Language Research Center in Atlanta and believes the apes are indifferent to his presence. Later, when he reviews films of the encounter in slow motion, he is able to see that "a virtual flurry of emotional communication had been going on." The bonobos had been studying Greenspan's every move and "expressing anxiety through fear-grimaces and raised hair," followed finally by acceptance indicated by the slightest of head nods and subtle hand gestures (Ibid., 108).

By studying mother-infant interactions across primate species, Greenspan and Shanker have uncovered some important parallels. A newborn baby is subject to frequent "catastrophic" emotions, intense global emotional states that involve the autonomic nervous system in fight-or-flight reactions. Distress cries and flailing arms engage the infant's mother, and they stare into one another's face, while mother soothes, cajoles, smiles, holds, and caresses her baby. It is a familiar, deeply archetypal dance that goes on between a primate mother and her baby. Eventually, "by having his *intent* responded to, the baby learns to modulate the intensity of his emotions. He is learning to regulate his mood" (Ibid., 32).

Once the catastrophe has been contained by mother's empathy and her demonstration of emotional composure, not to mention her obvious enjoyment in the exchange, her infant can begin to take pleasurable interest in his sensory experiences, particularly the caressing and gentle jostling he feels. It lowers his anxiety regarding the outer world and helps him see, hear, and smell calmly and with acceptance. As incidents like this are repeated over and over, the infant's catastrophic emotions are gradually tamed and directed toward a social consensus. "A baby needs to have been wooed into a warm and pleasurable relationship with one or a few caregivers so that there is another being toward whom he experiences deep emotions, and, therefore, with whom he wants to communicate" (Ibid., 115).

All primate species the authors studied show this same pattern of "regulating emotions" in their mother-infant exchange. The behavior pattern is so regular that we might consider it to be the pure expression of the archetype, uncolored by species or culture. Furthermore, it appears to be as much an innate reaction pattern as the reproductive rituals of the yucca moth. It is an inherited set of expectations, recognitions, and responses; for when a baby's caregivers assume a still and unvarying facial expression: "The infant typically responds by trying to reengage her caregivers with animated facial expressions, vocalizations, and body movements. When her strategy fails, the infant turns away, frowns, and cries" (Ibid., 46). Greenspan and Shanker call this first stage of emotional/gestural interaction, which begins at the infant's birth, "shared attention and regulation"; they find that primates as primitive as tamarins and marmosets employ it.

A second stage begins when the infant is between two and four months old, the stage of "engagement and relating." Here the need for managing catastrophic emotions recedes somewhat in importance and the infant begins to enjoy the pleasurable feelings of the relating process and a growing sense of intimacy. Rhesus monkeys are capable of relating at the level of this second stage. The third stage, which is reached by baboons and by human infants from about four to eight months, is characterized as "two-way intentional signaling." Here the infant becomes capable of reading and responding to emotional signals from the mother and to reply with her own emotionally weighted gestures. At this stage cause-and-effect thinking becomes possible. Felt emotions are now being transformed into communication signals, and what had at an earlier stage been a purely emotional exchange now begins to take on a logical quality (Ibid., 59f).

From the age of nine to eighteen months, the baby enters a fourth stage, "problem solving and the formation of a pre-symbolic self." Chimpanzees and bonobos are observed to be capable of this level of communication; and Greenspan and Shanker postulate that Australopithecines and *Homo erectus* also operated at this level. The authors refer in particular to the ability of each member of a chimpanzee hunting party to accurately anticipate what the others will do and how the prey is likely to respond. "Through gestures, body movements, head nods, and facial expressions, the hunters coordinate their actions and signal to one another who is to do what and when" (Ibid., 93).

Regarding human infants, the fourth stage is characterized by "long chains of co-regulated emotional signaling" in which the child learns the adult's patterns of communication and "to negotiate how she feels herself." Infant and mother modulate one another's moods through their exchange. In words that might have been taken directly from Jung,[8] Greenspan and Shanker speak of "islands of intentional behavior," that is to say clusters of familiar emotional, sensory, and ideational terrain that later will be integrated into a sense of ego. This process carries with it a good deal of learning about the baby's own culture, for as we proceed through these several stages, each becomes more culturally distinct than the last (Ibid., 61-5).

Language finally becomes possible at the fifth stage, at about eighteen months for an infant, and part of the repertoire of Archaic Humans and Early Moderns (600,000 to 60,000 years ago). Feelings are now conveyed in words and the child is able to form "a sense of 'me' versus 'not me' at the level of internal images rather than simply integrated patterns of behavior as was true at the prior stage" (Ibid., 72). In all, the authors distinguish seventeen different stages, leading all the way to old age. What interests us, however, is the process leading to language and therefore to the possibility of a "cultural explosion" and to see that the entire process is well established in our primate heritage. "Linguistic creativity arises not from some sort of generative mechanism but rather from the continuous flow of back and forth emotional signaling that provides a constant source of new affects or emotions to structure the next sequence of ideas or words" (Ibid., 196).

What gestures represent. The key to the whole process of becoming conscious, according to Greenspan and Shanker, is the transpersonal modulation of emotional states that reveals to the child that emotions are various and that they can be managed, and then that gestures mean something, that they can be signals regarding the moods themselves or the objects (food, a clean diaper) that have stimulated mood change in the first place. Interactive

signaling takes its first step in the direction of true language when the representational significance of a gesture is appreciated for the first time. The argument goes like this: "In most non-human animals, very young babies, and impulsive older humans, perception is tied closely to action" (Ibid., 26). The authors mention a trout glimpsing a fly and immediately striking and a barroom brawler who simply punches a patron who gives him a dirty look. To hold back from taking immediate action, however, and simply to perceive the object or gesture as a meaningful thing is to grasp a free-standing image that can be "seasoned with more and more emotional experiences" over time and eventually become "an internal symbol" (Ibid., 27). The ability to appreciate such symbols is the foundational talent and insight that supports language, where every sound stands for something and long interactive chains of sound can become a conversation.

Greenspan and Shanker observe that chimpanzees and bonobos do not engage in "long interactive chains" of signals, but rather in "short bursts." Although this is surely an important species difference between apes and humans, it is clear from other observations that "short bursts" are sufficient for some fairly sophisticated hunting techniques. But other communicative features show that bonobos' behavior is rather more similar to ours than one might guess. For instance, Greenspan discovered that bonobos raised by humans were vocalizing in a high pitched voice while engaged in emotional signaling with gestures, facial expressions, and body movements. Sometimes he even recognized the words (Ibid., 203). He found that the bonobo Kanzi and experimenter Sue Savage-Rumbaugh communicated using far more than the 250-icon keyboard Kanzi had been taught; they conducted a "gestural dance" that was "centered on the board but not confined to it" (Ibid., 135). Another bonobo took Greenspan by the hand on his first trip to the forest, and gave him a gestural lesson in which forest plants were edible and which not. Anecdotes like these make it clear that, while humans may be alone in communicating in spoken words and in the flexibility and creativity that they make possible, deep emotional communication, empathic understanding, and the capacity for representational signals -- which lie at the foundation of language and therefore of the Upper Paleolithic cultural explosion -- are abilities we share with our primate cousins.

Another implication of the Greenspan-Shanker argument has to do with the roots of neurosis. For what builds a capacity for consciousness, interaction, and intimacy can also be distorted. Sometimes words and gestures are not consistent with the full range of emotional signaling a caregiver is providing to her charge, a situation that can be confusing for the child and which, if repeated consistently, may build a tendency to dysfunctional responses. Ideally, adults can signal across the full human emotional spectrum (love, fear, anger, etc.), but some can manage only some of their emotions and not others. Fear, for example, may regularly become global and catastrophic for them, or perhaps anger can be labeled but not reflected upon (Ibid., 257). These are the sorts of conditions Jung studied when he developed his theory of the feeling-toned complex, i.e., the mass of associations that cluster about an emotional state that the individual has not learned to manage (*CW2*). Feeling-toned complexes are the nuclei of the neuroses.

Building the cultural archetypes. Stepwise negotiation of the infant's emotional world through gestural communication with his mother leads by the time he is a toddler to an understanding of the basic themes of the culture into which he was born: the nature of closeness, dependency, the acceptable limits of assertion and aggression, the sorts of

behavior that will earn praise or disapproval, and the boundaries of safety and danger (Greenspan & Shanker, 2004: 212). These skills form the basis of all social life, and inevitably the style and the mythic assumptions that structure mother's experience are all expressed implicitly -- outside the notice of either mother or child -- in the emotional/gestural exchange. Greenspan and Shanker go so far as to assert that the foundations of a culture's kinship system, family structure, mythology, classification system, hierarchy, and socio-economic strata are all embedded in such discourse and learned by every child (Ibid., 334).

Human beings are always learning from one another; and those behaviors and representations that become "stably recreated in sequential chains of individuals across generations," justifies our speaking of "culture" (Tooby & Cosmedes, 1992: 119). The patterns of culture are not inherited in quite the same way that the language archetype is. The language archetype itself -- what Jung would call the archetype *an sich*,^[9] "in itself" -- is a direct result of the action of genes. But the learning of English and the larger process by which the infant becomes acculturated result from the ways in which that fundamental archetypal structure is *used*. For using those structures in the style of a particular culture also "wires" the brain of the infant. In this sense, Jung's most dubious-sounding formulations, the ones that suggest a Lamarckian perspective, have been justified by modern evolutionary science. When he says that generations of experience have "laid down" the archetypes, he is right in the same sense that Cosmedes and Tooby are right, when they speak of a "sequential chain of individuals across generations." No experiences are finding their way into the human genome (as Lamarck implicitly believed), but cultural styles and experiences *are* modifying and completing the wiring of the infant's brain. In this sense, the culture that nurtures us has "laid down" archetypal patterns -- not patterns of inheritance, but patterns of acculturation.

In the mother-infant exchanges we have been discussing, the archetype "in itself" is the inherited structure whereby mother and infant are attuned to one another and able to engage their emotional expressions and gestures in a dance of intimate connection. But as this dance proceeds, the child's brain is undergoing a detailed "wiring" process whereby the fundamental principles of a specific culture become biological realities in his brain. Biologically understood, cultural information is "physical," namely a discrete arrangement of the physical substrate of the brain, the neuronal networks (Aunger, 2002: 139). The brain is being "re-wired" as long as we are alive and learning new things; but during the first two or three years of life, the brain sprouts neurons and synaptic connections at such a prodigious rate that eventually about twenty billion connections have to die off because they were never used. It is as though the brain is preparing for anything and everything that might possibly impinge upon the child's consciousness, so that nothing will be lost. But then, as familial and cultural patterns of brain usage become established, the unused connections fall away (Ibid., 185). In very general terms, the process of re-wiring can be described in four steps. An incoming emotional/gestural stimulation from the mother excites a "node"^[10] of neuronal connections, which sets off a chain reaction through downstream nodes. Over time, with frequent repetition of the interactive pattern with the mother, the associated pattern of connected nodes is strengthened and becomes habitual. Finally, if the pattern persists over a long enough time, it can enter the brain's "long term storage areas" via the hippocampus, where a protein induces the transcription of DNA sequences (Ibid., 190-206).

Greenspan and Shanker have pursued this line of evidence as well and report that each of their stages of emotional/gestural interaction is accompanied by characteristic stages in brain development. During the first stage, emotional regulation: "Neuronal connections are occurring in the areas that process sensory information . . . (i.e., primary sensory-motor cortex, thalamus, brainstem, and cerebellar vermis) and in the areas that support emotional interest in the world (i.e., amygdala, hippocampus, and cingulate cortex)" (Greenspan & Shanker, 2004: 273). It will not be useful to detail the brain wiring that occurs in each of the five stages we have discussed; but the fifth stage, when the representational value of signals is first appreciated, is the occasion for substantial growth:

Left-sided neuronal branching becomes denser as child comprehends, uses, and sequences more words and masters some of the basics of grammar. The visual-imaging parts of the brain grow as the child begins to engage more and more in pretend play. Both sides of the brain are becoming more specialized as language is rapidly being acquired (Ibid., 274).

The Greenspan-Shanker thesis applies as well to many matters relevant to the day-to-day work of psychotherapists. They note, for example, that psychology and brain development may become unbalanced and illustrate this possibility with a story about the CEO of a large multi-national corporation whose "multicausal" decision making operates at a very high level and is responsible for his meteoric rise through the ranks and the success of his corporate leadership. Meanwhile, in the realm of human relations he operates at a much lower level of development. He believes, for example, that fear and greed are the only relevant motivators, an attitude that serves him well enough while the economy is booming. But when the economy takes a downturn, his "iron fist" approach stirs up internal dissention and his board of directors fires him (Ibid., 377f). This story is nearly identical to examples Jung gives for an imbalance in the "psychic functions": a business man who operates entirely with his "thinking function" until life presents him with a problem that can only be solved with the help of his "feeling function" (CW6; CW8 ¶1-130).

How Long is Culture's Leash?

Everything we have said illustrates the Lumsden/Wilson thesis, "Genes have culture on a leash." Cultural adaptations occur much more rapidly and with more radical changes than genetic ones, but such adaptations must stay within the limits of what our genetic heritage is capable. Inherited archetypes direct our attention to some things rather than others, arouse enthusiasm for some activities rather than others; and, for the most part, a given culture can be seen as a characteristic set of variations on how archetypal matters are understood, prioritized, and pursued. Even the idea that cultural transmission from mother to infant "completes the wiring of the brain" does not let culture off its biological leash.

There is another school of thought on the question, however, and one that has generated a good deal of enthusiasm -- if not wisdom -- in some quarters. Some three decades ago, one of our foremost evolutionary biologists and author of the best-selling book, *The Selfish Meme* (1976), Richard Dawkins, proposed the idea of a rival agency to that of the gene in human evolution. He introduced the "meme" as a unit of cultural transmission that would resemble the gene insofar as it would be a "replicator," an entity concerned exclusively in propagating copies of itself. *Meme* is derived from *mimesis*, "imitation." [11] Dawkins himself says in his preface to Susan Blackmore's *The Meme Machine* (1999) that

he introduced the term somewhat playfully to illustrate how a replicator other than a gene might operate and that he has been a little alarmed at how the notion has taken on a life of its own. Some have even tried to turn it into a theory of culture. Indeed, it *has* become a sort of rival to the cultural leash theory, inspiring some to say that the leash is very, very long, or that the dog is leading its master, or even that the leash has been broken and the cultural dog is now on its own and the real director of genetic evolution.

It might be well to begin with Dawkins' original description:

Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, we can call imitation (Dawkins, 1976/89: 192).

This account makes it clear that memes are independent of genes and that they take possession of us. Dawkins also calls them "viruses of the mind." They certainly seem to be as contagious as viruses when we recall how a song we hear on the radio can repeat itself incessantly in our mind despite all our efforts to get rid of it. Blackmore compares our minds to freshly turned earth in springtime, wide open to any meme that may blow in, like a dandelion seed on the wind or a blackberry seed in the feces of a bird (Blackmore, 1999: 41). She informs us that when the Greeks began building in stone, their buildings were stone versions of the wooden structures that preceded them and that the first iron bridges in the late eighteenth century were modeled on woodworking designs. Our ideas are shaped by unexamined memes (Ibid., 27). "We humans, because of our powers of imitation, have become just physical 'hosts' needed for the meme to get around" (Ibid., 8). Probably religions have propagated themselves for millennia for their memes' sakes and very much to our disadvantage (Dawkins, 1976/89: 179f).[12]

In the end the message seems to be that we do not have our thoughts, our thoughts have us [13]; our thoughts "think themselves" and merely use us as their hosts. Effective memes, those that propagate themselves with high fidelity and that persist for generations, do not need to be useful but only memorable (Blackmore, 1999: 57). This would be true of faulty theories in science as well as some of the apparent absurdities of which religions speak (virgin birth, three persons in one God). Contemporary sexual behavior is "meme-driven . . . the memes themselves are now dictating the way we behave" (Ibid., 122). "The dog is off the leash and the slaves have rebelled against their former owners" (Ibid., 119).

The persona and its field. Jung's central therapeutic doctrine, articulated most clearly in *Two Essays in Analytical Psychology* (CW7), is that the optimal course of psychological development ("individuation") involves finding one's own living relationship to "the two collectivities." The two are: our phylogenetic heritage, also called the "collective unconscious," and the public world of everyday issues and challenges, what Jung calls "collective consciousness" -- a term that is somewhat misleading for two reasons. First, "collective consciousness" sounds too much like the "collective *un*conscious." More significantly, however, "collective consciousness" refers to the tremendous influence society at large exerts over us. This is mostly an *unconscious* influence, for we are rarely aware of the influence of social pressure. Like the cultural "atmosphere" we "breathe," social expectations form part of the background of consciousness. We absorb this background through the emotional/gestural interchanges we share with our parents, whereby it becomes

so deeply rooted in us that it rarely attracts any attention. Thus "collective consciousness" is also largely "*unconscious*," for it is the field of taken-for-granted social expectations and cultural representations within which each of us lives. It operates as a field of influence that exerts a constant pressure to conform upon our thinking, emotional reactions, and behavior. Our individual psychological life is in large part shaped for us, our thoughts organized by a social force field -- much the way iron filings arrange themselves along the lines of force in a magnetic field.

Both our phylogenetic heritage and the socio-cultural force field are capable of overwhelming our consciousness and submerging our individual identity. Jung urges us to maintain a conscious distance from both collectivities, and yet to stay in touch with them. For a well-adapted and satisfying life would be impossible unless we find a way to live in harmony with our inherited archetypes, on the one hand, and the "real world" on the other. There is a tension between these two realities, precisely because culture is on a leash of some length, and the arbitrary nature of social fads appears to be well described by meme theory. Either we can be swept along by the memes of the moment, caught up in a psychic contagion, or we can become aware of the nature of the social pressure we feel and make an effort to evaluate it and find a stance toward it that is harmonious with who we are and the larger public realities we face.

The single term in Jung's vocabulary that sums up the problem of the individual's finding an authentic stance toward the social world is *persona* (CW6: ¶800-02; CW7: ¶243-53). Jung typically says the persona is the "mask" we don when we face society; for this is the meaning of the term in Latin, the actor's mask, through which his voice sounds (*per sonare*). Jung's notion of persona, therefore, has something in common with Winnecott's "false self" and Freud's "ego ideal"; for persona's "mask" defines the way we would like to be seen by others and the way we prefer to see ourselves. But the idea of a mask is too static to do justice to the full meaning of "persona." For one thing, we wear a series different "masks" depending on the situation: whether we are dealing with our family, our boss, the people we encounter at a high school reunion, or the crowd we join at a sporting event. Thus, persona behavior is more adequately described in dynamic language as our *strategy for dealing with the social world*. Persona is a necessary dimension of our behavior; everyone *has* such a strategy, though each individual's strategy is in some ways unique. Persona behavior is as much an archetype as parenting or hunting. In fact, it is an expression of the archetype of sociality and has much in common with the awareness of hierarchy, alliance, and enmity negotiation that we share with our primate cousins.

The idea of a persona and a force field of socio-cultural representations within which it operates provides superficial support for the extreme theory of memes that Blackmore has given us. For we are acutely aware of how fads come and go: slang words and phrases, styles of dress, entertainment formulas for television and film, and the like. Every younger generation finds hairstyles and music genres to outrage its parents. Such things doubtless come and go from one season to the next, but they are only the passing garb with which persona, the universal archetype of sociality, expresses itself. Beneath all celebrations of novelty, the fundamental patterns change very little, if at all.

Since it is surely the case that passing meme fads are grist for the persona mill, two objections to Blackmore's "jumping meme" theory (Aunger, 2002: 233) are hard to avoid. The first is that "breaking culture into tiny bits," namely its so-called memes, overlooks the fundamental fact that "cultures are tightly integrated systems of shared meanings" (Richerson & Boyd, 2005: 90). Memes may sometimes appear to be radically new ideas and styles of acting, but they always exist within and draw their meaning from the larger cultural context; and that larger context is, at bottom, archetypal and therefore based in biology. Thus culture's leash often *seems* to be much longer than it is. The second objection is that the meme model assumes replication, for Dawkins defined memes as "replicators," entities like genes that generate identical copies of themselves, as they leap from brain to brain. But this is manifestly not true in many instances. Memes are often altered as they pass from one individual to another. One person hears a phrase differently, and error introduces a mutation into the meme. Another person hears it well enough but deliberately adapts a variation of the original idea to benefit his own persona strategy.

The epidemiology of cultural themes. Anthropologist Dan Sperber has noted both of these objections. The cultural importance of an idea, he says, is not determined by the number of its copies presently in circulation, but by its "impact on people's minds" (Sperber, 1996: 103). We do not simply take in information to copy it but "as evidence with which to construct representations of [our] own" (Ibid., 106). To approach the topic of culture's leash intelligently, we have to consider "why and how some ideas happen to be contagious" (Ibid., 1): why they have a stronger impact upon us than other ideas and how we find them useful. He calls his study the "epidemiology of representations," in which some notions are found to spread more rapidly and extensively than others, and some to last longer and have more important effects than others. He wants to introduce a semblance of measurement and verification into this topic.

The epidemiological approach to cultural transmissions "naturalizes" the social sciences (brings them within the purview of natural science) by "reconceptualizing the social domain" (Ibid., 5f). Epidemiology studies trends in the way ideas, representations, or stories spread through a population and establish themselves or become forgotten. Culture, from this point of view, might be called that set of social notions that become "widely distributed, long lasting representations" (Ibid., 57). Living myth, for example, the sort of "big" narrative that addresses a culture's ultimate questions, will always exist in a set of versions, some of which become forgotten and others that will merge and adapt and be remembered for generations. Those that survive this winnowing process will "be easily and accurately remembered on the basis of oral inputs alone"; they will be harmonious with the "cultural background"; they will be told frequently; and they will inspire credence (Ibid., 95f). Sperber also says they will have no "missing or superfluous parts" (Ibid., 108), which implies that hearers will also know -- very likely in an implicit manner -- when a piece of a story is either essential or "superfluous." Items will not become part of a cultural network if they are not easily remembered (Ibid., 74). It begins to look as though there is some inherited module that easily attends to these things, sorts out what is important from what is not, and makes such judgments without our having to attend to the process. There seems to be an archetypal pattern at work.

Sperber's findings on the sorts of representations that are "culturally successful" correspond quite well with what Jung has to say about archetypal symbols. In the first place, symbols are not signs or allegories, for signs and allegories have a one-to-one correspondence with the objects to which they refer. Symbols, on the other hand, point to what is only partly known and remains forever mostly unknown; their full range of meaning can never be specified definitively (CW3: ¶136; CW5: ¶114, 329; CW8: ¶644; CW11: ¶280-5). Symbols move us because they harness powerful sources of unconscious energy that generate compelling emotions, often described as "numinous" (CW4: ¶490; CW5: ¶344; CW11: ¶167, 337*n*). While our neurotic complexes can keep us trapped in habitual and counter-productive responses to the conditions of our lives, encountering an archetypal symbol exposes us to a "larger energy gradient" that can move us emotionally into a new attitude (CW6: ¶130; CW7: ¶76-8; CW8: ¶3, 80).

Sperber's epidemiological research has come to a very similar finding. He says that "culturally successful" representations are always "relevant mysteries": "The most evocative representations are those which, on the one hand, are closely related to the subject's other mental representations and, on the other hand, can never be given a final interpretation" (Ibid., 73). He finds, for example, that "half understood or mysterious beliefs are much more frequent and culturally important than scientific ones." Being half understood, their meaning shifts easily, leaving them open to successive reinterpretations in which issues of consistency and inconsistency never become self-evident (Ibid., 91).

In all human societies, traditional or modern, with or without writing, with or without pedagogic institutions, all normal individuals acquire a rich body of intuitive beliefs about themselves and their natural and social environment. . . . They need no conscious learning effort . . . The more fundamental ones are acquired quite early, suggesting a very strong innate predisposition (Ibid., 92).

What are "innate" are the archetypes *an sich*. But the account Sperber gives makes it impossible to eliminate the cultural information gathered during our extended period of infant dependency, when we are engaged with our mothers and all the adults around us in an emotional/gestural exchange that is guided by the biological archetypes but that also involves a great deal of brand new and essential "cultural wiring" of the rapidly developing brain. Sperber's epidemiology resolutely brings us back to the archetypes and to culture's leash.

Toward a Classification of Archetypes

Varieties of archetype. If archetypes are patterns nested within patterns, it is easy to see how a single volume of Jung's *Collected Works* might contain more than thirty implicit definitions. Now that we have thought through some of the issues involved in the nature of the archetypes, however, we have arrived at a place where several varieties of pattern can be usefully distinguished. We might place them on a spectrum, with the biology of the genome at one end and the idiosyncrasies of the individual at the other.

At the biological end lie the innately determined brain structures which rest upon and emerge from the individual organism's genes. This seems to be what Jung called *das Archetyp an sich*. We will call it the archetype-itself, the biological archetype, or the

archetype's biological substrate; it is the fundamental structure upon which all other patterns are variations. There are two varieties of biological archetype: those that are invariant in form and those that allow for development, refinement, and elaboration. The invariant form, also called an "innate releasing mechanism" or a "fixed action pattern," has been famously illustrated by Jung's reference to the reproductive behavior pattern of the yucca moth. The yucca's behavior is completely invariant, triggered by discrete environmental stimuli, and involving no information that can have been learned. It is an automatic mechanism, complete in itself, and never elaborated upon in the course of the animal's life. We meet such invariant biological archetypes in ourselves, too -- for instance in the way a baby's cry causes the milk in his mother's breast to "let down."

In higher animals, fixed action patterns constitute only a small percentage of archetypal behaviors. More typical are those whose biological form is completed after the animal's birth. Here our paradigmatic example, the language archetype, illustrates the variability and complexity of which an archetypal substrate may be capable. Language is an archetype-itself, a purely biological structure insofar as each of us is born with a brain that has been prepared for language acquisition via special neuronal networks arranged along the left Sylvian fissure between Broca's area and Wernicke's. The basic circuits are there in the biology of the newborn, but they need to have their wiring completed during the infant's long period of total dependency. The foundation of the new wiring is laid during the emotional/gestural interchanges the infant has with its mother. The result, in the end, will be a very specific variation on the biological substrate: American English, say, rather than Swahili.

The coherence and close "interdigitation" of a culture's language, customs, mythic narratives, and the like, are all implicit in the mother/infant interactions that accomplish the fundamental wiring patterns that are the advantage of our years of post-natal dependency. Our brains are constantly being rewired as we learn new facts and behavior patterns. Practicing our golf swing, reciting everyday phrases in a foreign language, these sorts of activities build and strengthen neuronal pathways in the brain -- what I have been calling "wiring" and "rewiring," to evoke the image with a single word.

Which networks get strengthened on one side of a town's railroad tracks may be rather different from the repetitions that custom and ethos enforce on the other side. The underclass is as much part of a culture as is the aristocracy. There are patterns within patterns, complexities within complexities, in every culture. Some cultural patterns may be found in pretty much every individual, while others may be found only in occasional subgroups. At the far end of this chain of ever-smaller populations, we arrive at the individual, where the expression of the archetype-itself will be highly disguised behind layers of stylistic variations, each one a habit, a set of strengthened neuronal networks. In every case, emotional interactions have been the context for our memories and other ideas associated with the skill or information we have learned. Emotional/gestural exchanges have been the foundation of our conscious life, and the joys and sorrows that have characterized those intimate communications have left their mark upon the psyche. In this realm of personal life history, each one of us is different.

Within a closely knit community or family, our developmental divergence from one another -- leading all the way to idiosyncrasies and neuroses -- can result from poor adaptation to the social world on the one hand or to faulty connection with our phylogenetic heritage on the other. Some of these maladaptations may stem from our infancy, when a caregiver was perhaps able to domesticate our catastrophic emotions in some areas but not in others. Or it may be that patterns of familial interactions have produced a tendency to rigidity in some areas of our lives or a failure to make crucial distinctions in another. In every case such patterns are reinforced by repetition and by the reactions we induce among the people around us, and these things provide the emotional/gestural foundation for our neurotic tendencies. Our brain is being wired, in such instances, disadvantageously, resulting in what Jung called the "feeling-toned complexes":

What then, scientifically speaking, is a "feeling-toned complex"? It is the *image* of a certain psychic situation which is strongly accentuated emotionally and is, moreover, incompatible with the habitual attitude of consciousness. This image has a powerful inner coherence, it has its own wholeness and, in addition, a relatively high degree of autonomy, so that it is subject to the control of the conscious mind only to a limited extent, and therefore behaves like an animated foreign body in the sphere of consciousness (CW8: ¶201).

Archetype and complex. Since all of our post-natal wiring is accomplished upon the foundation of the archetypes-themselves, all personal complexes, however idiosyncratic they may be, have an archetypal structure behind them, a point Jung frequently made. What Greenspan and Shanker have shown us, however, is that the basis of neurotic maladaptations may lie in the patterns of our emotional/gestural interactions with caregivers and others. Anthony Stevens has perhaps formulated the issue most usefully by saying that our psychopathologies result in every case from a frustration of the archetypal propensities that are innate in our human organism:

The archetypal endowment with which each of us is born prepares us for the natural life-cycle of our species in the natural world in which we have evolved. A programmed sequence of stages, each mediated by a new set of archetypal imperatives, seeks fulfillment in the development of characteristic patterns of personality and behavior. Each set of imperatives makes its own demands on the environment. Should the environment fail to meet them, then the consequent "frustration of archetypal intent" (Stevens, 1982) may result in psychopathology (Steven & Price, 1996: 6f).

In summary, then, we find three sorts of pattern in the human psyche. At bottom where we are all pretty much the same in having inherited the human genome, is the archetype-itself that lays down the brain structure with which we are born. Here psychology has barely emerged from physiology, prompting Jung sometimes to refer to it as the "psychoid" level of functioning (CW8: ¶419f; CW10: ¶849-54). At the next level "upward" in the direction of consciousness lies the cultural wiring of the brain that gives rise to patterns that differ somewhat from one region of the world to another. It is the basis of myths, customs, and language that are everywhere fundamentally the same and yet somewhat different. Finally, our individual quirks and propensities result from the brain wiring that is accomplished through the repetitions and reinforcements of our idiosyncratic everyday life. These are not, strictly speaking, archetypes, though they are wired in the same manner and always as an adaptation of the archetype-itself. The three levels of unconscious functioning are summarized in Figure 4.1.

Idiosyncratic Wiring	PERSONAL UNCONSCIOUS	Complexes and Persona
Cultural Wiring	COLLECTIVE UNCONSCIOUS (as source of mythic image)	Cultural Archetypes
Biological Wiring	PSYCHOID UNCONSCIOUS	Archetype-Itself

Fig. 4.1 Levels of Unconscious Functioning

In Search of Athena

The argument of this chapter has been designed to bridge the apparent gap between the highly biological emphasis of the previous two chapters and the image-and-myth orientation for which Jung has become famous. Jung's followers, I imagine, will be perplexed by what I have said, and wonder whether mythic figures like Athena, Zeus, Gilgamesh, and Chinnamasta can still be called "archetypes" in any meaningful biological sense. For it is generally mythological characters such as these that most concern Jungian analysts. The ancient gods and heroes of myth are often used by analysts to interpret dreams and symptoms and to expose "archetypal" patterns of behavior in hopes of sharpening the consciousness of their patients and of themselves.

One might, for example, fall in love with a woman whose interests and habits remind one of Athena; or one might fall afoul of such a woman, or find that the story of one's life has a number of parallels with the tales the ancient Greeks told of the warrior goddess of Athens. If such similarities were to come to light during a therapy session, a Jungian analyst would likely recommend that the patient conduct a little research into the mythology of Athena. Acquainting ourselves with such myths aims to make us conscious of how a particular archetype is playing itself out in our lives. We hope to attain to Greenspan and Shanker's fifth stage of awareness, where we can see Athena's story as a narrative that objectifies some patterns we have been living unreflectively. Jung encourages us to acquaint ourselves with the patterns in our behavior, to find their mythological prototypes in ancient stories of gods and heroes, to obtain a feel for what fascinates the gods in question -- what they fear and what ambitions drive them. For if we reach the point where we know what they are doing to us, we can decide for ourselves whether we want to continue to go along or choose a different course.

The question to consider now is whether there is any justification for calling one of these mythic prototypes (Athena, for instance) an archetype. Is Athena -- or any other divinity whose exploits have been preserved in mythology -- inherited with our genome? Is she implicit in the acculturation process we all undergo as children, adolescents, and adults? Are her foundations laid in the emotional/gestural exchanges of infancy? Or are such mythology-based assumptions and claims by Jungian analysts entirely unwarranted by

evolutionary science, an example of what Anthony Stevens calls their being "mesmerized by archetypal symbols" (Stevens, 1982: 29)?

Athena in mythology. Most notably, Athena was not born of woman. She sprang full-grown and armor-clad from the head of her father, Zeus. As his favorite child, she was allowed, despite her gender, to carry his terrible shield, the aegis, and the thunderbolt. She largely shared the mind of Zeus and was revered for her wisdom and powers of reason. As a warrior in the *Iliad*, she was fierce and ruthless, but afterward a cool and prudent defender of her city and homeland. She was merciful in legal disputes and preferred peaceful ways of settling quarrels. As protectress of Athens, she is credited with having established civilization. She cultivated the first olives; invented the plow, yoke, bridle, and rake upon which agriculture depends; invented the ship and the chariot, vehicles of transport, trade, and war; and she invented mathematics. Probably on account of her closeness with Zeus, Athena had a remarkable facility for working with men, for understanding them, and for entering into and furthering their intellectual and civic projects; but she never felt a passion for one of them. She remained forever *parthenos*, a virgin.

Athena is also known for several instances of "narcissistic rage," when her pride was injured and she flared up in vengeance. During the Trojan War, when the seeress Cassandra sought sanctuary in her temple and Greek soldiers, unmindful of the sacrilege, went in after her, Athena begged Poseidon, god of the sea, to "give the Greeks a bitter homecoming." Hence the raging storms that drove Odysseus and his men so far off course in the *Odyssey*. On another occasion, Athena the patroness of weaving, was outshone by the mortal Arachne, who made a tapestry the virginal goddess could never have attempted, portraying, as it did, the loves, passions and deceptions of the gods. In a fit of envy, Athena transformed the woman into a spider. Vanity also inspired her to curse the flute she invented when Hera and Aphrodite laughed at her cheeks puffed out with blowing.

Athena as intrapsychic factor. A woman who finds that the Athena archetype plays a dominate role in her life would manifest a variety of symptoms: a close bond, even an identification, with her father and his professional pursuits; a tendency to intellectual companionship with men; an orderly, practical, and creative mind; a sober fearlessness; a readiness to take up the sword in defense of home and principle; a virginal incapacity for intimate relations; and a narcissistic touchiness capable of murderous feelings of envy.

It would be surprising to learn that some specific combination of genes constitutes an Athena woman, that she is a purely biological entity. The more likely scenario is that a girl born with a certain combination of aggressive and intellectual potential turns out to be a Daddy's girl through no fault of her own. Perhaps it was her father rather than her mother who engaged her in the emotional/gestural exchanges of infancy, coached her childish athletic pursuits, and inspired her love of learning. Perhaps mother was absent -- emotionally if not physically. In any event, it appears that she soaked up everything Dad had to offer, admired him immensely, and competed with him in a good-humored manner. She learned to be at home in a man's world and found the women's world, with its greater sensitivity to matters of the heart, intimidating. Her feelings of inadequacy in the world of feeling and eros would leave her embarrassingly vulnerable when questions of her beauty, femininity, and sexual allure are raised. She would be touchy and apt to retaliate with devastating impulsiveness.

The Athena pattern seems to be a typical strategy (one among several) for finding an identity and a comfortable way to explore a certain set of talents. The ground plan for the talents may have been laid in the girl's genome, but the family constellation was not. An archetype like Athena describes what may happen when a certain biological configuration encounters a certain familial situation. What sort of an archetype is Athena? Certainly not an archetype-itself. The neural networks produced during the emotional/gestural exchanges she had for years with her father, and for which her genome may have inclined her, have produced a hybrid sort of archetype. Something half way between a complex and a cultural archetype. Athena as a pattern of living does not belong to the majority of us in any significant sense. But she does dominate in a few. She is too typical to be called a complex and belongs to too small a population to be an archetype in the same sense as Mother or Persona.

Athena as therapeutic rhetoric. The concept of an "Athena archetype" may be more a rhetorical device growing out of therapeutic necessity than an evolutionarily significant mental module. The advantage of seeing one's whole personality as an Athena pattern is that it brings all the symptoms together and invites the Athena-woman to see her sober, wise, well-adapted intellect as intrinsically related to the touchiness and envy she experiences in matters of femininity and eros. The calm warrior who fights so righteously for others becomes dangerously impulsive when her own pride is threatened. She has conquered the realm of reason, but remains raw and undeveloped in the realm of emotion and intimacy.

Such mythic considerations hold a great deal of therapeutic promise, for to understand one's own life choices against such patterns raises one's consciousness. Deliberately carrying the image of Athena about in her memory as she gets on with the details of her daily life, a woman may learn more about herself. Perhaps she will find that there are significant areas of her life that do not fit the pattern. Do they suggest alternate life strategies? Do they enrich her life's possibilities? Alternatively, the Athenian pattern may be illuminated when the Athena woman investigates similar goddess figures from other cultures. Brünhilde, for instance, from Norse mythology is virginal, immortal, heavily armed, and devoted to her father. But Brünhilde does the one thing that never occurs to Athena, she deliberately defies the will of Wotan and then suffers the loss of her immortality when she is condemned to fall in love with a great warrior who is as inexperienced in eros as she is. By challenging her father, she loses her static and grandiose immortality and arrives as a neophyte on the jousting field of Eros, ready for the humiliations of a human love affair. Perhaps the Athena woman will find this a liberating vision. Perhaps a tragedy.

In the end, Athena is a complex life-pattern comprised of other patterns and is a typical human possibility. Like all mythic figures, Athena represents a weaving together of visual images, emotionally charged situations, and dramatic narratives. Her signature characteristics emerge when certain typically human encounters occur: father-with-daughter, professional woman-with-professional man, the promise-and-threat of erotic intimacy, challenge to the safety of the homeland, and so forth. She is an archetype in a different sense than Mother or Persona, for the latter two represent inescapably universal patterns, while Athena represents a specialized life strategy. Persona and Mother are human archetypes than can be traced directly backward through evolutionary time and identified in their more rudimentary forms in our primate cousins and elsewhere in the Animal Kingdom. Athena cannot be traced backward in the same way. She shows up in a different kind of

cross-section of the human psyche, one oriented therapeutically to uncover behavior patterns that are not inescapable -- even if circumstances have made them nearly inevitable for some individuals.

Complex Psychology, as Jung seems to have envisioned it, has two related aims. The first is to articulate a psychology that is harmonious with what we know of our biological heritage, a phylogenetic psychology. The second is to be able to analyze those phylogenetic complexities from any angle that proves pragmatically and therapeutically useful. In this sense Athena is a "rhetorical archetype" without ceasing to be grounded in both the phylogeny and the acculturation processes that wire every human brain.

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1. The most well-known example is in the fairly often shown BBC interview from 1959, "Face to Face" (McGuire & Hull, 1977: 433-5).
 2. Meier, 1995: 78 n.50.
 3. Citing Nisbett, Richard E., and Dov Cohen. *Culture of Honor: The Psychology of Violence in the South*. Boulder, CO: Westview, 1996.
 4. The use of the French word *langue* refers to the theories of Ferdinand de Saussure who distinguished the overall structure of a language that remains the same over time (*langue*, from today's pronouncement (*parole*, the temporal and changeable utterance. In Ice Age art, each image is *parole*, but it only makes sense within the context of the Upper Paleolithic *langue*.
 5. Brian Hayden would disagree only in regard to whether the Neanderthals had the capacity to enter altered states. Although they left no evidence of an ability to make and communicate in images, they did conduct bear cults within caves. "It seems clear that Neanderthals were exploring deep caves, presumably for the purpose of inducing ecstasy or altered states by at least 50,000 years ago, if not many thousands of years earlier" (2003: 118).
 6. Here the explicit comparison is with Australian Aboriginal ceremonies, where brutal genital mutilations among the men (circumcisions and subincisions) were rapidly abandoned when life became less harsh, as Aboriginal groups settled on government reserves and in the vicinity of cattle stations (Ibid., 104f).
 7. It is probably not coincidental that Stuart Shanker is one of the world's experts in the philosophy of Wittgenstein!
 8. For example: "It is a fact that in the first years of life there is no continuous memory; at most there are islands of consciousness which are like single lamps or lighted objects in the far flung darkness. . . . Only later, when the ego contents . . . have acquired an energy of their own . . . does the feeling of subjectivity or 'I-ness' arise" (CW8: ¶755).
 9. After Kant, whose philosophy claimed we can never know "the thing itself" (*das Ding an sich*, we can only know how it appears to our senses.
 10. Aunger deliberately chose a non-specific language to describe this process which is now known in a general way, though much remains to be determined about it.

11. It is interesting to note that one of the writers Jung cites as a source for his idea of the archetype, Richard Semon, spoke of the "mneme" and the "engram" in 1904; he meant that all living matter contains traces that can be revived (Shamdasani, 2003: 190). Semon's mneme had to do with memory rather than with imitation, but there is a lot of remembering in "memetics," as the study of memes is called.
12. Ironically enough, Blackmore, who seems to be as hostile to religion as Dawkins, ends her book with an essentially Buddhist wisdom attitude toward our meme-driven existence. She says nothing to indicate that she has studied Buddhism, but the following passage reads like the Buddhist doctrine of "no self": "We can live as human beings . . . living out our lives as a complex interplay of replicators and environment, in the knowledge that that is all there is. Then we are no longer victims of the selfish selfplex ["ego complex," in Jung's language]. In this sense we can be truly free -- not because we can rebel against the tyranny of the selfish replicators but because we know there is no one to rebel" (Blackmore, 1999: 246).
13. Although the meaning is a little different, Jung made a similar claim: "Everyone knows nowadays that people 'have complexes.' What is not so well known, though far more important theoretically, is that complexes can *have us*" CW8: ¶200).