Supernaturalizing Social Life:

Religion and the Evolution of Human Cooperation

By

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Abstract

This paper examines three ancient traits of religion whose origins likely date back to the Upper Paleolithic: ancestor worship, shamanism, and the belief in natural and animal spirits. Evidence for the emergence of these traits coincides with evidence for a dramatic advance in human social cooperation. It is argued that these traits played a role in the evolution of human cooperation through the mechanism of social scrutiny. Social scrutiny is an effective means of reducing individualism and enhancing pro-social behavior. Religion's most ancient traits represent an extension of the human social world into the supernatural, thus reinforcing within-group cooperation by means of ever-vigilant spiritual monitors. Believing that the spirits were always watching may have helped reduce the number of non-cooperators within a group while reinforcing group behavioral norms, thus allowing human-like levels of cooperation to emerge.

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Considerable attention has been paid recently to the evolutionary origins of two distinctively human characteristics: our propensity toward religion and our unusual level of cooperation (Atran 2002; Boyer 2001; Fehr & Fischbacher 2003; Gintis 2000; Irons 2001; Sober & Wilson 1998; Wilson 2002). The thesis of this paper is that the two are related through the mechanism of social scrutiny. Specifically, it is argued that: (1) social scrutiny is a highly effective means of curbing individualism and promoting pro-social behavior in humans, (2) the first evidence of three of religion's oldest traits (ancestor worship, shamanism, and the belief in natural spirits) dates to the Upper Paleolithic coincident with a dramatic advance in human social cooperation and, (3) these traits represent a "supernaturalizing" of social scrutiny which helped tip the balance away from individualism and toward community. By enlisting the supernatural as an ever-vigilant monitor of individual behavior, our ancestors "discovered" an effective strategy for restraining selfishness and building more cooperative and successful groups.

RELIGION AND HUMAN COOPERATION

Humans are by nature social creatures. As primates, our hominin ancestors were predisposed toward the formation of strong social bonds. Of the approximately 150 different species of monkeys and apes, only 1 (orangutan) does not live in some form of social group (Dunbar 1988; Smuts et al. 1987). Our closest relatives, chimpanzees and bonobos, live in fission-fusion societies of 50 or so members. Social living, however, requires mechanisms for binding individuals to each other and for tempering pernicious individualism.

Recently, some have argued that the mechanisms explaining cooperation in nonhuman species, such as kin and reciprocal altruism, are inadequate for understanding human cooperation and that a form of group-level cultural selection may be required (Fehr et al. 2002; Gintis 2000; Sober & Wilson 1998; Sterelny 1996). A key issue in these models is reducing the benefit of selfishness to a level below that of the gain in individual fitness achieved by being part of an altruistic group. For this to happen, within-group altruism must carry little individual cost ("cheap" altruism) otherwise it will be swamped by the benefit of individual selfishness. To accomplish this two conditions must be met: (1) defection (non-cooperation) must be punished by cohesive, stable, and broad-based coalitions where the cost to individual coalition members is low and the deterrent effect is high and, (2) the number of defectors within a group is low so that the need to punish is infrequent (Boyd et al. 2003; Sethi & Somananthan 1996; Sterelny 2003:125-137).

Assuming the validity of these models, a critical evolutionary question is: how did our ancestors establish and maintain these conditions such that "human" levels of cooperation could emerge? A number of mechanisms for bringing this about are certainly possible and religion may only have been one factor among several. Thus, religion's specific adaptive contribution need not have been dramatic. It need only have collaborated in tipping the balance in favor of cooperation by helping to solidify enforcement coalitions and by reducing levels of individual defection. The next section addresses how religion could have accomplished this: by expanding social scrutiny to include the supernatural.

Social Scrutiny and the Reduction of Selfishness

Cheating (taking benefits without repayment) undermines reciprocal altruism. Cheating, however, can be drastically mitigated when people know they are being watched. Considerable social science research has demonstrated that when people know their actions are under public scrutiny they adhere more scrupulously to group norms, and behave more reasonably, courteously, generously, honestly, and bravely (especially for men) compared to when their actions are concealed (Burnham & Hare in press; Buss 1980; Diener & Srull 1979; Duval 1976; Kleck et al. 1976). In fact, a recent study has shown that the "observer" need not be human or even alive to affect behavior. Burnham and Hare (in press) found that generosity to a communal pot increased 30% when subjects were under the gaze of a photo of a cute-looking robot face (Kizmet) compared to when donations were done "privately." Even when our rational minds know we are not being watched, the mere suggestion of public scrutiny affects us at a more primal level. Publicly observed behaviors are also known to have more potent ramifications on one's self-perception than private behaviors (Baumeister & Tice 1984; Tice 1992). The powerful affect of public observation stems from two sources: (1) reputation building and, (2) fear of punishment – both of which very likely played an important role in the evolution of cooperation in our ancestral past.

Reputation. The fitness risks inherent to reciprocal altruism can be reduced by cooperating only with those who have a history of repaying debts – called indirect reciprocity (Alexander 1987). Indirect reciprocity implies that reputations can be an important currency in the establishment of reciprocal arrangements, and there is evidence that humans are exquisitely sensitive to reputation. Among many hunter-gatherers a

man's reputation as a successful hunter serves as a "quality display" affecting both his social status and reproductive success (Gurvan et al. 2000; Hawkes & Bird 2002). In "honor" cultures such as the Saga of Iceland or the American South, social order was based on an individual reputation for upholding social expectations (Cohen & Vandello 2001; Miller 1990).

Recently, "public goods" games have provided an avenue for investigating the process of reputation-building, reciprocity, and altruism (Englemann & Fischbacher 2002; Milinski et al. 2002; Nowak & Sigmund 1998; Wedekind & Milinski 2000). Findings indicate that when subjects know a person has behaved selfishly in an earlier round of the game, they are significantly less helpful to him/her in subsequent rounds compared to an unselfish person (Milinski et al 2002). Furthermore, this helping behavior itself is affected by whether or not one's reputation is being impacted by the act of helping. A recent study found that those in a position to be generous were half as likely to do so if their generosity was irrelevant to their reputation-building (Englemann & Fischbacher 2002). These studies suggest that we are naturally inclined to keenly observe others and adjust our behavior toward them accordingly, while doing our best to ensure that our public actions have the highest possible reputation payoff.

Research with public goods games has been carried out in numerous industrialized societies (US, Western Europe, Yugoslavia, Japan, and Israel) and 15 hunter-gatherer or small-scale societies in 12 countries across five continents (Henrich et al. 2001; Roth et al. 1991). Across these samples, quantitative variability has been noted (i.e. in terms of how generous or helpful one is to another). This variability has been associated with the extent of market integration and cooperative production present in a

society (Henrich et al. 2001). This variability notwithstanding, however; some general patterns have emerged across these diverse cultures. In nearly all cases, people evidenced a profound concern for establishing and guarding a public reputation for (culturally-defined) fairness, and they were willing to engage in costly punishment of those who violated social norms.

Human reputation effects are also magnified by language. A reputation-relevant action need only be observed by a single other person (even surreptitiously) to have enormous consequences for the actor's public image. This fact is not lost on hunter-gatherers, who vigilantly and vigorously enforced their egalitarian ethic using gossip, cautionary tales, threats to reputation, and occasional physical aggression (Boehm 1999; 2000; Hawkes & Bird 2002; Lee 1979). That reputations can suffer based on covertly observed actions may well have made the notion of supernatural observation a relatively effortless stretch for the evolving human mind.

Punishment. Public scrutiny has an impact not only on reputation, but also on physical well-being. When public shame or mere threats to reputation are inadequate to subdue non-cooperative tendencies, our ancestors may very well have resorted to physical punishment. Unlike other primates, humans are especially accurate and lethal throwers (Lawick-Goodall 1968; Westergaard et al. 2000). Our ancestors may have used projectiles to threaten or injure non-cooperators (stoning) thus providing further incentive for curbing destabilizing individualistic tendencies (Bingham 1999; Calvin 1993). Contemporary research has demonstrated the zeal with which humans engage in moralistic punishment (punishment of perceived non-cooperators) even when it is personally costly (Fehr & Gachter 2002; Fehr & Tyran 1996). To achieve human-like

levels of cooperation in relatively large groups (roughly 10-50 individuals) punishment of cheaters and possibly even punishment of non-punishers of cheaters may be required (Boyd, et al. 2003; Fehr & Fischbacher 2003).

This body of work indicates that we are naturally hyper-vigilant against freeloaders and cheaters who threaten group cohesion, and that we have effective means of bringing them into line. Chief among these means is social pressure, either in the form of rewarding virtue or punishing egoism. If, as a few researchers have argued, our ancestral world featured effective group-level competition (Boyd et al. 2003; Gintis, 2000; Sterelny 2003; Sober & Wilson 1998), then an advantage may have gone to those of our ancestors who fortified social pressure with powerful spiritual agents who monitored our every act with a constant critical gaze. Supernaturalizing social pressure may have been one of the strategies that tipped the balance against individual selfishness thus permitting uniquely human levels of cooperation to emerge.

Religion, Adaptation, and the Upper Paleolithic

Researchers disagree as to whether religion constitutes an adaptation. Some contend that it is best understood as an evolutionary by-product parasitized on other adaptive mental processes (Atran, 2002; Barrett, 2000; Boyer, 2001; Guthrie, 1993). Others argue that religion offered fitness advantages through increased group cooperation and solidarity (Alcorta & Sosis, in press; Richardson & Boyd 1998; Wilson 2002). Alcorta and Sosis, for example, argue that while it is entirely possible that our religious propensities originated as by-products of adaptive mental modules, there is evidence that religion has modified those modules in specific ways in response to ecological challenges. In their view, the mental capacities giving rise to religious imagination may

not have been originally selected for that end, but once envisioned; religion may very well have been adaptively co-opted. This position is the one more compatible with the argument currently being advanced.

Religion’s role in the evolution of cooperation is further complicated by the fact that humans and hominins were cooperative long before any evidence of religion can be found. There is, however, a level of cooperation that is late-emerging and quite probably, uniquely human. While evidence of cooperation in the form of mutualism, kin selection, and reciprocity can be found among many nonhuman species (de Waal, & Luttrell 1988; Scheel & Packer 1991; Wilkinson 1984), evidence for indirect reciprocity, strong reciprocity (the personally costly rewarding and punishing of others based on their adherence to group norms of fairness), and cooperation among non-kin in large social groups is rare to nonexistent outside of *Homo sapiens* (Boyd et al. 2003; Gintis 2000; Dugatkin 2001; Dugatkin & Wilson 2000). It is plausible that religion played a role in the emergence of this “higher-level” of cooperation. Cross-cultural analyses have shown that as societies become larger, more complex, and more threatened by external forces, their tendency to believe in moralizing gods also increases (Roes & Raymond 2003).

Archeological evidence points to a dramatic advance in the human social world in the Upper Paleolithic (about 35,000 bp). This advance included: more cooperative and effective hunting strategies, more sophisticated tool and cultural production, and dramatic increases in group size, social complexity, and political organization (Hayden 2003:122-131; Mellars 1996; O'Shea & Zvelebil 1984; Vanhaerena & d'Errico 2005; see Dickson 1990:84-92,180-189 for summary). Coincident with this social advance is the first evidence for the religious practices of shamanism, animism, and ancestor worship.

Echoing Rappaport (1999), the current paper adopts the view that this coincidence is more than mere accident. Religion played a non-trivial role in the achievement of human society.

SUPERNATURALIZING SOCIAL LIFE: RELIGION'S ANCIENT TRAITS

A central proposition of this paper is that religion's earliest traits represent a supernatural extension of human social life (this may be true for religion *in general* as well). The term "supernatural" is controversial in anthropology (for discussions see Klass 1995; Lett 1999; Lohmann 2003a; Saler 1977). Though wide cultural variation exists in its meaning and use, the current paper follows Lohmann's (2003a:176) lead in defining "supernatural" as the "extension of the volitional schema" to phenomena devoid of intention and will. In other words — the rain falls, but humans may conclude that the rain falls because of causal forces in a spiritual realm that desire good or ill for the humans getting wet.

Less contentious is the notion of religion as a supernatural extension of human social life. Durkheim (1912/1965) saw religion as providing divine authority for social norms. Horton (1960:211) focused more on social relationships: "Religion," he wrote, "[could] be looked upon as an extension of the field of people's social relationships beyond the confines of purely human society." Guthrie (1993) elaborated Horton's approach identifying anthropomorphism as both the key motivator behind this extension and the mechanism for creating spirit/human relationships.

The current paper builds on this foundation, identifying the supernaturalizing of social life with three widespread and ancient traits of religion: ancestor worship, shamanism, and the animistic belief in natural and animal spirits. While these traits

appear to be the earliest (or among the earliest) that can be detected in the archeological record, they may or may not be religion's *original* traits. We will likely never know exactly what religion was like when it first emerged. Furthermore, the fact that these "ancient traits" represent a supernaturalizing of social life is not meant to suggest that more recent traits (such as monotheism or articulated theologies) do not also serve this function – quite often they do. That this characteristic is "conserved" even as religion evolves and changes lends further support to this paper's central thesis. The significance of these particular ancient traits, however, is that: (a) they appear to be coincident with evidence of a substantial advance in human social complexity and, (b) they indicate that as far back as we can trace religion in the archeological record it has possessed the characteristic of supernaturalizing social life.

Ancestor Worship

Ancestor worship is widespread across traditional religions ("traditional" as opposed to "book" religions, see Hayden 2003:5-12 or Howells 1948:2-5) in Africa, Asia, the Pacific Islands and the South American Tropics (Harvey 2000; Eliade & Couliano 1991; Lee & Daly 1999). In his survey of traditional African religions, Parrinder (1976:24) states flatly "All Africans believe in the ancestors, as ever-living and watchful." This belief, however, does not always translate into recognizable rituals. Efe Pygmies regularly interact with ancestors in the forest and in dreams, but there are hardly any activities of worship identifiable to outsiders (Sawada 2001). The role of the ancestors is more ambiguous among native populations of North America. Among tribes in the east and plains, ancestor cults are infrequent and, as is the case with many native Australians, the recently departed are often regarded fearfully (Hayden 2003:184;

Hultkrantz 1967:129). Interestingly, it is among the more socio-economically stratified populations of the northwest coast and California where ancestor worship is more prevalent (Eliade & Couliano 1991:199-200). Along with its (near) universality, archeology provides evidence of deep evolutionary roots as well.

Archeological Evidence: Upper Paleolithic Burials. Though a variety of interpretations must be acknowledged, a substantive case can be made that Upper Paleolithic and Neolithic burials provide some of the first credible evidence of ancestor worship. Evidence of intentional burial with possible grave goods is present prior to the Upper Paleolithic. However, with the Upper Paleolithic intentional burial becomes associated with two other factors that strengthen the case for ancestor worship: social complexity and elaborateness.

The Upper Paleolithic marks the first evidence for socio-economically stratified societies (see review in Dickson 1990:84-92,180-189). Resource abundance and technological advances allowed Upper Paleolithic peoples to move from being egalitarian hunter-gatherers to transegalitarian or complex hunter-gatherers (Butzer 1971:463; Dahlberg & Carbonell 1961; Dickson 1990:182; Hayden 2003:122-131; O'Shea & Zvelebil 1984; Price & Brown 1985; Vanhaerena & d'Errico 2005). Complex hunter-gatherers typically use more sophisticated technologies for harvesting and storing seasonally abundant resources (e.g. nets or traps to catch large quantities of fish during spawning season). This leads to a more sedentary lifestyle with greater private ownership of resources and more pronounced social inequalities.

In contrast to egalitarian hunter-gatherers, ancestors play an increasingly prominent role in complex hunter-gatherer societies (Freedman 1965; 1970). Resource-

rich territories (e.g. streams abundant with fish, certain migration routes, etc.) critical to an entire communities' well-being and prosperity are typically claimed by elite families within the tribe by virtue of their ancestral lineage. For example, among the Tlingit of North America's northwest coast, the *anyeti* or nobles are typically from clans who claim ownership to the fishing weirs (traps) in the most prized territories (Oberg 1973). Social elites typically justify their privileged status through their filial link to powerful ancestors in the supernatural realm, whose benevolent proprietorship over resource-rich territories generously provides for the entire tribe.

In the Upper Paleolithic evidence of unambiguously elaborate burials is also present. Burial sites such as Sungir (White 1993), Dolni Vestonice (Klima 1988) and Saint-Germain-la-Riviere (Vanhaerena & d'Errico 2005) attest to the presence of an elite class whose members were laid to rest with great ceremony and lavish grave offerings. Among more recent complex hunter-gatherers, burial of this character usually occurs under the expectation that the deceased is soon to take his/her place as a powerful ancestor in the supernatural realm (Hayden 2003:239; Sandarupa 1996). Arguably the most impressive Upper Paleolithic burial site is that of Sungir about hour from Moscow. Here three bodies were uncovered – an adult male and two adolescents. Each was elaborately adorned with thousands of fine ivory beads, necklaces, and bracelets. Additionally, ivory spears and other artifacts were interred with the bodies. White (1993) has estimated that the labor-hours necessary to produce the beads alone would have run into the thousands, per body! Though less elaborate than Sungir, the triple burial at Dolni Vestonice in the Czech Republic features bodies lavished with necklaces of ivory and pierced canine teeth, while at Saint-Germain-la-Riviere a young adult female was interred

with “imported” and carefully perforated deer teeth ornaments (Klima, 1988; Vanhaerena & d’Errico 2005).

The Neolithic (8000 – 3000 bp) site of Lepinski Vir provides evidence of burials within domestic structures. Located on a bank above the Danube in the Carpathian mountains, Lepinski Vir is composed of about 50 permanent structures, many of which contain unusually large hearths, decorated with carved boulders, human bones, and other artifacts. In many structures, a burial vault is located below the hearth (Srejovic & Babovic 1983; Srejovic & Letica 1978; see also Hayden 2003:159-164). The small size of the structures and the scarcity of domestic refuse suggest that Lipinski Vir was not a permanent residence, but instead an intermittent religious site where feasts, rituals, and veneration of the dead took place. Other similar Neolithic gravesites have been found at Sannai Maruyama, Japan (Iizuka 1995), and in Skateholm and Bredasten in Scandinavia, (Larsson 1985; 1987). These sites may be analogous to sacred sites honoring the dead found among Northwest Coast Native Americans, Maya Indians of Central American, and Melanesian Islanders (Hayden 2003:162). The monuments, ornaments, and grave offerings associated with Upper Paleolithic and Neolithic grave sites are consistent with practices of ancestor cults of extant complex hunter-gatherers.

The Ancestors as Social Players. Archeological evidence suggests that ancestral cults may reach deep into human history. Anthropological evidence indicates that ancestors are social players in the ongoing activities of the *living* community (Platvoet 1993). From his years of living and working with Malawi tribesmen, missionary and anthropologist T. Cullen Young concluded:

> to…African men and women in the backland villages, life from day to day, and we might legitimately say, from moment to moment, has no meaning at all apart from ancestral presence and ancestral power. … the African community is a single, continuing unit, conscious of no distinction, in quality, between its members still here on earth, and its members now there, wherever it may be that the ancestors are living. (Cited in Parrinder 1976:57,65)

Wherever ancestor worship or veneration is found, the ancestors themselves are represented as "interested parties" in the current affairs of the living community. For example, among the Kwaio people of the Solomon Islands, the ancestors (or adalo) are believed to be constantly present as bearers of both good and bad fortune (Keesling, 1982). They play a role in the health, prosperity, fertility, and general success (or lack thereof) of the living community, and are especially attentive to rules of abu (or taboo). Violations of abu can anger an ancestor and bring about misfortune unless proper sacrifices are made.

Among the Lohorung Rai of Nepal, a newborn baby is not considered a community member or even a "person" until it is ritually "introduced" to the ancestors. This ceremonial introduction is believed to be essential to the future health and success of the infant, so much so that until it is completed (usually 5 or 6 days after birth) all other ancestral rites *by all* households within the community are prohibited (taboo). In this way, the ritual demands of the ancestors force the entire community to be involved in the future prospects of every newborn (Hardman 2000). Though important cultural variations exist, the notion of ancestors as "interested parties" who desire propitiation and punish

cultural transgressions is a common theme worldwide (Boyer 2001; Harvey 2000; Lee & Daly 1999 eds.).

Why are the ancestors interested? The reasons can vary, but cross-culturally a few themes emerge. Often the land and the ancestors are intimately connected. Among many African tribes, ancestors are the ultimate owners or proprietors of the land who are responsible for its productivity (Parrinder 1976). Among Australian aboriginals, ancestors are thought to be a part of the land itself – creators who returned to the creation when it was finished (Hume 2000). In other instances, ancestors are thought to return to the community in the form of animals who provide information or resources to the living. Among native Javenese, the honored dead might take the form of a tiger (Beatty 1999). For the Wari' of South America, spirits of the dead sometimes take the form of fish or wild pigs (peccaries) that allow themselves to be killed to provide food for the community (Conklin 2001).

In other societies, such as the Maori or many traditional African tribes, the ancestors' very existence depends on the fertility and fidelity of the earthly community. By remembering the ancestors though cultural traditions, and by procreating – which provides a means for the ancestors' rebirth into the community – the existence of the ancestors is sustained (Berndt & Berndt 1964:188; Parrinder 1976:59; Radin 1937:14). Thus, ancestors are thought to be especially concerned with upholding social order through right behavior, observance of tradition, and avoidance of taboo, so as to ensure the community's continued fecundity and the security and legitimacy of its offspring. Finally, the ancestors may simply be regarded as powerful spirits who can provide protection, fertility, and prosperity, in return for honor and sacrifice (Woodward 2000).

However it is envisioned, the ancestor's role is unambiguously *social*. They are ever-watchful, active players in the social world with interests, concerns, and goals that must be considered in the everyday affairs of the living. This is emphasized by the fact that the living often regard the ancestors with the same emotional cross-currents that typically characterize relations with a parent or higher ranking associate – respect, fear, affection, and occasionally resentment (Field 1961:145; Kuper 1961:192-193). This is consistent with cross-cultural psychological studies showing that the God-person relationship more often resembles that of parent-child (or teacher-child in Japan) than that of romantic partners (Fortes 1959: 78; Kirkpatrick 1997; 1998; Saski & Nagasaki 1989; Vergote 1969). Though physically departed, the ancestors remain active, attentive "elders" of the earthly family.

Shamanism

Strictly speaking shamanism is associated with traditional societies across Siberia, Central Asia, and the Saami regions of Scandinavia (Campbell 1983). Shamanistic practices of one form or another, however, have been observed worldwide (a notable exception being the Siriono of Bolivia who appeared not to have shamanistic practices when first contacted; Lee & Daly 1999 eds.:108; Townsend, 1999; Vitebsky 2000:55-56). The term "shaman" comes from the Tungus root "saman" meaning "one who is excited or raised" or simply "to know" (Campbell 1983:157; Guenther 1999:427). This reflects the fact that the shaman's function is to enter an altered state of consciousness wherein he/she connects with spiritual forces in order to gain knowledge or effect cures. Shamanism is one of the world's oldest forms of religious activity (Halifax 1982; Guenther 1999; Lee & Daly 1999; Winkelman 1990). Two lines of archeological

evidence trace it back to the Upper Paleolithic: (1) the ritual use of deep cave sites and (2) therianthropic images and artifacts.

Archeological Evidence: Deep Cave Sites. Following in the tradition of Lommel (1967), a number of researchers have argued that Upper Paleolithic cave art reflects the experiences and rituals of early shamanism (Dowson & Porr, 1999; Eliade, 1972; Halifax 1982; Hayden 2003; Lewis-Williams 1986; 2002). Lewis-Williams (2002:144) notes that the idea of a three-tiered cosmos is a common theme in shamanistic traditions. In this view, the world of daily experience sets between spiritual worlds both above (in the sky) and below (underground, underwater). He interprets much of the Upper Paleolithic cave art as reflective of this theme. Additionally, Hayden (2003:143-145,148-151) has summarized a number of converging lines of evidence consistent with the hypothesis that Upper Paleolithic deep cave sites were venues for shamanistic rituals. First; ethnographically, caves are frequently understood as a gateway to the underworld (Clottes & Lewis-Williams 1998; Campbell 1983; Lewis-Williams, 2002:169-170, 209). Second, remains that would suggest regular use, such as torches, fires, tools or food are rare at these sites, suggesting that they were occupied only sporadically (Clottes 1992; Beaune 1995). Third, the spaces where paintings and other ritualistic artifacts are found are often small and isolated, heightening the sensory effects that would induce ecstatic states (Campbell 1983).

Fourth, many of the animals depicted at these sites are not ones commonly used for food, but instead appear to have more symbolic importance as representations of power or ferocity. Furthermore, some of the animal images are purely mythic, such as the long-horned horse-like creature of Lascaux, possibly reflecting shamanistic

hallucinations (Dowson & Porr, 1999; Lewis-Williams, 1986). Fifth, along with the strange animals, many cave sites also have bizarre symbols that Lewis-Williams and Dowson (1988) have shown bear a close association to the entoptic visual experiences of altered states of consciousness. Finally, at many of these sites, hand and footprints of children are present (Clottes 1992). Owens and Hayden (1997) have shown that among complex hunter-gatherers, children are commonly involved in rituals of initiation into elite societies where ecstatic experiences are used to call upon guardian spirits. Taken together, this evidence makes a plausible case that these deep cave sites were used for shamanistic rituals where altered states of consciousness and union with the spiritual world were achieved.

Archeological Evidence: Therianthropic Images and Artifacts. Upper Paleolithic cave art contains no less than 55 therianthropic images – images of half-men/half animals (de Beaune 1998; Dickson 1990). A consistent theme in shamanism is that of "soul flight" where, in the midst of an ecstatic mental state, the shaman's spirit inhabits that of an animal or unites with the animal's spirit (Townsend, 1999; Vitebsky 2000; Winkelman, 1999). Along with images, theiranthropic artifacts such as the half-man/half-lion face from El Juyo, Spain or the lion-headed human statuette from Hohlenstein, Germany have also been found (Freeman & Echegaray 1981).

For some archeologists a few cave art images appear to depict clear shamanistic themes. The "sorcerer" image from the sanctuary at Les Trois Freres shows a partially upright horse-like creature with reindeer antler, owlish eyes, bear paws, and human beard. It has been interpreted by some as a shaman uniting with his animal spirit-helper (Dickson, 1990:115). Even more stunning is the image located in the shaft at Lascaux.

Just below a drawing depicting a wounded bison, a man with a bird-like head appears to be suspended in mid-air or possibly falling. The man's body is rigid and he appears to have an erection. Adjacent to him is a bird perched upon a staff. The fact that the man is sexually aroused suggests that he is not dead, but more likely, in some highly emotional mental state. The birds, the staff, and a possible depiction of hunting or conflict (the wounded bison), are all motifs associated with shamanism that add credence to the notion that this is an ecstatic shaman in spiritual transformation (Davenport & Jochim 1988; Dickson 1990:131-135). More recent rock carvings from Siberia, provide further evidence of ancient shamanism. These carvings, dated as a few thousand years old, depict recognizable shamanistic paraphernalia including antlered headgear, costumes, and wood frame drums (Vitebsky 2000). Collectively, this evidence indicates that shamanism has been part of human societies for thousands, if not tens of thousands of years.

The Social Role of the Shaman. The shaman's popular image as a bizarre mystic often obscures his/her more important social function. This function, however, has not been lost on those who study shamanism carefully (Townsend, 1999:446, 450). Hultkrantz (1973:34) puts the social aspect at the very core of his definition of the shaman: "[the shaman is] a social functionary who, with the help of guardian spirits, attains ecstasy in order to create a rapport with the supernatural world on behalf of his group members." This rapport can take many forms. For example, a shaman may be called upon prior to the community embarking on an important activity such as hunt. The shaman may enter the spirit of the hunted animals and try to convince them not to resist the hunters or the shaman may simply gather and report important information about the animals' movements and attitudes.

The shaman may also be asked to relieve community suffering such as in the wake of a natural disaster, poor harvest, social discord, hunger, or illness. Individuals may seek out the shaman when suffering sickness or misfortune. In either situation, the shaman's function is to communicate with the ancestors or spirits who may be responsible for the perils being suffered. Often, the shaman finds that violations of taboo have aroused supernatural anger (see example below, also Lee & Daly, 1999 eds.:59). By binding supernatural authority to the punishments incurred when taboos are broken, the shaman reinforces group norms. Whatever the specific task, the good shaman serves as an emissary to the supernatural world intent on repairing or enhancing the community's relationship to the supernatural and to each other – or as Vitebsky (2000:63) puts it "The mystic is also a social worker."

Two examples highlight this. Rasmussen (1929:123-9) describes how a famine-threatened Iglulik Inuit village in Northern Canada enlisted a local shaman to go on a spiritual journey to the sea spirit Takanakapsaluk to find out why the community's recent hunts were unsuccessful. Before the gathered community and amid great drama and ritual, the shaman's journey commenced. Takanakapsaluk informed the shaman that the sea's bounty was withheld from the village because of their frequent violations of taboo. Upon the shaman's return, members of the community arose, one after another, confessing their various transgressions. The mass catharsis proved highly therapeutic as the session ended with a palatable spirit of good will and optimism pervading throughout the community. Note well in this example how the sins of individuals, heretofore successfully hidden from the human community, were nevertheless brought into the

public light through shaman's intercession. Similar examples of this sort have been noted among shamanistic rituals in Nepal, Korea, and Japan (Townsend, 1999:443)

Among the Sora of eastern India, the shaman's role is somewhat different. Although she (most shaman tend to be women) may intervene during a crisis, more often, the shaman acts as a sundry intermediary in the community's ongoing dialogue with the dead (Vitebsky 1993). Shortly after death, a person's spirit is thought to be volatile, causing mischief and mayhem among the living. Any illness or misfortune may be blamed on the sonum or spirit of a recently departed friend or relative. Mourners gather around a shaman who calls upon the sonum so that it can be questioned about its actions, motivations, and state of mind. These dialogues may persist for weeks or even years as the living and the dead sort out their relationships. Often a negotiated settlement is achieved: the sonum agrees to become a guardian spirit to a child who is to bear his/her name. Though the shaman's role here is less dramatic, its social significance is no less crucial. Since the social world involves the dead as much as the living, the shaman is a vital thread linking the two — maintaining, repairing, and transforming the social bonds.

Animal and Natural Spirits

The belief in a spiritual force pervading all of nature is common among hunter-gatherers (Guenther 1999:426; Harvey 2000). Powerful animal spirits play a prominent role in the art, myths, and religious beliefs of many traditional people such as Australian Aborigines, Inuits, the Ainu, many native North and South American tribes, South African Bushmen, and the Jahai of Malaysia (Hayden 2003:105-106; Hultkrantz 1967; 1994; Lee & Daly 1999 eds.:310). Some exceptions and variations are present, however. Though Aka Pygmies believe in animal spirits, neither Mbuti nor Baka Pygmies do

(Sawada, 2001). Instead, Baka Pygmies believe in anthropomorphized "game spirits," while the Mbuti see the entire forest as a living spirit (Boyer 2001:69).

Archeological Evidence. Evidence for possible animal cults takes a number of forms in the archeological record of the Upper Paleolithic. First, Upper Paleolithic cave art contains thousands of animal depictions including the therianthropic and mythic images mentioned earlier. In some instances the arrangement of animals suggests a segregation into masculine and feminine motifs (Leroi-Gourhan 1968). Second, at both Les Trois-Freres and Chauvet caves there are chambers that appear to be dedicated to specific animals (or animal spirits). The "Lion Chapel" at Les Trois-Freres contains a large feline mural along with the remains of a fire surrounded by apparently deliberately placed bones (Begouen & Clottes 1986/87). The bear chamber at Chauvet Cave holds a bear skull carefully placed atop a large limestone block. Below the block are the remains of a fire and more than 30 other bear skulls that seem to be intentionally placed (Chauvet, Deschamps, & Hillaire 1995:42).

Third, at the Dolni Vestonice site in the Czech Republic, fragments of clay-baked animal forms dated to around 23,000 bp were uncovered that seem designed to explode when heated (Vandiver et al. 1989). Hayden (2003:134) argues that these were probably used in some ritual associated with the celebration of animal spirits. Taken together, this evidence has compelled many investigators to argue that animal and other natural spirits played a prominent role in Upper Paleolithic religious practices (Bahn & Vertut 1988; Clottes & Lewis-Williams 1998; Leroi-Gourhan 1968).

The Spirits as Social Players. As with the ancestors, natural and animal spirits serve as an extension of the human social world. The spirits are social players whose interests and

concerns must be considered in the activities of the living, especially activities that involve the utilization of natural resources. Individual exploitation of natural resources can be reduced by cultural prohibitions. These prohibitions can be made even more effective if buttressed by supernatural authority.

For example, in many hunting-gathering societies, hunting is not just a subsistence activity, but a sacred reciprocal exchange between intentional social actors (Atran 2002:226-227; Brightman 1993:2,103,187; Lee & Daly 1999 eds.:63,257,296). The prey must be persuaded to give up its body to the hunter for food, and the hunter must perform proper rituals so that that animal's spirit can be returned to the earth (Connors 2000; Hallowell 1975; Waal Malefijt 1968). Related to this is the widespread concept of a "master of animals" – an ultimate animal spirit that guards nature against human exploitation and ensures the continual supply of animals through reincarnation (Brightman, 1993:91-93; Hultkrantz 1967:59; Reichel-Dolmatoff 1978:291-292). Hultkrantz (1967:59) claims that this notion is "extensive" among native peoples in South America and "extremely common" in North America. Similar concepts are found among Efe Pygmies in central Africa, the Chenchu and Paliyan of southern India, and the Batak of the Phillipines (Lee & Daly 1999 eds.:257,264,296; Sawada 2001). Additionally, reference to a "master (or mistress) of animals" deity can be found in Minoan and Myceanaean mythologies (Nilsson, 1950). Waste and sacrilege angers this master spirit, who may withhold resources from offending humans (as the earlier example involving the Iglulik sea goddess Takanakapsaluk highlighted).

Bringing nature into the human social sphere can exert a constraining effect on how humans utilize natural resources. For example, the Itza' Maya of the Guatemalan

lowlands regard the forest and its resources, not as objects to be managed or exploited, but as intentional players in a social game of reciprocity (Atran, Medin, Lynch et al. 2002; Atran, Medin, Ross, et al. 1999; see also Atran 2002:219-227,271-273). They believe that spirits actively protect the forests' animals and products and that improper behavior toward the forest angers these spirits bringing retribution to the violator. In comparison to other groups utilizing the forest's resources, the Itza's practices prove to be less destructive and more sustainable. Brightman (1993:76,110,186) documented a similar orientation among the Rock Crees of northern Manitoba and Saskatchewan.

While the role of indigenous spiritualism as a specific mechanism for successful resource management has been subject to debate (e.g. Alvard 1994; Brightman, 1993:281-291; Connors 2000; Nelson 1993; Stearman 1994), there are compelling examples showing that a shared religious orientation toward the land can be effective in getting competing communities to cooperate over a collective resources. For example, religious ritual was central to the fishing practices of the Native Americans of the Upper Klamath River Valley of northwestern California. They addressed the *technical* problem of managing a critical resource (salmon) among competing groups *ritualistically*.

Sacred ritual marked the beginning and extent of the harvesting season so that no single group could dominate the resource at another's expense. No fishing was permitted until all the proper rituals were completed, and violations aroused the anger of both those conducting the rituals and the supervising spirits. Violators suffered the spirits' wrath, thought to include "bad luck" and a poor catch. So seriously were these beliefs taken, that as the rituals were conducted, people fled the river bank for the surrounding mountain

slopes so as to avoid the sacrilege of even gazing upon the fires built to cook the first salmon (Connors 2000; Swezey & Heizer 1993).

Recent analyses indicate that the Northwest Indians had the skill, technical capacity, and appetite to decimate the Klamath valley fish stocks, but were inhibited from doing so culturally (Bunting 1997; Connors 2000:146). Today, 30 species of salmon including those of the Klamath are on the endanger species list. Ironically, current laws governing fishing are similar to the proscriptions practiced by the Northwest Indians, but the sacred orientation to the land is gone. (Conversely, where secular laws have been more successful, it is likely that visible enforcement has created the impression a vigilant, ever-watchful government.)

Around the globe on the island of Bali, another example of a ritual solution to a resource management problem can be found. For centuries the native Balinese have grown rice on steep terraced hilltops, sharing the water that flowed down the mountainside by diverting it from the main stream to the fields of different communities (or subaks). But how can one prevent those upstream from diverting all the water, leaving none for those downstream? This challenge is further complicated by the need to seasonally rotate fallow and active fields among the competing subaks. This organizational nightmare was managed effectively for centuries by the water temple system. The Balinese had constructed a temple honoring a local deity at each branch in the downstream flow (Lansing 1991). The temples operated hierarchically, in that as one moved upstream the number of communities served by that temple increased as did the generality of the deity (i.e. more people worship that deity). At the summit was the massive temple of Dewi Danu, the goddess of all the waters. Each temple was a meeting

place and policy setting center for the groups served by the diverted waters originating at that point. Disputes at one level could be taken to the next level up for resolution, with the high priest of Dewi Danu serving as the ultimate authority. Temple priests combined the technical knowledge of irrigation and rice cultivation with the metaphysical authority granted only to clerics.

In an attempt to increase productivity, the government sought to replace the water temple system with more modern practices and bureaucratic oversight. The results were disastrous (Lansing 1991:124). Secular authority worked no better for the Roman aqueduct system. According to the ancient historian Frontinus, public water flows were often brought to a standstill because of landowners illegally diverting resources to "water their gardens" (Frontinus 1961:405). Neither modern technology nor secular Roman law accomplished what the Bali water temple system did for centuries: ensure cooperation over a shared resource.

Religious ritual often targets utilitarian concerns (Walker 2001). Nearly 40 years ago, Roy Rappaport (1968) described how religious ritual constructively regulated inter-community conflict as well as other social, economic, and ecological factors among the Maring-speaking peoples of central New Guinea. The Klamath River and Bali examples amplify his original observations. Human cooperation often benefits when nature is viewed as an intentional social player.

CONCLUSION

To summarize: the first evidence for three of religion's most ancient traits (ancestor worship, shamanism, and animal and natural spirits) emerges in the Upper Paleolithic coincident with a dramatic advance in the human social world. These traits

extend the human social world into the supernatural. Social scrutiny is an effective means of engendering pro-social behavior in humans. Supernaturalizing social life, by including ancestors, gods, and spirits as ever-vigilant and responsive social players, forced our ancestors to be more cooperative and socially responsible than what they otherwise would have been.

The deepest roots of religion are entangled in the same social machinery that regulates all group living: concerns over cheating, reputation-building, reciprocity, fear of punishment, and the self-censoring effects of the social "eye." In our ancestral past, groups whose members used their religious imagination to construct a supernatural element to social life may have reaped a fitness advantage by expending less energy policing their members for insidious individualism (Atran has speculated along similar lines, 2002:278-279).

CURRENT EVIDENCE AND FUTURE TESTS

From this model a number of potential avenues for testing emerge. First, this paper has identified three ancient traits of religion and built a case for their role in the evolution of human cooperation through the mechanism of supernaturalizing social scrutiny. This model would predict that other potential ancient traits, such as sacrificial rituals or totemism, would serve the same function. Totemism, for example, is complex but often carries with it the notion of a "guardian spirit," that guides and regulates individual behavior (Hultkrantz 1967:66-83). Furthermore, the current paper has focused on the emergence of religion in the Upper Paleolithic in Europe. Archeological evidence from Africa indicates a more incremental emergence of human culture and behavior (McBrearty & Brooks 2000). Consistent with the Upper Paleolithic in Europe, this model

would predict that the earliest evidence of religion in the African archeological record would be associated with high social complexity and population densities.

This model also makes predictions about the evolution of religion over time. Specifically, even as religion evolves and changes, notions pertaining to the supernatural's interest in and monitoring of human behavior will be conserved. While more in-depth analyses are certainly required, a cursory look at the history of religion would seem to offer support for this hypothesis. For example, while monotheism (a more recent religious innovation) disposes with the idea of watchful animal or ancestral spirits, it strongly embraces the notion of an omniscient, omnipresent God (and seems not to discourage the idea of "guardian angels" among children).

If religion's deepest roots are planted in the soil of social cooperation, then we might expect that groups bounded by religion are more stable and cohesive than comparable secular groups. Sosis (Sosis 2000; Sosis & Bressler 2003) has already provided evidence of this in his comparisons of the longevity of religious versus secular communes. In every year of their existence, religious communes were about four times more likely to survive relative to their secular counterparts. Furthermore, Stolle (2001) found that church groups exhibited higher levels of intra-group trust and commitment relative to other social groups such as parent groups and bowling leagues. The additional (and to my knowledge as of yet untested) prediction that this model would make is that a key factor behind these findings is that members of religious communities avoid divisive individualistic behaviors because of their belief in "supernatural monitoring."

This model would also predict a relationship between social adjustment and religious activity, especially among the young. Studies have documented that religiosity

is correlated with decreasing social deviance among adolescents (Jang & Johnson 2001; Merrill, Salazar, & Gardner 2001). A further prediction from this model would be that what lies at the source of this relationship is not necessarily religious doctrines, but the social elements of religion. That is, being actively involved in a community where human and supernatural scrutiny are being brought to bear to reinforce behavioral demands.

Developmental psychology provides further supportive evidence for this model. While animistic and teleological thinking (thinking the wind is alive or the sun shines to keep us warm) is well-documented among children (Piaget 1933; Keil 1979; Laurendeau & Pinard 1962), more recent studies have found that children extend teleological thinking to artifacts and natural inanimate objects (such as chairs and rocks). Children appear to be "intuitive theists," naturally predisposed to interpreting the world as the intentional result of a designing deity (Barrett et al. 2001; Evans 2001; Keleman 2003, 2004; Bering 2004). That these findings hold among British children argues against the notion that they are merely the result of the ambient religiosity of American culture (Keleman 2003, 2004). Even more intriguing is that a child's understanding of God's mental states actually precedes that of other social agents. God (as opposed to parents or other humans) is uniquely understood as omniscient and in possession of strategically important information about intentions and motivations (Barrett et. al. 2001; Boyer 2001). Consistent with the expectations of the current model, this research suggests that children are naturally prepared to embrace a social world that includes attentive supernatural agents.

Another avenue of testing concerns the implicit constraints on peoples' mental representations of supernatural entities. Though people claim that God is omniscient and

omnipresent, they often describe him as having limited attentional capacities such as saying that he would handle two simultaneously unfolding crises sequentially based on need (first saving a man's life and then helping a women find her purse; Barrett 1998; Barrett & Keil 1996). Furthermore, Bering (2002) provides evidence that our representations of supernatural agents are often implicitly constrained by our experience. Since omniscience and unlimited attentional capacities are beyond our experience, we have difficulty successfully incorporating these notions into our God concept.

This model would predict that the constraints operating on our supernatural representations are not just experiential, but more specifically, relational. In other words, we represent supernatural agents with whom we can relate. As Lohmann (2003b) has vividly described in his account of religious conversion, adopting a new religion is primarily the establishment of a new relationship with imagined supernatural agents and only secondarily the adoption of a new set of doctrines. Thus, the reason why we envision God as doing one thing at a time is because that is how we expect a good relational partner to behave (when he's paying attention to me he's paying attention to only me.) Furthermore, we envision spirits as knowing things, not just because we can't imagine otherwise, but because we need them to know things if we are to relate to them. They know things that are relationally relevant (that we envy Fred his new car, not that conventional physics breaks down in black holes).

This emphasis on the relational qualities of supernatural agents is in keeping with Horton's (1960) observation that the God-person relationship exists on a continuum of manipulation (where people seek benefits of health or wealth) to communion (where people seek emotional intimacy). In modern societies where material and health benefits

are increasingly accessible from society itself, religion becomes more about communion than manipulation. Following Horton, the current model would predict that religion in modern societies emphasizes communion over manipulation. The relative success of charismatic movements (in comparison to established churches) in largely secular societies is generally consistent with this prediction (see Bruce 2001:70-71,167-185).

If these and other tests continue to provide support for this model, then one might think of humanity as embarked on a grand post-enlightenment experiment to see if a more naturalistic and narrower conception of the social world is, in fact, more adaptive.

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