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THE EVOLUTIONARY BASIS AND FUNCTION OF RELIGION

A Senior Honors Project
In Partial Fulfillment of
Bachelor of Arts with University Honors
in Anthropology
The University of Tennessee, Knoxville

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Abstract

In this paper, I offer a possible evolutionary explanation for the existence of religion and for its ubiquity. I suggest that religion evolved in modern humans through the conflation of two essential characteristics of *Homo sapiens sapiens*. The first, social hierarchy, is observed in all social primates—indeed, in all socially-living animals. The second, cognitive fluidity, appears to be unique to our species. Religion resulted from cognitively-fluid modern humans' attempt to relate to the ecological environment using strategies derived from the social environment: humans viewed environmental stressors and forces as humanlike, and attempted to relate to them in humanlike ways. This position represents a synthesis of ideas presented by researchers such as Steven Mithen and Stewart Elliott Guthrie. With the example of the development of the Rastafari religion in Jamaica, I attempt to demonstrate the adaptive advantage of religion: religious group identity is adaptively beneficial because it redefines and reinforces networks of altruism in times of increased environmental stress, increasing the overall fitness of group members. After examining potential weaknesses in the theses of the paper, I suggest a possible method of testing them. I conclude that religion's emergence in human culture is likely due to the above-mentioned characteristics, and that religion has been maintained due to the adaptive advantage it bestows.

The Evolutionary Basis and Function of Religion

Thesis

In this paper, I offer a possible evolutionary explanation for the existence of religion and for its ubiquity. I suggest that religion evolved in modern humans through the conflation of two essential characteristics of *Homo sapiens sapiens*. The first, social hierarchy, is observed in all social primates—indeed, in all socially-living animals. The second, cognitive fluidity, appears to be unique to our species. Religion resulted from cognitively-fluid modern humans' attempt to relate to the ecological environment using strategies derived from the social environment. This position represents a synthesis of ideas presented by researchers such as Steven Mithen and Stewart Elliott Guthrie. With the example of the development of the Rastafari religion in Jamaica, I attempt to demonstrate the adaptive advantage of religion: religious group identity is adaptively beneficial because it redefines and reinforces networks of altruism in times of increased environmental stress, increasing the overall fitness of group members.

I. The emergence of religion

The question of religion as adaptation

Religion is a true cultural universal. All known human social groups have religious beliefs and practices, and it appears likely that religion is as old as *Homo sapiens sapiens*. Although the content of particular religions exhibits great diversity cross-culturally, religion as a phenomenon seems to be a fundamental part of the cognitive equipment of all modern human populations. It may therefore be worthwhile to consider, as Edward O. Wilson and others have done, the evolutionary biological basis of

religion as a human characteristic (Wilson 1978, Reynolds and Tanner 1995). Religion's continued existence, as well as the continual emergence of new religious groups in all parts of the world, may admit the possibility that, rather than being simply a byproduct of the evolutionary history of the human mind, religion actually has served an adaptive role. If religion can be understood through the lens of evolution, it may be possible to identify its role by examining both the universal aspects of religion and the circumstances surrounding the emergence of new religious groups, and then relating these factors to individual adaptive advantage.

The problem of what is meant by "religion"

Vernon Reynolds observes that all human societies have religious ideas (1986). However, this observation is not unproblematic. For one thing, the question of what sorts of ideas we can accurately call "religious" is not easily answered. In the modern world, religion does not occupy the same amount of 'room' in all cultures; a wide range of diversity exists among cultures in the degree to which religion is integrated into the overall lifeway. In some cultures, it is difficult to tell where the line is between what is regarded as 'religious' and what is not; or that line may not exist (Reynolds 1986). In other cultures, clear, relatively nonporous divisions separate the sacred from the secular (Reynolds 1986). Other cultures position themselves at a variety of intermediate states between these two extremes.

To answer the question of what we can consider a "religious" idea, the relationship between religious ideas and religious behaviors must be considered. Although there may be great variation in the behavior of any two members of the same religious group, religious ideas do predicate certain behaviors. An understanding of

religion as an adaptive strategy can only be approached by focusing on practices and behaviors rather than precepts associated with religion, since it is behaviors and not ideas that directly affect differential survival and reproduction (after Reynolds and Tanner 1995).

Religious universals

Difficulties in determining exactly what is “religious” about a particular culture, or about culture in general, can be addressed by seeking to define universal characteristics shared by all religions regardless of the culture in which they are found. Steven Mithen identifies four elements of religion which he describes as

“of greatest significance to that way of thinking which we call religious: (1) the belief in non-physical beings; (2) the belief that a non-physical component of a person may survive after death; (3) the belief that certain people within a society are likely to receive direct inspiration of messages from supernatural agencies, such as gods or spirits; (4) the belief that performing certain rituals in an exact way can bring about change in the natural world” (1999, p. 149).

Mithen also identifies the use of material symbols, “images of supernatural beings, or symbols of those beings and the ideas about the world that they represent,” as another important universal element of religion (1999).

Mithen’s (1) (belief in nonphysical beings) and (2) (belief in a nonphysical, continued existence after death) are problematic, since there are religions in which they are either not present or not emphasized. Buddhism and Rastafari, for example, originally emphasized neither belief, although individual Buddhists and Rastas today may

believe either or both of them (see Barrett 1997, Lake 1998, Wint 1998, Broom 2003). However, Mithen's (3) (belief in communication between human and supernatural agencies) and (4) (belief in the efficacy of ritual for controlling the environment) are emphatically present in all existing human religions, as is the use of material symbols.

Stewart Elliott Guthrie identifies animism (the tendency to attribute life to nonliving objects or phenomena) and anthropomorphism (the tendency to attribute human characteristics to nonhuman objects or phenomena) as religious universals (1993). Guthrie's universals are preferable to Mithen's (1) and (2), since they are found even in religions that do not emphasize Mithen's first two characteristics. Guthrie argues that animism and anthropomorphism are by no means peculiar to religion; he gives numerous examples of their prevalence in everyday life, in the imagery of advertisements, the language of psychology and even in the findings of physicists (1993). He identifies animism and anthropomorphism as persistent tendencies in all systems of human thought, including science, art, "common sense," and religion (1993, p. 194).

Another universal characteristic may be found in the fact that religion appears to concern itself with a specific suite of phenomena in all cultures; in other words, all religions share a central body of life events, or "nodal points," which they inform in all cultures (Reynolds and Tanner 1995). These nodal points include such life events as reproduction, child raising, food and diet, warfare, disease, and death (Reynolds and Tanner 1995). To define it more generally, religion addresses all those events in life which involve a high degree of uncertainty or risk (Reynolds and Tanner 1995).

One final characteristic of all religions is their ideological nature. Ideology here refers to a set of ideas or beliefs that is adhered to by a specific social group and which

motivates specific actions such as warfare (after LeBlanc 2004). Religions do not merely influence people's thought; they guide individuals' behavior. As Reynolds and Tanner emphasize, "religions have always had practical concerns" (1995). These concerns are not merely dealt with in the realm of abstract thought; they are directly or indirectly addressed through the practice of religion.

The evolutionary origin of religion

The universal characteristics of religion identified by Mithen and Guthrie suggest an evolutionary basis for religion in *Homo sapiens sapiens*. Perhaps religion developed in our species through the conflation of our tendency for social hierarchy with our capacity for cognitive fluidity, or cross-communication between the mental domains in our brains as evidenced by the appearance of material symbols in the archaeological record. Cognitive fluidity enabled early modern humans to apply strategies developed for social hierarchy as a response to environmental forces by viewing these forces through the lens of anthropomorphism, allowing humans a method for attempting to control them. It enabled early modern humans to successfully negotiate the ecological and social environments in times of duress by manipulating networks of altruism. Religion thus provided early modern humans with an adaptive advantage over other hominid species such as *Homo sapiens neandertalensis*, who apparently did not possess religion and consequently were unable to effectively manipulate altruistic behavior.

The adaptiveness of cognitive fluidity

Mithen identifies the capacity for symbolism as a universal human trait (1999). The capacity for symbolism is, as far as we know, a unique characteristic of humans; other animals, including the other social primates, do not appear to have the cognitive

capacity to mentally process objects and events which are not physically present (Mithen 1999). Although the human monopoly on symbolic thought is not above question, it is widely accepted, and no conclusive evidence has yet been found to discredit it.

Symbolism is omnipresent in religion, both in the form of mental symbols for religious concepts and in the form of physical representations of supernatural beings or concepts (Mithen 1999).

Mental and material symbolism are made possible due to a unique capability of *Homo sapiens sapiens*: cognitive fluidity, which is the ability to integrate information and informational processes from different “cognitive domains”, bundles of interacting mental models which are used to process complex information in specific fields (Mithen 1996). The cognitive landscapes of early hominids, including all members of the genus *Homo*, have been described by Mithen as consisting of three distinct, specialized cognitive domains, the social, the technical, and “natural history,” which contains information about the ecological environment (Mithen 1996). Symbolism does not appear to be possible in the absence of cognitive fluidity (Mithen 1999).

Mithen proposes that modern humans are unique among species of the genus *Homo* in that we can process information from one cognitive domain in another, and information from multiple domains can be synthesized (1999). He supports this proposal by his analysis of the archaeological record, which demonstrates that species such as *Homo sapiens neandertalensis* were like modern humans in some aspects of their material culture, but were more like earlier hominids in others (1996). Mithen attributes this variation to a lack of cognitive fluidity (1999). For example, the stone tool technology of Neanderthals exhibits superior design when compared to Upper Paleolithic

technology, demonstrating the competence of Neanderthals in the technical domain (Mithen 1999). However, there is no evidence that Neanderthals ever used these stone tools to make specialized hunting weapons such as spears, indicating a lack of communication between the technical and natural-history domains (Mithen 1999). There is also no strong evidence that Neanderthals ever used their technical prowess to create material goods with social applications, such as body decoration or grave goods, indicating a lack of connection between the technical and social domains (Mithen 1999). Although the possibility of cognitive fluidity among Neanderthals cannot be definitively ruled out (indeed, it has been suggested), there is no incontrovertible evidence to suggest that they shared this ability with modern humans.

The adaptive value of cognitive fluidity to *Homo sapiens sapiens* is inestimable. With it, modern humans have been able to achieve technologies and social arrangements that are far more complex and subtle than those achieved by our closest relatives in the genus. Significantly, the first evidence of cognitive fluidity appears in the archaeological record simultaneously with the probable development of language and the first indisputable evidence of material symbolism (and therefore mental symbolism), which is necessary for religion (Mithen 1996). The emergence of cognitive fluidity among modern humans can explain the cultural explosion of the Upper Paleolithic: *Homo sapiens sapiens*, unlike our predecessors, was able to integrate the various domains of information, enabling us to adopt innovative survival strategies and vastly increasing our survival and reproductive success (Mithen 1999). Cognitive fluidity may have been the secret weapon that ensured the ascendance of *Homo sapiens sapiens*, allowing our species to out-survive and out-reproduce *Homo sapiens neandertalensis*.

The adaptiveness of animism and anthropomorphism

Guthrie identifies animism and anthropomorphism as universal characteristics of all religions (1993). Guthrie observes that animism, the tendency to attribute life to nonliving things, is not unique to humans; many lower animals, such as horses and cats, also react to unknown objects and forces as though they represented living beings (1993). Guthrie argues that animism is an adaptive strategy because it causes creatures to react more cautiously to their environments, thus increasing their likelihood of survival; he uses the example of a hiker who mistakes a boulder for a bear, contrasting him to a hiker who mistakes a bear for a boulder (1993). Overestimating danger is obviously a safer strategy than underestimating danger; animism, Guthrie states, is the biological expression of the principle, “better safe than sorry” (1993).

Guthrie also identifies anthropomorphism, the tendency to attribute human identity to nonhuman things, as an adaptive trait in human populations (1993). Anthropomorphism is adaptive in the same way that animism is; for modern humans, Guthrie argues, the most significant danger to human life was presented by other humans (1993) “We animate and anthropomorphize,” he says, “because, when we see something as alive or humanlike, we can take precautions,” such as stalking it, fleeing, or trying to establish a social relationship with it (1993, p. 5). While animism is obviously possible in the absence of cognitive fluidity, given its presence in animals other than humans, anthropomorphism requires the ability to think and behave symbolically, and to attribute this ability to other beings (1993). This attribution forms the core of the religious way of understanding the world.

The adaptiveness of social hierarchy

Albert Somit and Steven A. Peterson argue for the universality of hierarchy in human social groups (1997). As they observe, social hierarchy is a characteristic of all social primates, including modern humans (Somit and Peterson 1997). Social hierarchy takes the form of relationships of dominance and submission, with their accompanying behaviors, which actually confer adaptive advantage to individuals within a social group (Somit and Peterson 1997). This adaptive advantage obtains in the normalizing of social life. As Somit and Peterson observe, “Dominance furthers predictability, and predictability...benefits both the dominant and the subordinate” (1997, p. 54). By creating a predictable social environment, hierarchy minimizes intergroup conflict and enhances individuals’ prospects for reproduction and for successful child-raising (Somit and Peterson 1997).

One important element of Somit and Peterson’s analysis of the adaptive value of dominance lies in its recognition that hierarchy can be of benefit to subordinate individuals (1997). Through strategies such as submission displays (and praise of dominant individuals, in the case of humans), subordinate individuals can manipulate the social contracts created by hierarchy to ensure their own survival (Burkert 1996). The use of submission as a survival strategy has been observed among many social primates, including gorillas and chimpanzees (Burkert 1996). Submission displays serve to prevent aggression from the dominant individual, and can also be used to gain his or her protection or help (Burkert 1996). Submission displays among lower primates are often strikingly familiar to those used by humans, including such actions as genuflecting,

prostration, bowing the head, and avoiding direct eye contact (Burkert 1996). This behavioral similarity between chimpanzees and humans as social primates cannot be satisfactorily explained by any other means than by reference to our shared evolutionary history.

Religion as evolutionary synthesis

An evolutionary explanation for the appearance and maintenance of religion can now be presented. As animals, we have long possessed the tendency to animate, since natural selection has favored animism due to its survival-enhancing effect (Guthrie 1993). As social primates, we have certainly always lived in social groups. Part of the evolutionary legacy of social living is a tendency toward hierarchical social structure, since natural selection has favored hierarchy due to its inclusive-fitness enhancing effect (Somit and Peterson 1997). With the appearance of our species, we gained the capacity for cognitive fluidity, which gave us among other advantages the ability to symbolize and to synthesize information from separate cognitive domains (Mithen 1999).

The development of symbolic thought transformed our capacity to animate into our capacity to anthropomorphize. In addition to attributing life to unknown objects and forces, we now attributed to them consciousness, the capacity for symbolic thought, and the capacity for social interaction—in other words, we now attributed human identity to them. The synthesis of the ecological domain (as ecological forces) with the social domain (as human identity), accomplished through anthropomorphism, produced the first concepts of the supernatural. Further processing of this innovation in the social domain presented us with the strategy of creating social relationships with these forces. We did

this in a hierarchical fashion, relating to these humanized environmental forces through rituals of submission in an attempt to dissuade them from harming us.

II. The adaptive role of religion

Adaptive effects of religion

If religion arose as a byproduct of the development of cognitive fluidity in modern humans, it was not a superfluous byproduct, but had an immediate adaptive impact on early modern humans. Religion has impacted the course of human evolution by influencing the expression of a wide range of behaviors such as reproduction, food strategies, altruism, and aggression (Reynolds 1986, Reynolds and Tanner 1995, Qirko 2002, LeBlanc 2004). Religion encourages certain behaviors and discourages others, and thereby has an impact on the differential survival and reproduction of individuals. Robert Boyd and Peter J. Richerson argue that, since humans are both biological and cultural organisms, our cultural practices have affected our biological development (1985). The effects of religious ideology, a cultural phenomenon, on the genetic identities of populations can therefore be seen as an example the operation of a mechanism of dual-inheritance (Boyd and Richerson 1985).

Religion's universal concern with nodal points highlights its role in control of the ecological environment. In every culture, life events which involve a high degree of risk or uncertainty (such as events connected with reproduction and acquiring food) are mediated by religion (Reynolds and Tanner 1995). Ritual and communication with the forces regulating these events are religious behaviors for manipulating their outcomes. Humans tend to preserve effective survival strategies by encoding them culturally;

although not all cultural elements contribute to increased success in survival or reproduction, many do. Effective survival strategies which are not simple biological predispositions are taught and reinforced culturally. Religion has been maintained by natural selection because it is effective in influencing differential survival and reproduction. It does this through the manipulation of networks of altruism.

Religion and altruism

Religious strategies which help humans to successfully negotiate the nodal points of life can confer an adaptive advantage. The most significant adaptive advantage of religion is its ability to create new networks of reciprocal altruism or to reinforce existing ones. By encouraging similarity of behavior among adherents, religions provide individuals with group identities. This is a consequence of the fact that, for most of its existence, religious identity has been closely connected with other forms of identity such as ethnic group, tribal affiliation, and political affiliation (Wilson 1973, Meggers 1983, LeBlanc 2004). Dennis L. Krebs and Kathy Denton have argued that an individual's membership in a group positively influences his or her perceptions of other members of the "in-group" (1997). These positive perceptions increase the likelihood of social helping and altruistic behavior toward in-group members (Krebs and Denton 1997). Wilson's analysis of altruism among humans emphasizes the role of kin selection and inclusive fitness in manifestations of altruistic behavior (1978). Significantly, he observes that although the capacity for altruistic behavior has a biological basis, the expression of altruistic behavior is culturally determined (Wilson 1978). Hector Qirko argues that such practices as institutional celibacy demonstrate the manipulability of altruistic behavior among humans (2002). He also shows that cultural phenomena such

as religion can manipulate altruistic behavior by manipulating kinship cues (Qirko 2002). Through the manipulation of kinship cues, religious identities create in-groups, resulting in new expressions of in-group altruistic behavior. By encouraging or discouraging certain behaviors, religion creates similarity among its adherents, which in turn fosters fictive kinship networks that enhance the inclusive fitness of religious in-group members. As noted above, throughout most of human prehistory and history the fictive kinships created by religion would more often have reinforced existing kinship relations than replaced them (after Wilson 1978, Meggers 1983). As human social complexity increased, however, group size increased apace, and fictive kinship was extended to include genetically-unrelated individuals (Chase 1999, LeBlanc 2004).

The emergence of new religious identities

If religion's adaptive role is to enhance altruistic behavior by creating or reinforcing group identity, it is logical to expect that new religious groups are likely to emerge when environmental stresses increase. This hypothesis has been proposed by Max Weber and Ann Ruth Miller, and it is exactly what is observed throughout history; whenever humans perceive ourselves to be falling below a minimal standard of living conditions, the formation of new religious identities is a common strategy (in Edmonds 2003). Environmental stresses such as famine and warfare increase the uncertainty and danger of the nodal points of life (after Reynolds and Tanner 1995). New religious groups decrease this danger in two ways. First, by allowing people a measure of perceived control over their uncertain circumstances, religion lessens their impact; as Krebs and Denton observe, a positive mentality can have real effects on an individual's survival (and consequently, on his or her reproductive success) (1997). Second, and

more importantly from a biological point of view, the new religious group redefines the networks of reciprocal altruism, concentrating altruistic behaviors within the group and thereby increasing the average fitness of all group members.

III. Ethnographic example: Rastafari in Jamaica

Environmental stresses in Jamaica

From its earliest beginnings in the sixteenth century, the black experience in Jamaica was one of hardship, slavery, and oppression (see Campbell 1987, Lake 1998). Even after the British Act of Emancipation ended slavery in Jamaica in 1833, the living conditions of black people in Jamaica remained impoverished (Lake 1998). Much as in the post-Civil War American South, political and economic oppression of Jamaican black people resulted in low wages and chronic underemployment, keeping the majority of Jamaicans in conditions no better than during slavery (Lake 1998). Economic marginalization left black Jamaicans disproportionately vulnerable to starvation and disease, as evidenced by the cholera epidemic in 1850 which killed between 25,000-30,000 Africans (Lake 1998, p. 27). The Jamaican colonial government, completely unsympathetic to the suffering of African-descended people, responded to their attempts to improve their living conditions through labor strikes by replacing black workers with indentured servants from China, Syria, and India, furthering black impoverishment (Lake 1998). Military repression was the colonial government's response to any protest (Campbell 1987). The position of black people throughout Jamaica worsened steadily throughout the early 20th century, culminating in a revolt which originated among sugar-plantation workers and erupted into large-scale rebellion throughout the island from January-June 1938 (Campbell 1987). The 1938 Sufferers' Rebellion resulted in the

deaths of many black women, men, and children as Jamaican police and British army forces responded to unarmed protestors with rifles and machine guns (Campbell 1987). Although it ended in defeat for the rebels, the Sufferers' Rebellion had a lasting impact: it presented the first pan-Jamaican challenge to colonial hegemony, uniting African-descended people throughout Jamaica and leading to an increased emphasis on African identity in Jamaican politics (Campbell 1987).

The emergence and development of Rastafari

Under such harsh conditions one would not be surprised to see new religious group identities appear in attempts to mediate the grave hardships faced by African Jamaicans. Indeed, several religious groups emerged in Jamaica, both during slavery days and in the late 19th century (Barrett 1997). These groups, including the Pukkumina, the Revivalist movement, and the Revival Zion Church, all were syncretist in nature, blending African religious traditions with Protestant beliefs actively diffused from English colonialists (Barrett 1997).

Rastafari, which first appeared in Jamaica in the early 1930s, is distinct from the Jamaican syncretist religions in that from its inception it emphasized African identity, privileging it above the cultural hegemony of the European colonialist minority (Murrell 1998). This emphasis stemmed from the influence of Marcus Garvey, a journalist, businessman, and political activist born in Jamaica in 1887 who promoted African rights in the Jamaica, the United States, and Central America (Lake 1998). Garvey's platform included "three primary tenets: 1) racial pride, 2) self-sufficiency of African descended people, and 3) repatriation of diaspora Africans to Africa" (Lake 1998, p. 29). Though not a Rasta himself, Garvey's emphasis on black identity, as well as his frequent use of

Biblical quotations and religious metaphor in describing the plight of Diaspora African populations, had a profound effect on Rastafari's founders (Campbell 1987).

While Rastafari was influenced by earlier Jamaican syncretic faiths, Garvey's unintentional influence on the new faith led to a significant break with them in that, rather than blending religious identities, Rastafari radically redefined them (Murrell and Williams 1998). Under the leadership of early Rasta leaders such as Leonard Howell, Archibald Dunkley and Joseph "Teacher" Hibbert, Rastafari reinterpreted the Christian Bible through the lens of African identity, creating a religious identity distinct from its predecessors (Murrell and Williams 1998, Campbell 1987). After the failure of the Sufferers' Rebellion, Rastafari gained in popularity among impoverished rural and urban black Jamaicans; although Rastas as a group were not active in the rebellion, the renaissance in black identity politics which followed helped to swell the organization's numbers (Campbell 1987). By the 1970s, Rastafari had grown from a small, charismatic cult to a widely-acknowledged cultural presence whose membership included not only poor but also middle-class and wealthy black Jamaicans (Lake 1998). This growth occurred by a process referred to by Weber as "routinization," which describes how a charismatic community's ideas become assimilated into the wider society, increasing their attractive power (in Edmonds 2003). Due in large part to the proselytizing of Rasta reggae musicians, Jamaican non-Rastas began to view Rastas as living embodiments of Jamaican and African culture (Edmonds 2003). This perception led to an explosion in the acceptance of Rastafari in Jamaica and among other Diaspora populations, as well as in African populations, to the extent that the worldwide population of Rasta adherents was estimated in 1997 at one million (Murrell 1998).

Rastafari and group identity

Rastafari lends itself particularly well to an analysis of the adaptive role of religion in directing altruism, because many of its distinctive features are specifically concerned with the group identity of Rastas and are well known to non-Rastas, primarily due to the popularity of reggae music (which, ironically, is now disdained by many Rasta groups) (Lake 1998).

Rastafari can best be described as the apotheosis of African identity (Murrell and Williams 1998). Rastas emphasize Africans as the chosen people of the Bible, and many worship Haile Selassie I, former emperor of Ethiopia, as Jah Rastafari, the living God of all Africans (Lake 1998). Jah is a name for God derived from the Hebrew YHVH; the term Rastafari comes from Selassie's pre-coronation personal name, Ras (Prince) Lij Tafari Makonnen (Wint 1998). In a process similar to the development of ideas of Jesus Christ in Christianity, Selassie's identity and nature have been redefined by Rastas so that his death in 1975 did nothing to decrease his image as the living God of all Africans; some Rastas denied his death, while most represented it as Selassie's transformation from a physical to a non-physical being (Barrett 1975). Though not all Rastas agree with Selassie's divine nature, almost all identify him as a spiritual leader, despite the fact that Selassie himself was a Coptic Christian and not a Rasta (Lake 1998).

Group identity among Rastas is reinforced through many avenues. Use of kinship terms among Rastas is ubiquitous; male Rastas are referred to as "brethren," while female Rastas are "sistren" or "daughters" (Lake 1998). Many Jamaican Rasta groups, such as the Bobo Shanti and the Nyabingi, live on communes (Lake 1998). Rasta identity is further reinforced through the use of distinctive language patterns. The Roman numeral

“I” in Selassie’s royal name is interpreted as the personal pronoun “I” and replaces syllables in many words in Rasta speech such as “Ital” (vital) and “Iration” (creation) (Lake 1998 p. 104). Religious rules regarding clean (“Ital”) and unclean foods distinguish Rastas from non-Rastas; Rasta dietary rules emphasize eating natural, unprocessed foods (Lake 1998) Rastas typically are forbidden from eating all meat except for fish, do not drink alcohol, and may not eat processed foods such as cheese or white flour products (Lake 1998). The use of marijuana as a medicine and as a meditation and prayer aid also once distinguished Rastas in Jamaica (Barrett 1997). Though not adopted by the earliest Rasta groups, the wearing of beards and dreadlocks by men and of dreadlocks, head coverings and long skirts by women distinguishes many (though not all) Rasta groups today (Lake 1998). Rastas identify these practices as indicative of African identity, sometimes in spite of the fact that certain Rasta practices (particularly the language patterns and dietary rules) are not found in Africa (Lake 1998). It should be noted that the use of marijuana was among the first Rasta practices to be routinized and adopted by non-Rastas in Jamaica; though obviously never a uniquely Rasta practice, marijuana use in Jamaica is much more prevalent now among non-Rastas than it was previously (Lake 1998). The wearing of dreadlocks, too, appears to be undergoing a process of routinization. Lake attributes both of these routinizations to the increased popularity of reggae music, which since the late 1960s has been dominated by artists claiming Rasta identity (Lake 1998).

The above-mentioned characteristics of Rastafari are consistent with its role in creating a new group identity that benefits the fitness of its members. Use of specialized language and kinship terms, the wearing of beards and dreadlocks by men and head

coverings and skirts by women, observance of dietary laws, and communal living all function toward the end of supporting the cohesion of Rastas as a group; these behaviors are motivated by the Rasta ideology, which emphasizes the identity of Rastas as Africans. The group identity fostered by Rastafari, which arose in response to the environment of oppression black people encountered in Jamaica, has served to increase reciprocal altruism among Rastas, increasing their individual fitness; for this reason it has been maintained, and has grown. It is interesting to note, as Lake does, that these characteristics (communal living, specialized language and kinship terminology, dietary rules, and so forth) are most strongly emphasized among the Bobo Shanti and the Nyabingi, who draw their membership primarily from Jamaica's lowest economic classes (1998). The Twelve Tribes group, whose membership includes middle- and upper-class Jamaicans as well as the majority of non-Jamaican Rastas, does not encourage group living, and has much laxer dietary rules (Lake 1998).

IV. Issues

Many of the assumptions on which this paper builds are not above question. It could be proven that humans are not alone in our possession of the faculty for symbolic thought. It is already known that humans are not the only animals who animate non-living objects and phenomena; Guthrie gives the example of chimpanzees in Africa reacting to an approaching thunderstorm in exactly the same manner as they react to an approaching predator, by making threat displays (1993). However, if it is true that other animals share our faculty for symbolic thought, this would not diminish the importance of symbolic thought in the evolutionary development of culture (including religion) in

humans; rather, it would raise the question of whether “culture” is really a uniquely human domain.

If it were proven that Neanderthals possessed cognitive fluidity as modern humans do, the usefulness of the concept would be called into question. A few Neanderthal burial sites have been found which may have been the results of intentional burial due to the degree of preservation of remains (Mithen 1999). However, only one of these sites contains something that might be interpreted as a grave good, a single deer tooth, which might easily be due to an accidental deposition (Mithen 1999). Mithen argues that none of the so-called Neanderthal grave goods show evidence of intentional, cognitively-fluid symbolic thought or behavior; indeed, no artifact that predates the appearance of modern humans suggests it (1999). Until more evidence is found, then, *Homo sapiens sapiens* must remain the only species which can confidently be identified as possessing the capacity for cognitive fluidity.

This paper has proposed that religion has been maintained among human populations because it allows us to mitigate perceived environmental stresses by creating new networks for reciprocal altruism and by reinforcing existing ones. This proposition is open to falsification because it predicts that in times of increased perceived environmental stress, two things will happen: (1) new religious groups will appear; (2) members of existing religious groups will more heavily emphasize religious identity. The historical origins of religions attest to the validity of prediction (1), but this hardly constitutes compelling proof, and says nothing about prediction (2). However, both predictions are capable of being examined (and falsified or confirmed) by careful ethnographic research. A good place to start might be by comparing the rates of

emergence of new religious groups in times of perceived stress and in times of stability; if it should be found that new religious groups emerge at a comparable rate regardless of perceived environmental stress, the evolutionary function of religion proposed in this paper would be rendered unlikely. However, perceived environmental stress does not only cause new religious movements to arise; it can also give way to an increased emphasis on existing religious identities. This proposition is less easily quantifiable, but it could be examined and supported (or falsified) through ethnographic fieldwork and interviews. If it were found that perceived environmental stress did not lead to an increased emphasis on religious identity within a cultural group, then this paper's thesis would be undermined.

V. Conclusion

I conclude that religion originally developed in humans as a byproduct of the development of cognitive fluidity: religion resulted from the application of social strategies (such as submission displays) to environmental problems, as viewed through the lenses of animism and anthropomorphism. Our ancestors viewed environmental phenomena such as earthquakes and storms as alive and humanlike, and in order to lessen their impact they related to these anthropomorphized phenomena in the same manner that they did to more powerful humans—through dominance and submission, the strategies of social hierarchy.

Religion has been maintained as part of humans' cognitive makeup because it effectively lessens environmental stress, though not through actual communication with environmental or 'supernatural' forces. Rather, religion mitigates that stress by reinforcing networks of reciprocal altruism or creating new networks—membership in a

religious in-group entitles an individual to assistance from other members of the in-group, increasing that individual's fitness. This does not imply that religious identities are created by people as a conscious survival strategy—quite the opposite. Religion, like other human behaviors which encourage group cohesion, is a part of our evolutionary heritage, and stems ultimately from our nature as social creatures. For humans, as for all social animals, individual survival and fitness depend on group membership.

The Rastafari religion is discussed here as an example of some of the ways religion creates and reinforces group identities. Though not all religious groups accomplish those goals in the same way that Rastafari does, all religious groups use the same strategies (such as manipulation of kinship cues) to do so. Human groups have used religion to mitigate environmental stresses throughout our history (and probably our prehistory as well); we have done so because it works, and so we are very likely to continue doing so in the future.

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