CARGOISM AND SCIENTIFIC JUSTIFICATION IN THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE

by John W. Traphagan

Abstract. This article compares justifications of the search for extraterrestrial intelligence (SETI) presented by scientists with ideational constructs associated with cargo cults in Melanesia. In focusing on similarities between cargoism and SETI, I argue that, understood in terms of cultural practice, aspects of the science of SETI have significant similarities to the religious elements that characterize cargoism. Through a focus on the construction of meanings, I consider how SETI and cargoism use similar signification systems to communicate meaning related to local social contexts and I draw a parallel with the religious and meaning structure of cargoism to show that SETI and cargoism employ similar strategies to justify beliefs. As a result, in some ways SETI represents a scientific framework that inhabits cultural and epistemological space that overlaps with religious space.

Keywords: cargoism; cultural critique; scientific justification; SETI; signification

The search for extraterrestrial intelligence (SETI) represents an intriguing locus where religion and science are often perceived as intersecting. SETI is unusual among scientific endeavors, because over the course of its sixty-year existence it has failed to produce evidence of the thing it seeks—indications of a technological civilization away from Earth. There have been a few interesting moments, such as the reception of the Wow! Signal by Ohio State University's Big Ear radio telescope in 1977, a 72-second radio burst that came through at 1,420 megahertz, which is among the main frequencies at which hydrogen atoms emit and absorb energy. Use of that frequency would suggest knowledge of basic physics if sent by intelligent beings. However, in the forty years since, no similar signal has been intercepted and recent research suggests that the Wow! Signal may have been produced by a passing comet rather than alien intelligence

John W. Traphagan is Professor of Religious Studies and in the Program in Human Dimensions of Organizations at the University of Texas at Austin, where he is also a Mitsubishi Heavy Industries Fellow, Austin, TX, USA; e-mail: jtrap@utexas.edu.

(Emspak 2016). At this point, the only finding SETI research has produced is a lack of reliable empirical evidence of a technological society other than ours. This is not insignificant, because it may be an indication that technological civilizations are rare in the universe, as has been argued by some astrobiologists (Ward and Brownlee 2000), including ideas in a recent paper suggesting that life may be quite rare in the universe (Spiegel and Turner 2012). However, given the size of our galaxy alone, at about 100,000 light years across, the lack of such evidence may simply be a product of the distances between technological civilizations rather than a paucity of those civilizations. In part due to this perceived lack of progress, SETI has been the target of various criticisms related to the likelihood of success and, as Milan Ćirković argues, the criticisms of SETI from a scientific viewpoint often are conflated with the question of whether or not there is any rational basis for belief in intelligent extraterrestrial life (Ćirković 2013, 38).

Among the most prominent critiques of SETI is the idea that it represents more of a faith-based endeavor than scientific inquiry and, therefore, is better viewed as religion than science (Basalla 2006). Indeed, science fiction author Michael Crichton argued in a lecture at Caltech in 2003 that SETI was unequivocally a religion because it is based on faith, and for Crichton faith equaled belief in something that lacks evidence, which, in turn, equaled religion (Crichton 2003). Unsurprisingly, perspectives like Crichton's have not been particularly well-received in the SETI community. Writing for space.com, SETI Institute scientist David Darling noted that neither he nor Jill Tarter, former director of the Center for SETI Research at the SETI Institute, have much use for the SETI-*qua*-religion perspective because religions are characterized by (1) worship and devotion to "omniscient and supernatural" beings and (2) faith without empirical evidence (Darling 2006). As I will discuss below, neither of these universalistic definitions are accurate representations of religion from either theoretical or empirical perspectives, even if they do reflect many examples of the Abrahamic theological traditions with which these scientists may be culturally most familiar.

In this article, I argue that, although not representing religion in the sense associated with faith-based and theologically oriented traditions such as Christianity, SETI can be understood as a signification system that shares a great deal with some religious signification systems. Specifically, I draw a parallel between SETI and cargoism, which represents a type of religious/ritual structure that displays similarities with SETI and use this to show that SETI and cargoism employ similar strategies to justify beliefs. In so doing, I am at one level entering into the discussion of how religion and science are related to each other; however, I am not interested in exploring issues of integration or separation of religion and science along the lines of scholars such as Ian Barbour (1997; 2000, 2). In fact, in focusing on similarities between cargoism and SETI, I will avoid conceptualizing the

relationship as one between faith and science understood as epistemological frameworks that are in contrast and conflict with each other. Thus, I avoid entering into the discussion of whether or not religion and science are compatible (Kroesbergen 2018, 18). Rather than emphasizing the philosophical or theological underpinnings that shape religious and scientific approaches to understanding the world, here I consider how SETI and cargoism represent similar and even parallel semiotic systems through which scientists and cargoists communicate meaning related to local social contexts and justify action and belief on the basis of those meaning systems.

Before moving on, I want to point out that I largely avoid using "cargo cult" in this article, instead referring to "cargoism." Both of these terms refer to millenarian belief systems that have emerged in Melanesia following contact with outside, and technologically more advanced, societies. However, there are significant conceptual problems with the term "cult" that have been noted since the 1970s, particularly as it is used in the popular media, and this has caused the idea of cults to be difficult to employ from an analytical perspective. James Richardson has gone so far as to argue that we should avoid the term altogether in research on religion, perhaps replacing it with Robert Elwood's idea of "emergent religions" (Ellwood 1986; Richardson 1993, 355), because "cult" has come to have such a negative connotation in both public and scholarly discourses that it is analytically impotent. Although sympathetic to Richardson's argument, I am not convinced that the pursuit of extraterrestrial intelligence (ETI) is likely to develop into something scholars of religion would necessarily consider an institutional or even an informal religion, making it difficult to employ Elwood's ideas for my purposes in this article. In order to hopefully avoid some of the problematic aspects of the cult concept, I will as frequently as possible refer to cargoism as opposed to cargo cults throughout the article as has been common at least since Lamont Lindstrom's important work on cargoism (Lindstrom 1993).

THINKING ABOUT RELIGION

It is important to devote some space to clearly presenting my thinking about definitions of religion, because I want to be careful to avoid an approach to religion that draws from the Abrahamic emphases on faith as a basis for generating universalistic definitions, which is an unfortunate tendency in the literature on religion and science. This problem derives from an ethnocentric inclination to emphasize the importance of doctrine and belief typical of Abrahamic traditions as representing the true nature of religion. Ethnographic research in both anthropology and religious studies has shown, repeatedly, that analysis of religion from the perspective of belief and doctrine can easily lead scholars to overlook "the wider dimensions of socially inspired religious activity" associated with non-Abrahamic

traditions and even to miss the importance of practice in the context of Abrahamic religions (Reader 1991, 15). Several scholars of Japanese religions, myself included, have shown that, although there are certainly areas of Japanese religious behavior that emphasize faith, in general there is a tendency for Japanese to construct religiosity in terms of a primacy of action over belief (Traphagan 2004). As Ian Reader and George Tanabe note, Japanese people do not function within the context of a religious system that requires either faith or exclusive commitment to a single religious doctrine (Reader and Tanabe 1998). Instead, they see access to and use of religious motifs as situational, complementary, and tied to specific needs such as ritually marking death, marriage, or birth. Action, in the Japanese approach to religious behavior, is not generally dependent on belief or faith (Reader 1991, 16; Smyers 1999); instead, the most important element of being religious is engagement in appropriate ritual practices, such as ancestor memorialization at the family gravesite. One need not believe in the existence of ancestors as spirit beings to see the value of making ritual offerings and holding one's hands together in prayer in order to show one's concern for deceased loved ones. The same holds when considering Shinto practices that, although involving deities known as *kami*, are not typically socially constructed in terms of a requirement that one believes in the existence of the deities or has faith in their powers. There is significant social value in simply engaging in the rituals themselves as a way of generating and maintaining group solidarity through religious and ritual themes and practices, and people rarely raise questions about faith or belief in relation to participation in Shinto. Indeed, the term *kami* is so inclusive that it not only can include mythological spirit entities, but also natural objects such as trees, animals, or even humans; it is a rather vaguely defined term that does not translate well as "god" in the sense of a god requiring doctrinal and faith-based modes of thought and action (Earhart 2004, 5).

Although definitions, as Clifford Geertz notes (Geertz 1973, 90), generally do not do a great deal of intellectual work in terms of establishing the reality of anything, they can be useful as a way of guiding one's thought processes and establishing an explicit perspective from which to organize and analyze data. Religion is a difficult category to work with from an analytical perspective, in part because theoretical attempts at universalist definitions of religion have often led researchers to conceptually remove religion from culturally and historically shaped domains of power. Talal Asad points out that much of the effort to define religion is best understood as having been developed within the "context of Christian attempts to achieve doctrines and practices, rules and regulations" (Asad 1993, 29). This has generated a tendency among scholars of religion to assume that religion operates as a symbolic system that is in some way distinct from local social practices and power structures that are historically and culturally contingent. This way of viewing religion is, of course, itself historically and

culturally contingent, being a product of Western, scholarly frameworks for thinking about categories of behavior such as ritual, belief in spirit beings, and institutional frameworks associated with the construction of theologies.

In many non-Western societies, the concept of "religion" as a distinct category, either from a social or analytical perspective, has not obtained throughout most of history. In the case of Japan, the term for religion, *shūkyō,* consists of two ideograms (宗教) that mean sect and doctrine. This word came into use among intellectuals in the nineteenth century, not to describe Japanese religions—which often do not involve much in the way of interest related to doctrine among practitioners—but to represent a concept of religion that resulted from contact with Western Christian missionaries who brought a theologically driven approach to religion that was not typical in Japan at the time (and remains atypical today), although over time the term has come to refer to religion in a very broad sense and can include both Buddhism and Shinto (Krämer 2013; Reader 1991, 13).

Geertz, whose work related to religion Asad critiques on the grounds that he uses a universalistic definition that removes religion from historical and social practices and places it more in the realm of human cognition (Asad 1993), makes an important point that the religious worldview is one of several "perspectives" or ways of seeing the world that include the common-sense perspective, the aesthetic perspective, and the scientific perspective. The religious worldview is a "mode of seeing" or way of constructing reality that relies upon an epistemological assumption that to know requires belief (Geertz 1973, 110). This perspective differs from the scientific perspective because it does not draw on a sense of institutional skepticism, but instead emphasizes an ideology based on nonhypothetical truths as opposed to an ideology of systematic and deliberate doubt and disinterested observation. Geertz notes that science not only forms a different perspective from the religious, but also from perspectives such as the common-sense perspective, which relies on the simple "givenness" of the world without demanding a sense of questioning what one chooses to do with what is given (Geertz 1973, 111).

Although Asad raises some important problems with Geertz's definition of religion, the framework that Geertz employs remains useful for thinking about religion, in that, he sees religion as one among several different perspectives on the world, including the scientific, that people use—often simultaneously—to construct particular kinds of realities and truths expressed through symbolic structures. Indeed, each of these perspectives can function as a symbolic system that motivates action and generates an atmosphere of factuality that shapes and motivates behavior (Geertz 1973, 90).

Furthermore, when applied to religion, Geertz's approach does not necessitate faith on the part of the religious participant. Instead, it emphasizes

a cultural system that uses symbolic structures to shape the limits of thought and to motivate specific types of action. In religious frameworks such as the Abrahamic traditions, these structures tend to emphasize commitment, faith, and belief; in frameworks such as Japanese Buddhism and Shinto, these structures tend to emphasize ritual practice as a means of expressing concern over the well-being of self and others (Traphagan 2004). Neither of these are mutually exclusive, but one does find in reading ethnographic literature that the emphasis often varies in different cultural settings. An approach to thinking about religion such as the one I am using here is helpful in exploring the relationship between religion and science because it avoids the either/or type of analytical structures associated with science = fact/religion = faith formulations (Kroesbergen 2018). In place of this, one can consider both religion and science as including normative structures and meaning systems that shape behavior and structure the ways in which we approach problems—this is what Thomas Kuhn calls a paradigm or a coherent framework for understanding one's surroundings (Kuhn 1996). A faith-oriented approach to religion is an example of one type of paradigm for religious behavior, but again it is not the only approach. When using the concept of religion in this way, it becomes possible to argue that scientific endeavors like SETI may have sufficient similarities to religious endeavors to consider them as inhabiting a mutually shared cultural space that exists between largely writ and overlapping paradigms of religion and science understood as systems for communicating meaning.

Cargoism

Euro-American writing on Melanesian cargoism has a long history and considerable heterogeneity, making it difficult to adequately explore or summarize within the confines of an article (Jebens 2004). Indeed, although cargoism has religious elements, cargoist groups also involve complex social movements that often engage a critique of political power and racial inequality in the context of colonialism (Billings 1969; Traphagan 2018). Much of the cargo literature has centered on groups in Papua New Guinea as indigenous people have negotiated and navigated the encounter with outsiders during the twentieth century. The typical definition of a cargo cult used in anthropological literature is a millenarian movement in Melanesia that arose after contact with Europeans. In its simplest form the cargo cult involves a set of practices that occur following contact with more technologically advanced societies, which generates a crisis expressing social stress related to inequality that people attempt to address through rituals and other actions designed to access the power of the outsider, symbolically or practically represented in material goods.

For our purposes here, the key element is the belief among some Melanesians that ritualized acts like the building of an airplane runway would

result in the appearance of material wealth—particularly desirable Western goods—via ships or airplanes through some form of supernatural intervention (Buck 1989, 157). These desirable goods are the "cargo" associated with the activities of the cults, but the discourse related to the practices associated with cargoism is complex and includes a variety of interpretations, experiences, and definitions that not only involve analytical perspectives of anthropologists but also local definitions that have differentially influenced the ethnohistory of the various peoples involved (Hermann 1992, 56). Indeed, although some of these practices were aimed at bringing goods, cargoism has often formed a means to challenge existing social structures by creating "new ontological schemes for organizing human sociability" in a context of racial inequality imposed through the structures of colonialism (Billings 1969; Lattas 1998, xxvii).

Important in the discussion of cargo cults from a broader perspective is the fact that many of the Melanesians involved with these practices lived in a context where it was difficult to draw sharp lines between thinking and believing when it comes to cargo. Cargoism was not simply built upon belief in supernatural beings that might bring material wealth, but was a worldview that developed as a means of coping with the presence and persistence of European power and drew on cultural themes and practices that were already present in many of the groups (Young 1971, 43). Thus, cargoism represents an attempt to interpret and manage the context of contact, particularly in that it involves differential access to resources and, thus, power. In short, the appeal to cargo is a means to access the power of an Other—in this case technologically superior outsiders—as a way of communicating dissatisfaction with the features of an unpalatable local social context. Cargoism, therefore, can be viewed as forming a framework for expressing a desire to change the social conditions of a group's environment by changing the material conditions of that environment. Cargo contains both the practical capacity to change the status of the disenfranchised group through increasing wealth and the symbolic capacity to change that status through appropriation of the power of the outsider.

JUSTIFYING SETI RESEARCH

On the frequently asked questions (FAQ) page for the SETI Institute (https://www.seti.org/faq) toward the bottom under the heading of "Science Justification," there is an interesting question: Why do SETI at all? This is a reasonable question given that (1) there has been no success in the past sixty years if success is measured in terms of gaining awareness of alien technological societies or confirmation that they do not exist and (2) there are numerous problems here on our planet to which resources could, perhaps, be better directed. The answers to this question given on the SETI Institute website include practical reasons like potential technological

spinoffs and more abstract reasons such as the idea that SETI research may be able to address questions about how we fit into the biological scheme of the universe. The website raises the possibility that we might learn about the prevalence of intelligent life or may develop a better understanding of whether technological civilizations tend to be long-lived or implode in self-made catastrophes like nuclear annihilation or environmental destruction soon after achieving the types of technologies humans have developed.

These certainly would be interesting things to know about, but it remains unclear that such arguments are sufficiently strong to support significant investment in SETI at a point in time when our world faces major challenges like climate change. Following these relatively low-impact reasons for pursuing SETI, the website offers a loftier potentiality to justify investment of time and money in SETI research.

> If we could understand any signal that we detect, there's always the possibility that it would contain enormously valuable knowledge. It's likely that any civilization we discover will be far more advanced than ours, [sic] and might help us to join a galactic network of intelligent beings. But even if we detect a signal without being able to understand it, that would still tell us that we are not unique in the cosmos. The effect on society might be as profound and long lasting as when Copernicus displaced the Earth from the center of our universe.

This particular justification for SETI—as potentially placing us in contact with a technologically and morally superior civilization—is a fairly common trope in SETI meetings and literature and is partially based on the Drake Equation (an argument used to estimate the number of communicative extraterrestrial civilizations in the Milky Way Galaxy) and an assumption associated with the interpretations of variable L in that equation, which represents the period of time a technological civilization may exist. The limits on the age of a civilization have an impact on our capacity to detect a signal—the longer a civilization has been broadcasting, the more likely we are to encounter its signal. Contact optimists like Carl Sagan and Frank Drake have tended to assume that civilizations go through an "adolescent" phase, which humans happen to be in at the moment, where technology has reached a level that gives said civilization the power to self-destruct. Having progressed through that stage, the belief is that the civilization stabilizes, begins to expand into space, and may survive—and broadcast—for millions of years after its dangerous adolescence (Ćirković 2004, 227). Drawing on this line of reasoning, some scholars have argued in favor of the likelihood that extraterrestrial intelligence (ETI) will not even be biological, but will have existed long enough to have evolved into a postbiological form, which, given the speed at which humans seem to be hurling toward the invention of strong AI, may be an inevitable outcome for a civilization thousands of years older than our own (Dick 2003).

There are numerous assumptions in this interpretation of the Drake Equation, many of which stem from the fact that we only have a single data point—Earth—and, thus, have no basis for comparison in order to make reasonably educated guesses about what other civilizations might be like or how they might evolve. Ćirković notes that one of the more significant shortcomings of the Drake Equation is its emphasis on uniformity in the way it treats the physical and chemical history of our galaxy—the equation fails to take account of differences that might influence the emergence, abilities and length of existence of technological societies (Ćirković 2004, 228). To this I would add that it also fails to take into account unique cultural and historical features and variables of other potential civilizations that might significantly influence the patterns of development expressed and, thus, the length of time to develop communications technologies or the period of active transmission. Uniformitarian approaches to thinking about human civilization and cultural evolution have shown themselves to be largely nonstarters. The differences in how groups of people change over time are vast, as becomes clear by even a fairly cursory review of ethnographic literature, and the nonuniform natural history of our galaxy would suggest a nonuniform history of civilizations within our galaxy that needs to be taken seriously when thinking about other worlds harboring intelligent, technological life.

Problems with the Drake Equation notwithstanding, the idea that the longer a civilization broadcasts, the more likely it is to be detected seems fairly obvious. But beyond the fact that any signal we get may come from a civilization much older than our own, there is little we can say about what that means. The problem has not stopped SETI scientists from speculating and often concluding that it means good things for humans. One example of this sort of optimistic justification for SETI can be found in Jill Tarter's 2009 TED talk, in which she argues that discovery of an alien civilization might be the impetus needed to bring together humans and lead us to recognize our common humanity (Tarter 2009). Tarter has been a major proponent of this optimistic attitude toward discovery of intelligence away from Earth, but there has been a fairly vibrant debate in the SETI community about whether or not ETI would be altruistic as opposed to being bent on imperialist expansion (Vakoch 2014). Typically, proponents of the trope that ETI would be altruistic base their conclusions on the idea that technological advancement and moral advancement happen together (despite the lack of evidence on our own planet to support this correlation) and, thus, advanced aliens would be interested in sharing advanced technology with humans to help us sort out our many problems (Traphagan 2015).

For my purposes here, I will set aside the debate about whether or not ETI would be nasty or nice and, instead, focus on the justification for

SETI research offered on the SETI Institute FAQ page and in sources such as Tarter's TED talk that argue contact is likely to be good for humans and, specifically in the case of the FAQ page, the idea that an advanced alien civilization would be altruistic and interested in helping us become members of a galactic network of civilizations or that discovery of ETI might be as profoundly important for humans as Copernicus' theoretical work displacing Earth from its place at the center of the universe. Both of these ideas are quite interesting in the way they reflect thinking about the purposes of SETI research, and they lead in a direction that shows important parallels with the forms of thinking evident in religious frameworks like cargoism.

SETI, BELIEF, AND RELIGION

Before continuing, I want to reemphasize the fact that, contrary to comments by critics who argue that SETI is faith-based, belief in the possibility of advanced alien civilizations that might be able to help humanity through a rough patch in our history is not necessarily evidence for conceptualizing SETI as a religion. At the moment, I believe that my dogs are at home sleeping while I write at my office on campus; however, I do not know that. They may be chewing a chair leg, barking at one of the endless nonexistent threats to our house they hear, or peeing on the rug (hopefully not that one). Empirical evidence that I have gathered through observation over the years suggests that sleeping is the most likely activity, with barking at imaginary threats a possible close second—I have observed their behavior when I am the only one at home and this seems to occupy most of their time and rarely do I encounter evidence of gnawing or peeing. My belief about their behavior in this case is not grounded in faith, it is grounded in evidence. But I still do not actually *know* what they are doing and I comfortably accept the fact that I could be wrong in my beliefs.

We have a great deal of empirical data about the existence of exoplanets orbiting stars other than our own and a growing body of research related to the possible nature and habitability of 2,500 confirmed exoplanets that have been discovered to date (Seager 2013). Research on exoplanets provides some good reasons to speculate that our civilization may not be alone in the galaxy, although it is certainly possible this hypothesis is unsupportable. That said, to believe that there are intelligent and highly advanced beings on other worlds does not require faith, nor does it require belief in spiritual beings, which is the definition of religion that nineteenth-century anthropologist E. B. Tylor developed (Tylor 1871). Of course, there are many other definitions of religion to which we might appeal, such as Émile Durkheim's notion of religion as a structure that generates moral and social cohesion in groups of people and for which society functions as the *de facto* deity of said group (Durkheim [1912]2012). But Durkheim's definition

also works fairly well for nonreligious organizations, like governments, so not only do we have a problem of identifying SETI with religion, we have an ongoing problem with trying to determine what a universal definition of religion might be, and, in fact, as I discussed earlier that is likely to be impossible.

Anthropologist Melford Spiro does offer one way of thinking about religion that may be useful here. Spiro notes that all religious organizations consist of (1) belief systems or collections of ideas about the cosmos, (2) action systems that are designed to achieve particular ends, and (3) value systems on which principles are based and used to judge the merits of actions and beliefs. For Spiro, what distinguishes these is that all three systems in some way reference superhuman beings (Spiro 1966, 98). Note that Spiro does not make use of concepts like faith, nor even a requirement that there be gods. He simply argues that religion involves a systematic pattern of thought and behavior that references superhuman beings. In this sense, Spiro's view of religion has connections to Geertz's point that the religious worldview is a perspective or way of seeing the world, although for Spiro it does not necessarily emphasize belief as a prerequisite to knowing. As Spiro is presenting it, that worldview emphasizes the postulation of superhuman beings and, in fact, often organizes life in some sense around those belief systems related to those postulated beings.

Using this approach to thinking about religion, SETI would seem to have several features that suggest similarities with religion. First, SETI is organized around a belief system about the cosmos that assumes historical uniformity leading to a reasonable chance of civilizations similar to our own emerging and having communicative abilities that would allow us to exchange information. Second, there are clear action systems that are associated with the belief system. These action systems take the form of the search itself and the associated discussions and debates connected to that search that shape how SETI scientists imagine the aims of their actions and justify their work. Third, both action and belief systems are guided by principles, expressed in the form of a scientific paradigm that limits the scope of acceptable thought through mechanisms such as peer review and tends to provide a general direction and momentum to the institutional flow of ideas (Kuhn 1996). In this sense, SETI is like any other human institution and should be understood as being embedded in social and cultural context. But is it like a religion?

This is where I think Spiro's approach becomes quite interesting as a way to think about and categorize SETI as a social activity. In fact, from Spiro's perspective SETI can be viewed as having much in common with religion if it is understood as being oriented around gaining help from "superhuman" aliens who have technological and moral abilities beyond our own and who may be willing to altruistically assist us in solving our many earthly problems, because all three systems are oriented around

one unifying feature—a concern with superhuman beings, in this case in the form of intelligent aliens. At the center of this way of thinking about SETI is the tendency of some SETI researchers to justify their belief and actions systems in terms of an epistemological framework that emphasizes grand benefits to humanity. This is particularly common when SETI scientists are accused of engaging in activities that may not actually produce results beyond a dismayed sense that nobody is home anywhere else in our galaxy or at least not anywhere nearby (Davies 2010). SETI drifts into the religious, from the perspective of Spiro's definition, when it moves toward a justificatory structure that posits ETI as superior beings who could provide us with knowledge that will in some way change our world—either through concrete technologies that we could employ to solve problems like hunger or through somehow changing humanity's perspective(s) on the universe and on itself. And this form of SETI *qua* religion has strong similarities with the ideas of cargoists in Melanesia. In short, scientists and others who argue that ETI might save humanity from itself are claiming that the search for ETI has the potential to generate *cargo*, in the form of knowledge and technology, that could be beneficial in solving the problems of our own civilization.

SETI as Cargoism?

To understand this point more clearly, it will be helpful to provide an example. In the early 1960s a cargo cult developed among residents of New Hanover, Papua New Guinea that captured the interest of many Americans. Members of what is known as the Johnson Cult managed to raise $1,000 that they wanted to send US President Lyndon B. Johnson (LBJ) in hopes that they might encourage him to become their leader (Lindstrom 1993). As the cult developed, over seven thousand people in New Hanover refused to follow standard balloting protocols, instead arguing that they wanted to vote for LBJ. Their interests in the US president seem to have been generated through positive contacts with US service personnel, who shared food and goods and paid well for work (Billings 1969, 13). In her discussion of the Johnson Cult, Dorothy Billings notes that appeals to the supernatural were not important parts of the discourse—cultists tended to believe that results would be achieved through the practical action of collecting cash as a means of attracting the "superhuman" outsider in the form of LBJ rather than through ritual performances attempting to enlist the powers of spirit-beings as in the cases of other examples of cargoism.

Billings notes that it is unlikely most New Hanoverians believed Johnson would actually become their leader (or that he was superhuman) and the cargoists did not build air strips or models of airplanes, as has been common in other cargo cults. Instead, the behaviors of the New Hanover cargoists may have been the result of a need to construct a belief system as a source

of hope in the face of domination by the colonial Australian government. The cult provided a framework through which members could express dissatisfaction with the colonial status quo through the construction of an alternate epistemological and cosmological paradigm that contested the realities of the colonial paradigm in which they lived.

A reasonable interpretation of the Johnson Cult, like many other millennial movements, is to view it as representing a belief and action system through which people express, either overtly or tacitly, concern and dissatisfaction with the status quo among those who may feel marginalized or disempowered within larger political and social contexts. Thus, cargoism takes on the features of a discourse through which people engage in a form of cultural critique. For the residents of New Hanover, the Johnson Cult does not actually appear to have been about obtaining Johnson as a leader but was a way to enact and express a discourse of resistance in the context of colonial domination. As such, it represents a critique of the dominant political and social context via an epistemological framework intentionally constructed as distinct from the one shaping the administrative schema of social dominance operating under Australian rule (Dalton 2004, 197).

The Johnson Cult is not unique in functioning as an interpretive and expressive framework for critiquing a problematic social and political context. Ton Otto notes that in many cases the Melanesian notion of cargo operated not simply as an interpretation and expression of cultural ideas, but as a means to reappropriate sources of wealth and power and "to regain local autonomy" while establishing a sense of social identity shaped by unequal access to power and wealth (Otto 2004, 222). And, in several examples, cargo cults function like other millennial movements in that they construct and express an alternate reality where the human condition is presented in terms of disempowerment, and access to some sort of external power—cargo—generates a framework in which good is able to supplant evil (Lee and Sims 2007, 108).

If we return to the discussion of justifications for SETI, it seems that it has elements in common with cargoism. Most notably, SETI scientists appeal to the acquisition of cargo—in the form of knowledge and help—from a powerful external outsider, in this case an imagined outsider, that can in some way solve the problems facing the world in which those scientists live. Empowered extraterrestrials, who are constructed as "superhumans" or super-beings with advanced technologies and moral abilities that would allow them to solve our social and political issues on Earth, are placed into contrast with disempowered humans. Beyond this, according to some examples of this theme of SETI justification, said super-beings might offer us entrance into a galactic community that seems as though it would be characterized by peace and cooperation among these superior beings who have material capital in the form of advanced technology and intellectual capital in the form of scientific and moral abilities far beyond our own.

All of this looks quite similar to cargoism, but other forms of justification for SETI also contain themes that reflect cargo-thinking. As noted earlier, leaders in the SETI community, such as Jill Tarter, often argue that the value in SETI is that, by placing humanity in cosmic perspective, it will show us that "we are all the same" and trivialize differences among humans that lead us to engage in activities like warfare (Coles 2017). In other words, simple knowledge of the existence of powerful aliens is a type of cargo interpreted as having the potential to lead us in the direction of solving the social, economic, and political problems we face on Earth—even if the aliens don't help us. This sentiment is not only expressed by SETI scientists, but also by exoplanet astronomers and astrobiologists more generally, who frequently argue that finding another world like Earth ought to change how humans view their place in the universe (Messeri 2016, 191). In this sense then, SETI can be viewed as being an example of cargoism operating within the confines of the scientific community. In arguing this, I am not stating explicitly that it is a religion—but it clearly has a great deal in common with epistemological underpinnings of religious structures like cargo cults in the way SETI scientists approach the construction of systems of action, belief, and the justification of those actions and beliefs. In other words, there are significant epistemological overlaps.

Of course, there are also significant differences between cargoism and SETI. Perhaps most importantly, SETI scientists are primarily focused on obtaining empirical data rather than engaging in social critique through their justifications for research. The daily praxis of SETI is one of analyzing data gathered through radio telescopes and other technologies with the aim of finding evidence of a technological civilization elsewhere in our universe; much of the justificatory activities of SETI are done in response to a social environment in which the work is questioned rather than in response to a political environment that is unsatisfactory, even if dissatisfaction with the local social and political environment influences the ways in which justification for SETI is presented.

CONCLUSION

As David Wilkinson notes, scientific inquiry is not pursued within a vacuum; scientists engage in trying to answer questions about the universe, but also are faced with the social realities of needing to justify their work in order to maintain relevance and access funding (Wilkinson 2013, 6). Scientists operate in a social context and sometimes justify the importance of their work on the grounds that it will provide major insights into our world or may change the ways in which we live in our world (Wilkinson 2013, 13). By drawing on a non-Western example of religious behavior and attempting to see two distinct social phenomena in terms of local frames of understanding, we are able to develop an interesting way of thinking

about religion and science (Geertz 1983). As I have considered these examples, comparison shows parallels in the thought processes occurring among both groups. For SETI scientists and cargoists, there is a sense at one level in which the thing sought is the power of an outside other who can in some way address perceived problems in the local social order through the provision of cargo conceptualized either in the form of material goods or knowledge. That power may be accessed even if there is no interaction with the alien other because it is argued that mere knowledge of the other could dramatically change our world. In the case of the Johnson Cult there are significant similarities, in that it would seem the cargoists in New Hanover were hoping that the attempt to lure LBJ as their leader would influence locals to follow a more enlightened approach to governance that would change the local social and political context, much like SETI scientists often justify their activities via ideas that extraterrestrials will bring new technological abilities to address our woes or that knowledge of ETI will generate abilities in humans that might help us solve our problems here on Earth.

By viewing SETI and cargoism in this way, we can see how both scientific and religious frames can operate as symbolic systems that, rather than being distinct from local contexts of praxis, are products of those contexts and, thus, are historically and culturally contingent. The manner in which SETI scientists and cargoists express their ideas, including beliefs about the power of alien or outside Others, reflects dissatisfaction with the status quo related to their local social and cultural contexts. In the case of the cargoists it is dissatisfaction with colonialism; in the case of SETI scientists it is dissatisfaction with human progress in alleviating social problems such as war and poverty. In other words, both the religious framework of cargoism and the scientific framework of SETI can be understood as signification systems through which individuals communicate perspectives on the world that contain complex symbolic structures conveying meanings associated with disempowerment and self-identity at a local level (Eco 1976, 316). For New Hanoverians the local frame is their immediate community in the context of larger colonial civilizations; for SETI scientists, it is the local community of Earth in the context of imagined larger interstellar civilizations that are not perceived as being colonial in nature (which may be rather naïve). Both examples, at least in part, represent frameworks for expressing interests in changing local social conditions by changing the material conditions of the social and political environment. For some SETI scientists at least, there is a common belief that infusion of knowledge of ETI throughout human civilization would disrupt the current Earthly social and cultural context and potentially lead to the solutions for our problems.

The conceptual frameworks used to justify belief and action are parallel in that they both function as social practices employed to criticize ideological elements of the cultural contexts in which individuals and groups are embedded and they both accomplish this via the construction of extended

metaphors, or myths, that help individuals make sense out of their cultural environments (Lakoff and Johnson 1980, 185–86). Although the methodologies for obtaining knowledge associated with the science of SETI and the religion of cargoism are different, there is significant overlap in their semiosis or the process through which meaning is generated. Both SETI and cargoism represent social constructs that convey social meanings, and both do so using very similar themes related to accessing and obtaining the powers of super-beings from outside the local context of invention. This analysis suggests that both SETI and cargoism inhabit similar or overlapping epistemological spaces within the context of cultural production and the comparison is a useful way of viewing the scientific endeavor of SETI research as being equally an expression of cultural critique. Analysis along the lines I have developed here also represents a useful approach for more broadly thinking about the underlying similarities between scientific and religious worldviews and practices from the perspective of cultural critique.

REFERENCES

Asad, Talal. 1993. *Genealogies of Religion: Discipline and Reasons of Power in Christianity and Islam*. Baltimore, MD: Johns Hopkins University Press.
Barbour, Ian G. 1997. *Religion and Science: Historical and Contemporary Issues*. San Francisco, CA: HarperSanFrancisco.
———. 2000. *When Science Meets Religion: Enemies, Strangers, or Partners?* San Francisco, CA: Harper.
Basalla, George. 2006. *Civilized Life in the Universe*. New York, NY: Oxford University Press.
Billings, Dorothy K. 1969. "The Johnson Cult of New Hanover." *Oceania* 40:13–19.
Buck, Pem Davidson. 1989. "Cargo-Cult Discourse: Myth and the Rationalization of Labor Relations in Papua New Guinea." *Dialectical Anthropology* 13:157–71.
Ćirković, Milan M. 2004. "The Temporal Aspect of the Drake Equation and SETI." *Astrobiology* 4:225–31.
———. 2013. "Who Are the SETI Sceptics?" *Acta Astronautica* 89:38–45.
Coles, Sarah. 2017. *Making Contact: Jill Tarter and the Search for Extraterrestrial Intelligence*. New York, NY: Pegasus Books.
Crichton, Michael. 2003. "Aliens Cause Global Warming." Caltech Michelin Lecture, 17 January. Available at http://climatechangedispatch.com/images/PDFs/CrichtonCaltech2003.pdf
Dalton, Doug. 2004. "Cargo and Cult: The Mimetic Critique of Capitalist Culture." In *Cargo, Cult, and Culture Critique*, edited by Holger Jebens, 187–208. Honolulu: University of Hawaii Press.
Darling, David. 2006. "Of Faith and Facts: Is SETI a Religion?" Available at https://www.space.com/2451-faith-facts-seti-religion.html
Davies, Paul. 2010. *The Eerie Silence: Renewing Our Search for Alien Intelligence*. Boston, MA: Houghton Mifflin Harcourt.
Dick, Steven J. 2003. "Cultural Evolution, the Postbiological Universe and SETI." *International Journal of Astrobiology* 2:65–74.
Durkheim, Émile. [1912]2012. *The Elementary Forms of the Religious Life*, translated by Joseph Ward Swain. Mineola, NY: Dover Publications.
Earhart, H. Byron. 2004. *Japanese Religion: Unity and Diversity*. Belmont, CA: Wadsworth/Thomson.
Eco, Umberto. 1976. *A Theory of Semiotics*. Bloomington: Indiana University Press.
Ellwood, Robert. 1986. "The Several Meanings of Cult." *Thought: Fordham University Quarterly* 61:212–24.
Emspak, Jesse. 2016. "ET's Wow! Signal May Be Just Comets." *New Scientist* 229:12.

Geertz, Clifford. 1973. *The Interpretation of Cultures*. New York, NY: Basic Books.
———. 1983. *Local Knowledge: Further Essays in Interpretive Anthropology*. New York, NY: Basic Books.
Hermann, Elfriede. 1992. "The Yali Movement in Retrospect: Rewriting History, Redefining 'Cargo Cult'." *Oceania* 63:55–71.
Jebens, Holger. 2004. "Introduction: Cargo, Cult, and Culture Critique." In *Cargo, Cult, and Culture Critique*, edited by Holger Jebens, 1–14. Honolulu: University of Hawaii Press.
Krämer, Hans Martin. 2013. "How 'Religion' Came to Be Translated as 'Shūkyō': Shimaji Mokurai and the Appropriation of Religion in Early Meiji Japan." *Japan Review* 25:89–111.
Kroesbergen, Hermen. 2018. "An Absolute Distinction Between Faith and Science: Contrast without Compartmentalization." *Zygon: Journal of Religion and Science* 53:9–28.
Kuhn, Thomas. 1996. *The Structure of Scientific Revolutions*, 3rd ed. Chicago, IL: University of Chicago Press.
Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago, IL: University of Chicago Press.
Lattas, Andrew. 1998. *Cultures of Secrecy: Reinventing Race in Bush Kaliai Cargo Cults*. Madison: University of Wisconsin Press.
Lee, Martha, and Herbert Sims. 2007. "Millenarianism and Violence: Origins and Expression." *Journal for the Study of Radicalism* 1:107–27.
Lindstrom, Lamont. 1993. *Cargo Cult: Strange Stories of Desire from Melanesia and Beyond*. Honolulu: University of Hawaii Press.
Messeri, Lisa. 2016. *Placing Outer Space: An Earthly Ethnography of Other Worlds*. Durham, NC: Duke University Press.
Otto, Ton. 2004. "Work, Wealth, and Knowledge: Enigmas of Cargoist Identifications." In *Cargo, Cult, and Culture Critique*, edited by Holger Jebens, 209–26. Honolulu: University of Hawaii Press.
Reader, Ian. 1991. *Religion in Contemporary Japan*. Honolulu: University of Hawaii Press.
Reader, Ian, and George Tanabe, Jr. 1998. *Practically Religious: Worldly Benefits and the Common Religion in Japan*. Honolulu: University of Hawaii Press.
Richardson, James T. 1993. "Definitions of Cult: From Sociological-Technical to Popular-Negative." *Review of Religious Research* 34:348–56.
Seager, Sara. 2013. "Exoplanet Habitability." *Science* 340(6132):577–81.
Smyers, Karen A. 1999. *The Fox and the Jewel: Shared and Private Meanings in Contemporary Japanese Inari Worship*. Honolulu: University of Hawaii Press.
Spiegel, David S., and Edwin L. Turner. 2012. "Bayesian Analysis of the Astrobiological Implications of Life's Early Emergence on Earth." *Proceedings of the National Academy of Sciences* 109:395–400.
Spiro, Melford E. 1966. "The Problem of Definition in Religion." In *Anthropological Approaches to the Study of Religion*, edited by Michael Banton, 87–95. London, UK: Tavistock Publications.
Tarter, Jill. 2009. "Join the SETI Search." Available at https://www.ted.com/talks/jill_tarter_s_call_to_join_the_seti_search
Traphagan, John W. 2004. *The Practice of Concern: Ritual, Well-Being, and Aging in Rural Japan*. Durham, NC: Carolina Academic Press.
———. 2015. *Extraterrestrial Intelligence and Human Imagination: SETI at the Intersection of Science, Religion, and Culture*, edited by Douglas A. Vakoch. New York, NY: Springer.
———. 2018. "Cargo Cults and the Ethics of Active SETI." *Space Policy* 46:18–22.
Tylor, E. B. 1871. *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Art, and Custom*. London, UK: John Murray.
Vakoch, Douglas A., ed. 2014. *Extraterrestrial Altruism: Evolution and Ethics in the Cosmos*. Heidelberg, Germany: Springer-Verlag.
Ward, Peter D., and Donald Brownlee. 2000. *Rare Earth: Why Complex Life Is Uncommon in the Universe*. New York, NY: Copernicus.
Wilkinson, David. 2013. *Religion, Science, and the Search for Extraterrestrial Intelligence*. Oxford, UK: Oxford University Press.
Young, Michael W. 1971. "Goodenough Island Cargo Cults." *Oceania* 42:42–57.