

An Introduction to Science for the Academic Study of Religion

A SUMMARY STATEMENT:

Lecture #1: Science and the Academic Study of Religion

The purpose of my first lecture was to disclose the serious ambiguity in the major concepts related to the field of “religious studies” (the use of the scare-quotation marks here is to indicate that even the name of the field is problematic in that many think we should be talking about a “discipline” rather than a “field of studies”). The phrase “academic study” is also problematic in that it usually refers to the kinds of studies that are legitimated by colleges and universities which does not guarantee that the “studies” of religion undertaken in them are genuinely scientific in nature. But the major terminological problems, for whatever departments in modern research universities that are committed to developing a “science of religion,” concern disputed understandings of both concepts – “religion” and “science,” that is, are essentially contested” concepts today.

The concept of religion has largely been used as a general term to refer to a “reality” that is expressed differently in the various religions (religious traditions) in the world. This usage lends itself to seeing this “reality” as evolving through the centuries of human history from crude primitive expressions to a refined form of “spirituality.” It was noted that more than a hundred definitions of religion have been provided by scholars over the past century or so, and that there is no indication of a convergence of opinion on the matter which suggests that “students of religion” are not really aware of what they are seeking to explain.

I argued that students of religion could avoid this confused, and confusing, discussion over the definition by assuming that “religious studies” within the framework of the modern research university ought to be included among the social sciences and that their specific object of research should then be forms of human behavior that are “religious” – that is, behavior that is connected in some fashion or other to beliefs in supernatural/transcendent agents, events, or states deriving from “experiences” of non-ordinary or everyday states of affairs in the world and collectively produce institutions (religions) of culturally patterned interaction between humans and such supernatural realities. The object of such a scientific practice, then, is to seek knowledge about such beliefs and behaviors – religious thought and practice – that can be put into empirically and theoretically testable propositional claims.

The concept of “science,” especially since the rise of postmodern forms of thought, is also deeply compromised. I argued that it will be helpful to avoid the term when possible and refer rather to the various “scientific enterprises,” found in modern research universities today, that are concerned with achieving knowledge about the world and states of affairs in the world that can be put into empirically and theoretically testable propositional form.

Lecture #2: *The Roots of Science*

A primary concern in this lecture is to undermine the rather loose usage of the notion of scientific thought and practice that sees it emerging in long before the emergence of *Homo sapiens*. It focuses attention on understanding the deep history of the human cognitive capacities which humans share with their primate forebears, the prehistoric cultural development in human society that made possible a species-specific form of knowledge that distinguished humans from other primates, and an historical-cultural mode of thought in ancient Greece that laid the foundation for the emergence and development of the modern sciences.

It is obvious that all organisms need to know the physical environment in which they exist if they are to survive and reproduce. Such basic cognitive capacities as perception, memory, and the capacity “to conceptualize” are available to most species at or shortly after birth so as to distinguish, for example, animate from inanimate things in the world. This knowledge is not the product of experience nor of conscious reflection but is, rather, hardwired into the organism’s nervous system or brain. Among primates such “systems of knowledge” include what have been called “folk physics,” “folk biology,” and “folk psychology,” among other capacities. For more complex primates, one might also see a hard-wiring related to psycho-social realities. Overviews and theories of primate cognitive development can be found Merlin Donald’s *Origins of the Modern Mind: Three Stages in the Evolution of Cognition and Culture* (1991) with transitions from pre-human primate’s reliance on episodic memory and living lives of an episodic form, to mimetic capacities in early hominids permitting a degree of communication and learning that made possible more cohesive social life, to the discovery of language that made possible a mythic-narrative mode of existence that allowed for elaborate kinship systems including fictive kin; Stephen Mithen’s *The Prehistory of the Mind* (1996) in which the human brain is seen to emerge first as a general learning machine with the subsequent evolution of domain specialization which, in turn, ultimately become integrated with the brain as a general learning machine; and Michael Tomasello’s two works: “*Cultural Origins of Human Cognition* (1999) and *A Natural History of Human Thinking* (2014) which traces species-specific development that because of major changes in the environment produced, first (at about 400,000 year ago), a greater degree of cooperative behavior for facing a new and more dangerous environment and, second (about 200,000 years ago), ways of institutionalizing this increased cooperative behavior.

Lecture #3: *From Mythopoetic to Rational Thought and the Birth of a New Cultural Value*

The historical-cultural developments that ultimately laid the foundations for the emergence of the modern Western sciences emerged with the ancient Greek cosmologists – a period often referred to as the Pre-Socratic Enlightenment. The socio-cultural and political ethos of Miletus in the sixth century BCE made possible the emergence of a new set of intellectual interests limited simply to seeking knowledge about the origin and operation of the physical cosmos, and a new methodology for achieving and testing the claims they made about the cosmos. In this they, quite unconsciously, created a new cultural value that can be formulated as seeking knowledge for the sake of knowledge alone. And in expecting such knowledge to be formulated in testable propositional claims they espoused reason (and evidential appraisal wherever possible) as the

only avenue to obtaining such knowledge and therefore as autonomous. In this, they supplanted the mythopoetic mode of thought that had governed human intellectual endeavor to that point in human history, but also disenchanting the world in replacing reliance on revelations about the role of the gods in the origin and operation of the cosmos but made the gods themselves objects of explanation. As George de Santillana puts it: “What made the Ionian way ‘physical’ is that the cause of things is no longer imagined in a dramatic or mythical way, but as some kind of primordial – and stable – substance” (1961/1970, 22).

William Arthur Heidel writes: “That the Greeks developed science can be denied only if one defines the name in terms which are applicable to nothing but the most recent formulas” (1933, 1). One can understand this sentiment, but it is important to recognize that even though the Greek cosmologists broke with mythopoetic modes of thought, they did not establish a scientific enterprise. Sambursky talks of “Greek science” and notes that their approach to understanding the natural world was rigorously mechanistic (1956/1962, 143) but recognizes that they rather, “opened up a new era in the history of systematic thought” and therefore fomented a revolutionary departure from the mode of thought that preceded them (18, 31). In this it does, as he claims, appear similar in style to the work of the investigators who actually created science in the seventeenth century. Opinions differ among scholars on this point, but I think it important that we understand how much more complex the modern scientific enterprise really is, involving not simply empirical observation and critical argument, but a richer notion of a culture of criticism which is so heavily dependent on an “open society, the institutional protection of non-moral instruments of research in the modern university setting, and the critical role of experimental observation in testing theories, among other characteristics of modern science.

Lecture #4: The Birth of Modern (Western) Science: The Re-Emergence and Improvement of the Pre-Socratic Agenda

The Revolution in thought created by the ancient Greek cosmologists generated a multi-generational project devoted to accounting for the cosmos – and human existence in it – in materialist terms. This project culminated in the brilliantly imaginative atomic theories of Democritus and Leucippus; but it also came to an end in the fourth century BCE. As one historian of Greek thought put it, there was “a failure of nerve” to follow through on this science-like mode of thought because it could not provide a “comfortable” account of the meaning of human life. Succeeding philosophers did not provide alternative accounts of the cosmos but rather simply maintained that there were more important questions to resolve than questions about the fundamental substance of which the cosmos is made, and the mechanisms of transformation of that substance in producing the multiplicity of “things” one finds in the world. Socrates is the chief figure in initiating a counter-revolution. He rejected as ephemeral the new interest of the Milesian cosmologists about the physical universe and redirected intellectual attention to what we today call “the search for meaning.” In turning his back on this incipient naturalist tradition in understanding the world Socrates also – implicit in his intellectual stance – rejected the new cultural value of “knowledge for the sake of knowledge alone” that had, quite unconsciously, been created by the cosmologists. This also involved a rejection of their reliance on reason alone to justify their epistemic claims. Socrates substituted “right reason” for the reason of the Milesians: “right reason” was identified with a process of inquiry directed to

achieving a meaningful, moral life whereas the “autonomous reason” upon which the Milesians relied amounted simply to a non-moral instrument of inquiry free from any and all determination by “human interests” other than epistemic (knowledge) interests.

Plato provided this Socratic counter-revolution with an elaborate meta-physical system that provided it with a science-like justification, drawing on the work of many of the philosophers in the Pre-Socratic tradition. Neither Socrates nor Plato, however, added anything new into Greek thought; indeed, they returned to modes of thought that resorted to myths in providing explanations and substituted one kind of agentic view of the world for another. Aristotle’s work, on the other hand, did capture much of the Milesian revolution in thought. And although his work was lost for centuries, it eventually emerged in Europe via Muslim scholarship at a period of time when economic prosperity made necessary the training of secular clergy which in turn necessitated special schools for training them. It is in the context of the cathedral schools – and their ultimate transformation into the earliest universities in Europe – that Aristotelianism took root and re-introduced the new cultural value and commitment to reason as a non-moral instrument of inquiry into European thought. (The legal revolution in Europe arising out of the investiture controversy created the idea of separate and autonomous jurisdictions of Church and Academy that provided intellectuals with the university as a “neutral space” in which they could carry work relatively free of ecclesiastical control. Toby Huff puts it like this: “When all of these elements were finally assimilated into the discourse of the universities by the end of the thirteenth century, along with the formal elements of the Aristotelian corpus, a powerful methodologically sophisticated intellectual framework for the study of nature had been institutionalize” (1993, 337).

The Scientific Revolution in the physical sciences in the sixteenth century (Copernicus and Galileo among others), and the Age of Discovery from the fifteenth century and on that brought massive amounts of information about non-European religions into Europe contributed to the rise of the Radical Enlightenment and the creation of a “culture of criticism” that open up the socio-spiritual worlds created by humans to critical scientific attention. The synergism between modern science and the growth of technology (with its contribution to economic prosperity) led to the transformation of the traditional university into the modern research university at the beginning of the nineteenth – its intellectual ethos being well described by Julie Reuben in her *The Making of the Modern University: Intellectual Transformation and the Marginalization of Morality* – an institution committed to gaining causal-connection knowledge of the world for its own sake, un-trammeled by human interests.

Lecture #5: *The Nature and Structure of Modern Science*

Preliminary Comments

In *The Trouble With Science* (1995) Robin Dunbar maintains “that the scientific method is not merely typical of all humans but is also a key feature in the lives of most birds and mammals” (58). He therefore calls these animals “nature’s own scientists” (59). Other scientists have in similar fashion talked of human infants as “scientists in the crib” and “philosophical babies.” There is no denying that there is a continuity between the cognitive capacities of our primate

forebears or the cognitive capacities of human at or shortly after birth and those of adult human beings. However, to deny difference and discontinuity in the development of human cognitive capacities either in their evolutionary history or in their maturational development cannot be justified and ignoring the differences and discontinuity can only cloud understanding of the nature of modern science. E. O. Wilson captures this difference between the evolutionary and developmental capacities of our archaic ancestors and contemporary infants beautifully: “In the ultimate sense, our brain and sensory system evolved as a biological apparatus to preserve and multiply human genes. But they enable us to navigate only through the tiny segment of the physical world whose mastery serves that primal need. Instrumental science has removed that handicap” (1998, 52).

Steven Mithen shows convincingly that “[b]y the end of the last ice age the complete cognitive foundations for science appear to have been in place” (2002, 40). However, he also notes that “... the emergence of science as a discrete domain of behaviour is likely to have required a suite of social, historic, and economic circumstances that had not yet arisen in human thinking” (2002, 40). Merlin Donald and Michael Tomasello have also shown that in the evolution of *Homo sapiens* there emerged a species-specific mode of thought dependent upon socio-cultural developments rather than special genetic changes in the species. And historians of science have also shown that with the advanced socio-cultural and intellectual developments in ancient Greece a non-mythical mode of thought emerged that can reasonably be described as non-natural or unnatural in that it created a way of “packaging” its knowledge of the world without resorting to using the form of a story with a plot (Alexander Rosenberg 2011, 14).

There is widespread agreement among philosophers, historians, and scientists that the intellectual developments in ancient Greece amounted to a revolution in thought that produced two significant advances toward a fully scientific way of thinking: (i) the creation of a new cultural value of seeking knowledge (of the world and its contents), expressible in propositional form, for the sake of knowledge alone, and (ii) reliance upon critical rational thought (reason) and empirical observation for the rejection or acceptance of propositional claims about the world and its contents. A fully scientific mode of thinking, however, did not emerge until the Scientific Revolution of the sixteenth century of the Common Era.

The Nature of Modern Scientific Thought

Two cautionary notes:

John Passmore – “There is no established method, whether it be inductive or deductive, of getting things right. There are only methods which will make it less likely that the scientist will commit certain kinds of errors”;

Wolpert – “... defining the nature of science and scientific method with rigor and consistency turns out to be extremely difficult. It is even doubtful that there is a scientific method except in very broad and general terms” (101).

In *Defending Science Within Reason* (2003) Susan Haack provides a clear, non-technical introduction to what the modern scientific enterprises amount to. She notes from the beginning that the sciences are not our only avenues for gaining knowledge and shows the sciences to be thoroughly human enterprises continuous with the most ordinary empirical inquiries we carry out

every day. The sciences therefore are not categorically different from ordinary empirical inquiry but simply refinements of it. She does not present scientific thinking as epistemologically privileged but makes very clear that it is epistemologically distinguished. She advises, therefore, that the word “science” should be used only to refer to what she calls a “loose federation” of kinds of empirical inquiry directed to gaining “substantial, significant, explanatory truth” (2003, 135) – that is, what Ernest Gellner calls “culture-transcending” knowledge about the world and states of affairs in the world. She then points out the epistemic virtues of the kind of thinking and inquiry undertaken in these epistemologically distinguished enterprises as follows: “... respect for evidence, care and persistence in seeking it out, good judgment in assessing its worth [It] is the method of experience and reasoning: making an informed conjecture, seeing how it stands up to available evidence and further evidence you can lay your hands on, and then using your judgment whether to drop it, modify it, stick it out, or what” (2003, 167). In an earlier account of the epistemically distinguishing marks of modern scientific research she writes that it involves “... systematic effort to isolate one variable at a time; systematic commitment to criticism; experimental contrivance of every kind; instruments of observation from the microscope to the questionnaire; all the complex apparatus of statistical evaluation and mathematical modeling; and the engagement, cooperative and competitive, of many persons, within and across generation [This mode of thought and inquiry] has by all means listed, enormously deepened and extended the range of experience and the sophistication of reasoning of which it avails itself” (1998, 96-97).

[Much more needs to be said and other distinctions need attention: e.g. (i) ordinary empirical inquiry is not “common sense”; common sense is a form of “folk knowledge” that D. J. Watts describes as a “grab bag of logically inconsistent, often contradictory beliefs, each of which seems right at the time but carries no guarantee of being right any other time” (17); (ii) scientific enterprises provide a generalized or universal knowledge over against “local knowledge” (Porter); (iii) claims that science rests on metaphysical assumptions that make it much like religious thought; (iv) because all human activities involve subjectivity and power interests the sciences cannot produce objective (culture-transcending) knowledge of the world; among other issues.]