

Did I Say Cosmology? On Modern Cosmologies and Ancient World-views

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Abstract. The modern cosmology that emerged from observational astronomy in 16th century Europe meant a radical break-away from earlier conceptions of the world. While all ancient and nonwestern worldviews usually describe a multidimensional reality in which diverse environmental, economic, sociopolitical and ideological factors intersect, modern cosmologies espouse the vision of a radically different universe which is completely dehumanized, ethically indifferent and universally valid. Despite these differences cosmology and worldview tend to be used interchangeably to depict ancient and nonwestern worldviews. Any correspondences which can be found between different parts of ancient and/or nonwestern worldviews and modern cosmologies tend to transfer modern conceptions to the premodern world. Ignoring ancient cultural contexts, we risk imposing modern cosmological concepts on past worldview categories. While we have to describe ancient astronomies in our own terms, our ultimate goal is to understand them on their own terms.

1. Justification

Cultural astronomy may briefly be defined either as the science of the relations between human populations and their cosmic (i.e. extraterrestrial) environment or as the study of the interrelations between human populations and their cosmic environment. This simple statement has profound epistemological implications. Within the Western world we tend to think of human societies and the Universe as separated fields of inquiry, each of them demanding their own ontology, epistemology and methodology. The concept of cosmology restricted to the scientific study of the physical universe ascribes an unquestionable independent status to the Universe reinforcing the conventional notion of cosmos as a primarily physical phenomenon. On the other hand, the term worldview implies a point of view on the world (including the Universe), or a way of looking at the cosmos, and defines the Universe as a social rather than a natural category (as a collection of signs or social objects, as an embodiment of human meanings). Worldview treats cosmos and society as clearly interconnected systems, both of which are simultaneously physical and ideational. Our notions of cosmology or worldview are therefore indicative of the ways in which we perceive the aims of cultural astronomical research.

The ambiguous meanings that the concept of cosmology evokes in contemporary philosophy, anthropology and astrophysics often result from the assumptions that remain hidden behind particular usages. While current cosmology is

restricted to the study of physical Universe rather than to its philosophical characterization, we learn from anthropologists that peoples in all times and places have had cosmologies of some sort. Though in anthropology cosmology implies the study of the universes of different societies and peoples, this term is often handled as a type of a terminological cover for the concepts that different peoples use to represent their worlds. In this context, cosmology is often confused with categories of *cosmography*, *imago mundi* or *Weltbild*, that is, the descriptions or representations of the ordered and structured world (Brague 2003: 2-4; Eliade 1959; Griffioen 1989: 83-85). Furthermore, while many, if not most, human societies have “theories” of the Universe informing how their world is structured, the universal validity of the cosmology concept should be questioned, especially when we attempt to define non-Western cosmologies against the background of disciplinary traditions of the modern science. It should also be remembered that in a narrower sense cosmology is limited to the study of the universes in ancient Greece, the Middle Ages, and to the Cartesian and Newtonian systems of the world.

Occasionally anthropologists (see Redfield 1952) contrast ‘cosmology’ with ‘worldview’ accepting that the notion of ‘cosmology’ refers to a more reflexive, nuanced, and rational treatment of questions about the nature of the world, while the concept of ‘worldview’ denotes the implicit, unquestioned, doxic perception the world. Hence, the concept of worldview is defined as a system of knowledge, the people’s way at looking at their reality, a set of existential propositions that enable people to conceive of themselves and others, time, space, their environments, and so forth (Kearney 1975: 247-248; 1995: 41-47). Consequently, the development of worldviews occurs within specific traditions which are embedded in the cultural trajectories of particular societies.

A study of cosmologies and worldviews can be expected to provide clues to correctly deal with (inter)relations between human societies and the Universe. It seems likely that cosmologies can be developed when already a dehumanized cosmos is conceived as a separate entity and freed from any human constraints. In contrast to this, each worldview is historically conditioned, limited, and relative. Despite these differences, cosmology and worldview tend to be used interchangeably, in a relatively loose sense.

2. Cosmology and worldview: the historization of concepts

Like many other modern concepts, our notions of ‘cosmology’, ‘cosmovisión’, ‘world view’, ‘Weltanschauung’, ‘world outlook’, ‘imago mundi’, ‘Weltbild’ and the like, must be viewed as specific products of the philosophical thought of the West. Situated within the cultural-historical context of Western modernity these terms must be regarded as heuristic constructs devised to study, in the objectivist framework, the products of rational thinking or inquiry. The relationship between these concepts and those features of ancient and non-Western societies that roughly correspond to intellectual activities of modern citizens becomes to be problematic, because the terms ‘cosmology’ and ‘worldview’ embody the attitudes and behaviors of the present Western societies being closely linked to the norms, standards and values of the modern scientific stance that evolved from eighteenth century philosophy.

Drawing on models derived from the modern history of science, non-Western scientific traditions are often regarded as formal systems that in the course of time incorporated new ideas in the similar manner as we proceed doing our science today. However, systems of knowledge developed outside of the West have never been fully integrated into Western science and most of non-Western cognitive traditions remained suppressed or aborted. Furthermore, non-Western scientific traditions are often validated in terms of modern science, so they become judged as ‘primitive’, ‘prescientific’, or unscientific, depending on the theoretical stance of a scholar. Science has received a status of a distinctive form of knowledge which originated in a particular context of early Greek philosophy, cosmology and astronomy leaving almost no room for their non-Western counterparts. The continuation of this ethnocentric or colonialist position within the history of science in general and the history of astronomy in particular must be regarded as the bitter fruit of positivism, as Francesca Rochberg (2004: 14-43) recently observed. In contrast to this, anthropologists hold much more realistic views on indigenous knowledge systems, embedded in the social relations and structures rather than functioning as formal and bounded cognitive systems.

The problem resides in the fact that Western scientific knowledge is usually conceived as a neutral, value-free, and objective activity, almost entirely dissociated from engaged human agents. Similar ontological status is implicitly ascribed to the notions of ‘cosmology’ and, in a lesser degree to ‘worldview’. Furthermore, in accordance to the modernist view of the world, ‘cosmology’ and ‘worldview’ tend to be conceived as static, bounded and monolithic knowledge systems like disciplinary departments in scientific academia. What is problematic here is not related to the question of to what extent different societies, both modern and non-modern, share a basic rationality in their understanding of the world, but to the treatment of their rationalities in the same terms as ours.

Cosmology and worldview are the terms first used in 18th century philosophy, either to denote the philosophical study of nature¹ (cosmology) [rationalist philosophy of German Enlightenment] or to describe the totality of the phenomenal world as it is perceived² (worldview) [German Idealism] and until the 20th century remained within the domain of philosophy (Wolters 1989:15-16; Kreiter 2007: 2-3).

In the twentieth century, the concept of cosmology denotes the scientific study of the origin and structure of physical universe. In anthropology however, this term remained reserved to describe cultural models of the lifeworld, conceived as systems of knowledge about the ordered and/or structured universe and assumed to be shared by non-Western communities. Via Wilhelm Dilthey, the concept of worldview has been appropriated by cognitive, symbolic and religious anthropologies to denote an implicit form of (cultural) knowledge, or more specifically, a conceptual framework which shapes the way in which human subjects classify, organize and understand their physical surroundings;

¹Christian Wolff’s treatise *Cosmologia Generalis* (Frankfurt und Leipzig 1731). Some years before, in 1723, he wrote on *German Cosmology*. His program of the systematization of philosophical concepts attempted to integrate physics into philosophy.

²Immanuel Kant’s *Kritik der Urteilskraft* 1790 (Wolters 1989: 15).

this conception of the world is not primarily a mental construct³. This point of view underlines the importance of the cognitive process active in the construction of the knowledge of the world. Human societies use astronomical objects and events as signs (for navigation, time-keeping, or scheduling of basic activities) that also shape their models of the world based on analogies, similarities, correspondences, affinities, perceived as existing (really or fictitiously) between them and circumstances of a human life. Such societies are not passive recipients or spectators of the phenomena but become active constructors of their own environment. The making of the human world is therefore linked to the acts of “making sense” or “understanding” the world (Galiniier 1999). While worldviews are culturally specific, they all are made of the same formal cognitive categories (such as space, time, selfhood, otherness, causality, relationship, classification, see Kearney 1975, 1995). These basic cognitive categories are often used as universal analytical tools to construct particular worldviews and to examine cross-cultural similarities and differences between them, but often are modeled upon schematic orders as proposed by anthropologists rather than by societies themselves.

Without wishing to diminish the important contributions of some of the work on ancient and non-Western cosmologies, here I wish to express my skepticism and contend that many of those who have used the concept of cosmology to ancient and non-Western societies avoided the demands of scholarly rigor and objectivity. Modern cosmologies distinguish themselves from their indigenous or non-Western equivalents in that they explore the unknown and unfamiliar for their own sake, and that they are rationally constructed so particular statements can be considered either as true or false (see Table 1). Thus the difference between ancient and non-Western and Western cosmologies lays not so much in the models of the Universe they produced, as in the methodology by which these models were obtained.

3. Cosmologies and worldviews: Problems of translation

Anthropologists teach us that when we describe indigenous experience and the indigenous theory of that experience, we usually make a complete break with those categories and emphasize that the “objective” inquiry at the phenomenon is done from outside. It is the relationship between so-called objective truth, i.e., that of the observer (anthropologist), and the truth that is usually called subjective, since it represents the official definition of the subjective experience of the world (the informant’s point of view). In his attempt to apprehend the reality, the observer, substitutes an subjective structure defined by local systems of knowledge for objective structure defined by categories originated in scientific theory and epistemology (Geertz 2000: 55-70). In this operation the object of inquiry is “lifted out” of the context in which it functions, and later analyzed in terms of Western logic. Naturally, the explanatory value and power of scientific abstraction is superior to any other epistemic order. In other words, to proceed with native or non-Western categories that describe, explain or interpret their

³Wilhelm Dilthey – *Theorie der Weltanschauungen 1911 (Die Typen der Weltanschauung und ihre Ausbildung in den metaphysischen Systemen)*, see Dilthey (1990).

Table 1. Key differences between modern and ancient or non-Western cosmologies.

Modern Cosmologies	Ancient and non-Western cosmologies
“empty’, neutral, abstract, reified, homogenous, invariable, constant categories objective and empirical dehumanized, ethically indifferent and universally valid views of the world	concrete, real, variable, relative categories, universal categories do not exist subjective and intuitive multidimensional reality in which intersect diverse environmental, economic, sociopolitical and ideological factors
time and space objectively exist out of the world of the humans, and serve as exterior parameters of the living system humans disengaged from the Universe	time and space are fundamental dimension of a social life and always operate as social categories humans intimately engaged in certain relations in the Univers
multiple, and individualized cosmologies	multiple and individualized worldviews attached to cultures and peoples
universal values transcending social variability and cultural diversity (ethnic, ideological, religious and cultural)	particular values, socially or culturally dependant

physical universes, we usually choose categories meeting the standards of anthropology and archaeology rather than the standards of indigenous peoples. I do not deny the heuristic value of such an explanation, but what we are doing are not reconstructions of ancient or premodern models of the world but rather Western constructions of those realities.

The assumption that all societies had cosmologies of some sort is often based on a loose presentation of supposed concepts of time and space rather than on a factual reconstruction of indigenous systems of knowledge. The naive use of the idea of “cosmology” in cultural astronomy stems from the absolute lack of critical approach to the borrowed term and leads to the vagueness or too-wide variability of its meaning. While elements of “cosmological thinking” may be found in theoretical reasoning of early Greek philosophers or in many particular religious systems, the modern understanding of cosmology implies a radical redefinition of that non-Western or ancient epistemology. Modern cosmology born of the Copernican Revolution and Galilean physics was not a natural continuation of ancient Greek cosmology, as is often asserted, but involved a systematic repudiation and rejection of ancient conceptions of the world. Western cosmology elaborated a radical break away from the natural attitudes that produced the sense of a world (Husserl 2006[1940]). While modern cosmologies espouse a dehumanized, ethically indifferent and universally valid view of the world, all ancient and nonwestern worldviews refer to a multidimensional reality in which diverse environmental, economic, sociopolitical and ideological factors intersect (see Table 1).

It is, of course, possible to accommodate certain categories of indigenous knowledge such as time, space, sameness and otherness so as to make them compatible with corresponding Western categories however, these trends impede any serious understanding of the role that those specific cultural products have played in people’s everyday life, and in the formation of their cosmologies. We

have to be aware that sometimes there is a danger of recognizing cosmological or worldview categories along modern lines. For example, in many ancient and non-Western societies the idea of time as an entity in itself does not exist, yet the idea of time that exists independently of human life is probably shared in the modern world by all individuals who received formal education at first levels of the primary school (Hallpike 1979). Similarly, the concept of the human being as a bounded and self-contained individual with an internal subjective world characterizes modern Westerners rather than members of non-modern societies. Even the very idea of the Universe as an abstract inventory of celestial bodies, galaxies or interstellar matter, is more obvious in modern schools and universities than in the beliefs and practices of non-Western societies in which the Universe is believed to be populated with spiritual entities and created and structured according to some teleological principles. Yet both models may share striking structural similarities.

We see therefore that worldview and cosmology no longer can be conceptualized as bodies representing pre-scientific (or non-scientific) systems of knowledge, rather they now can be treated in the same way as other human cultural artifacts. Thus, instead of focusing our scientific efforts on the objective description and explanation of cosmologies and worldviews, we should concentrate on the interpretation of ancient and non-Western societies through the medium of their cosmologies and worldviews. In doing this we are placing ourselves in a situated hermeneutic position in relation to those ancient and non-Western societies. Though non-Western and Western systems of knowledge may share many structural similarities, they do not have the same status. It is an ethnocentric assumption to think that the practice of skywatching is more or less the same activity as modern astronomical observation; that calendar-making serves to measure the flow of time in the same manner as modern calendars and clocks nowadays do; that architectural monuments were designed to fix the dates of equinoxes rather than to specify the conventional dates for planting or ritual practices, that world directions of east, south, west and north served for orienting rather than for memorizing mythological events and processes. To emphasize the epistemological distinctiveness of this approach I propose to employ some alternative terms (Table 2), which located within the domain of the anthropological sciences seem to be safely stripped of their modern meanings (compare Rochberg 2004: xi-xvi). All terms placed in the left column of Table 2 denote objective, self-contained entities and activities, those which are placed in the right column refer as 'relational pointers' suitable for negotiating the long-term understanding of the world.

4. Conclusions

It is out of the question that in all societies and cultures regardless of their place and time, developed systems of understanding of natural phenomena. Like other parts of the human environment, the sky provided a living context which was perceived and experienced from the position of human beings. The sky received its structure from the everyday human needs and practices as well as from the establishment of the particular conditions in which these human activities were carried out. The recognition that the heavens are a social construct, like other

Table 2. Modern and anthropological terms for the description of astronomically-related activities.

Modern term	Anthropological term
astronomy	heavenly knowledge, celestial lore
astronomical observation	sky/sun/moon-watching, stargazing
astronomical observatory	sky/sun/moon-watching place [never site!]
cosmology	1) cosmography, Weltbild 2) <i>cosmovisión</i> , worldview
astronomical alignment, orientation	relationship
calendar-making: predominantly for	calendar-making: for event or process
time-reckoning	synchronizing, sequencing, classifying

types of artifacts, and that conceptualizations of the cosmos are the products of human efforts to understand the universe allows us to deny the universal character of the Universe. All societies and cultures in the world are aware of the existence of celestial bodies in the sky, but the Universe is not a universal empirical reality like the stars or the sun, it is only a man-made cultural construct, so it need not be equally shared by all human cultures.

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