

ASTRONOMY AND THE ULTIMATE CULTURE: COSMOLOGICAL ARGUMENTS IN PHILOSOPHY AND THEOLOGY

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ABSTRACT

Research on human's attachment to cosmological phenomena at least since the Neolithic Period may prove invaluable in modern scientific understanding of our ultimate realities. Of interest has been the archaeological research about the Neolithic Magic Cosmology. In more recent periods the Greek civilization and Hindu cosmological mythology amongst others engaged in various profound intellectual ways to understand and explain the cosmos. The last two millennia saw the progress of more modern civilizations in Asia and Europe resulting in the further empowerment of philosophy, religions and of astronomy. Astronomical discoveries in recent centuries have created particularly interesting philosophical and scientific reflections on the realities of the universe. But the last few decades have evolved differing scientific concepts which have made our notions of the universe and of existence more elusive to unfold thereby digging further the gaps between philosophy, religion and science. Interestingly studies on ancient human socio-religious cultures strongly suggest that human societies have an instinctive urge to unite their material experience with religious and cosmological beliefs, that is, with supernatural phenomena. This is intriguing because our own modern scientific literature clearly shows that many of even the most eminent of scientists see a supernatural character with our universe. Philosophy and religions in their theoretical ways have produced all that can be humanly interpreted on the origin and nature of the universe and existence. Since science has the objective role to explain natural phenomena including the manner the universe originated it should eventually be able to explain what the universe and existence stand from the manner scientific research on the origin of the universe develops in the decades to come. However the final decision as to whether the universe is a natural or supernatural emanation will obviously always remain a matter of personal judgment and choice.

Keywords: Science, religion, philosophy, consciousness, origin of universe, cosmology, cosmological arguments, Neolithic cosmological beliefs, Greek cosmological arguments, Torah and Bible: Jewish and Christian cosmological arguments, Hindu cosmological philosophy, Buddhism, Kalam Cosmological argument, Quran.

1. INTRODUCTION

Reflections on our realities of existence have come mainly from three sectors of knowledge: religion, philosophy and science, each sector having its boundary. One wonders at the numerous instances of philosophical reflections and religious practices in human history which associate mystical beliefs with unknown supernatural powers, and the interesting fact is that these historical human cultures have been inspired by both nature's endowments and man's own creations, whether agricultural, cosmological or architectural. We cannot avoid noticing that human's consciousness, irrespective of the period of human history, finds an intense fascination in nature and in human existence. The Ultimate Culture refers to a new integrated intellectual and philosophical culture which will make it possible for humanity to view, as realistically as we scientifically could manage to achieve in the future, the deeper aspects of the significance of its own existence. We keep hearing what science, religions and philosophy separately say about our realities and how they believe the universe came into existence. The most paradoxical thing is that all three sectors want to tell us the same thing: what is the meaning of existence and where does the universe come from but they have been generally operating along separate pathways based on different methods of communicating their notions.

Recently Dr. Owen Gingerich (2013) went to the extent of remarking as follows: "Science, working within its own magisterium, is far more tangled with a humanistic or theological vision than we might expect". Polkinghorne (2003, 2007) has expressed views on the integration of science and religion on specific aspects. The issue, if ever possible, is whether a breakthrough from cosmology could emphasize that for certain purposes a common logic permeates through science and religion. Ultimately there might emerge a unified cosmological logic involving religion, science and philosophy to constitute the basis of what we might call an Ultimate Culture, which could hopefully help to promote greater interreligious harmony and tolerance.

The whole current discussion of the manner our universe originated is hugely complicated and covers many different concepts and approaches (Einstein 2016; Lemaitre 1931; Guth, 1981; Linde 1982; Hawking 1988; Peerally 2008, 2013). The Golden Age of Physics (Einstein, Planck, Bohr, Heisenberg, Dirac, Pauli, among others created the new physics of modern times. Subsequently we have seen important development in relativity and quantum mechanics which have provided a sound basis of what our macro and micro structures are all about, as far as possible, so far. Unfortunately, scientists (Lemaitre, 1931, Tryon, 1973, Sagan, 1980, Guth, 1981, Linde, 1982, Vilenkin, 1982, Hawking, 1988, Davies, 1992, 2000, Hoyle, Burbidge and Narlekar, 1993, Bojowald, 2007, 2008, Rees, 2009) have not at all agreed about how the universe and its incredible complexity could have so led to our extraordinary existence. But quantum mechanics and Einstein's relativity concepts (1916) are important building blocks of the realities of the universe and are critical for a proper understanding of how the universe is constituted. Although recent

advances in astronomy and cosmology have led to substantially different basic approaches to understanding the cosmos, it is yet not possible to claim that we are moving nearer to the elucidation of the big questions of the realities of the universe. The working hypothesis is that science, whose dedication is to explain how the universe functions at the micro and macro scale, must be the principal source of an acceptable concept on the manner the universe originated. Although many of the most eminent scientists do find it impossible to see how the universe could have originated otherwise than through a supernatural act it is not compatible with their terms of reference nor is it proper for them to convince others that a supreme power did the act of creation in an instant. The issue to be resolved is through the scientific process in some convincing details of how we came to have our universe with its realities. It is possible to argue that a supernatural act does not necessarily refer to a divine act.

The following quotations from very eminent scientists/cosmologists/writers have profound significance when viewed against the Cosmological Arguments of philosophers and theologians. The interesting and intriguing fact remains that those named against these quotes are among the modern world's most eminent scientists and famous writers.

"The more I examine the universe and the details of its architecture, the more evidence I find that the universe in some sense must have known we were coming". Freeman Dyson

"The scientist is possessed by the sense of universal causation ... His religious feeling takes the form of a rapturous amazement at the harmony of natural law, which reveals an intelligence of such superiority that, compared with it, all the systematic thinking and acting of human beings is an utterly insignificant reflection." Albert Einstein

"A common sense interpretation of the facts suggests that a super intellect has monkeyed with the physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature. The numbers one calculates from the facts seem to me so overwhelming as to put this conclusion almost beyond question." Sir Fred Hoyle

"We can't understand the universe in any clear way without the supernatural." Allan Sandage

Einstein wrote not only of the necessity for a beginning, but of his desire "to know how God created this world. I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know His thought, the rest are details." (Cited by Nick Herbert in Quantum Reality)

"The big bang, the most cataclysmic event we can imagine, on closer inspection appears finely orchestrated." George Smoot and Keay Davidson

"The question of 'the beginning' is as inescapable for cosmologists as it is for theologians." George Smoot and Keay Davidson

"Nothing happens until something moves." Albert Einstein

"...the laws [of physics] ... seem themselves to be the product of exceedingly ingenious design." Paul Davies

"There is for me powerful evidence that there is something going on behind it all ... it seems as though somebody has fine-tuned nature's numbers to make the Universe" Paul Davies

2. COSMOLOGICAL ARGUMENTS

2.1. Definition of cosmological arguments

Already it is clear that while theologians take for granted the divine act of creation of the universe many scientists who are well versed with scientific matters related to the universe wonder about how such an apparently impossible event could have taken place. The traditional purpose of the Cosmological Arguments in theology and philosophy, presented by various authors at different times, is not to explain per se how the universe originated but to add conviction to the belief in a supreme creator of our universe. However, we are going to suggest that we consider all Cosmological Arguments to mean not necessarily arguments on the divine connection tied to the origin of the universe but generally as scientific explanations of how the universe originated with or without a divine power as a necessary requirement. Thus, we can place all such arguments on the same footing and compare only how each explanation of the origin of the universe has logical elements capable of explaining our realities of existence as well as the salient features of physical realities.

2.2. The power of nature's endowments on the human mind

The world since time immemorial has been captivated and engrossed by the mere power of nature's endowments and by natural disasters and forces and it is believed such sensations are linked to the origin of cosmological beliefs. Some illustrations will be presented for the very ancient Neolithic human cultures and from Greek philosophy and Hindu cosmological philosophy. Even today this marvel continues to be felt as we can gather from a recent article in Templeton Report (Anon. 2013) entitled *"Why space so powerfully inspires us"*. The article refers to a photo of planet Earth taken by Apollo 8 Astronauts in 1968 and a US postage stamp issued a year later showing the photo had these words written: *"In the beginning God...."*. The Templeton Foundation currently funded a project entitled *"Space, science and spirituality"* under which was included interviewing over 50 astronauts on their space mental outlook and these included awe, wonder, fascination, dream-like states, wondering about the vastness of the universe, the relativity of human experience and a sense of internal transformation. Whilst religions and philosophy would view such phenomena as having spiritual or intellectual implications, the scientific approach to explaining such matters would be based on the integration of cosmological, biophysical and neurological scientific methods. However, to elucidate the real methodology

behind the origin of the universe is a demanding scientific task which does not appear to be simple to unravel, if ever that were possible.

2.3. Neolithic cosmological beliefs

Stone Age humans of 10,000 to 100,000 years ago held beliefs which encouraged the association of magic powers to permanent structures like architecture, places of burials, crafts and pottery, places for gods and goddesses like temples and objects of worship. This led to the hypothesis (Lewis-Williams & Pearce, 2005) of some kind of religious behavior collectively called Magic Cosmology of the Neolithic Era believed to be based on consciousness, thoughts and feelings projected into an imaginary domain which they probably believed had control over man's immediate environments like foods, safety, life, death and the forces of nature. This concept of the unknown has similarities to the tiered universe structure of later Greek and Abrahamic beliefs. The mystery herein is that most of human cultures have done so independently of each other thus adding credibility to the belief that the human brain is built that way through the working of the mind, consciousness and cosmological beliefs. This adds some theoretical support to the author's earlier suggestion that religion, philosophy and science could be different channels of expressing in a harmonious manner the realities of existence.

Although the New Stone Age period ranging from about 10,000 to 2,200 B.C. was still a late pre-historic era, some recent studies (Lewis-Williams & Pearce, 2005) have revealed the existence of rites indicative that the communities of the Neolithic Period started the now widely accepted belief of a tiered universe. Basing themselves on excavations and archaeological studies in different parts of the Near East and Atlantic Europe they could conclude that once the Neolithic humans abandoned their nomadic life style to settle down as sedentary agriculturalists they started to engage in cultural activities of a spiritual nature indicative of religious and cosmological beliefs. Lewis-Williams and Pearce (2005) theorized that this trend amongst the Neolithic people was a human-brain recognition process arising from the universal nature of the human neuro-sensory phenomena which unites all humans but leads varying societies to produce similar trends in spiritual and cosmological beliefs. Their study indicated the Neolithic community evolution as "The Revolutionary Neolithic" which shared similar trends as Jacques Cauvin's Symbolic Revolution (Cauvin, 2000). Cauvin's research according to him suggested that the evolution of human thinking and their art as for instance depicting women and bulls as goddesses and gods respectively happened in parallel with the evolution of perception and of duality.

Lewis-Williams and Pearce (2005) felt that religion should be interpreted as part of a trilogy, uniting experience, practice and belief. This conclusion is quite amazing and could well pave the way to a better understanding of what is the ultimate nature of consciousness. They also suggested that consciousness might well be a composite system in which the mind's composition and function is built to move in the direction of the arrow of time and that this can produce a new

meaning about the concept of time. However, such issues really concern more the realm of science rather than philosophy and in due course we might well have new insights about the implications of time in our realities which might provide new scientific ways of interpreting the above views of Lewis-Williams and Pearce (2005). Scarre (2007) in a review of the work of Lewis-Williams and Pearce found merits in their findings and suggested that further research on this sort of “megalithic religion” could lead to interesting findings.

2.4. The Greek period of philosophy and cosmological arguments

Philosophers like Empedocles, Anaximander, Heraclitus, Plato and Socrates were highly eminent thinkers whose reflections about the cosmos and the realities of existence could actually harbor clues of the deepest physical realities which cosmology might gradually unveil.

Empedocles (c. 490-430 BC) who proposed the cosmogenic theory of the classical elements air, fire, water, earth is also credited for having discovered (Calter, 2008) that there are only five solid shapes whose sides are made from regular polygons (triangles, squares, pentagons, hexagons and dodecahedrons), subsequently known as Plato’s five perfect solids. According to Plato the first four represented the universal elements air, fire, water and earth while the fifth, the dodecahedron, represented the universe. Strangely enough these regular polygons are still a reference with regard to the shape of the universe, especially the dodecahedron (Luminet et al, 2003).

Three pre-Socratic Greek philosophers, Anaximander (about 555 BC), Heraclitus (535-475 BC) and Parmenides (early 5th century BC) are of special interest in the context of this paper. Anaximander believed the universe (Lloyd, 1970) arose from a widespread initial chaos as a germinating seed, surprisingly reminiscent roughly, in a manner of speaking, to the Big Bang. Heraclitus is known for his idea of change as being central to the universe and was a firm believer in the unity of opposites, according to which existing things are characterized by pairs of contrary properties. Thus, according to him “moving up and moving down” are one and the same. All existing things are characterized by pairs of contrary properties.

Parmenides, on the other hand, believed in eternal existence because nothing, he says, comes from nothing. All that exist, he reflected, is timeless, uniform, and unchanging. He interpreted ‘the void’ with nothing and therefore it does not exist. Within that context he felt that change was superficial without importance and not part of reality. Both Heraclitus with emphasis on the reality of change and Parmenides on the eternal reality of existence had a deep influence on the cosmological beliefs by philosophers like Socrates, Plato and Aristotle.

Plato (427- 347 BC) made what was the first reference to a cosmological argument when he wrote “Now the Heavens, or Cosmos..... We must first investigate concerning it that primary question which has to be investigated at the outset in every case, namely, whether it has existed always, having no beginning of generation, or whether it has come into existence, having begun from

some beginning of generation, or whether it has come into existence, having begun from some beginning." Thus, Plato proposed the first cause arguments. He believed that motion in the world and cosmos was induced motion that required a self-existing motion to set the cosmos in motion and to maintain that motion. He also argued that the cosmos was created by a supreme intelligence, which only provided the basics as it was not supernatural and therefore lacked the ability to create ex nihilo.

Aristotle (384-322 BC) posited the occurrence of a First Cause or Unmoved Mover. Aristotle held the same belief as Plato that the universe had always existed and will remain so eternally and thus shared the philosophy put forward by Parmenides that nothing can come from nothing. This logical philosophy of Parmenides is difficult to repudiate. So not surprisingly Aristotle, in conformity with Plato and Parmenides, sharing the belief of an eternal universe, posited a universal essence or substance which was a process of absolute purity that could think about thinking and was therefore capable of organizing the cosmos by acting on aspirations and desire. Thus, this substance (ousia) was a Prime Mover or Unmoved Mover to sets things in motion but which did not create matter itself, since, as Aristotle believed, matter had always existed.

Plotinus (AD 204-270), born in Egypt, was one of the most influential amongst ancient philosophers. He believed that God is not only the supreme reality but also the producer of all that is reality to man through a process of different stages of emanations. Thus the emanations downward from God create the world and all that it contains. The unicity of God is according to Plotinus absolute and he therefore denied him thought and knowledge for to give him several attributes would give him multiplicity which would destroy the purity of oneness. In his metaphysics the objects of the universe, that is the sky, matter, human souls and evil are all emanations first through a 'nous', which is intelligence and unchanged thoughts, then a World Soul which contemplates the 'nous' as a result of which things are produced in the universe. The universe according to Plotinus exists because of a kind of 'creatio ex deo', thus perpetuating the eternal universe of Plato and Aristotle.

John Philoponus (AD 490-570) was born a Christian and was noted for his rejection of Aristotelian philosophy including the infinite universe and no beginning. He demolished all arguments which supported the infinity of the universe and some of his ideas were extended and developed by Al-Kindi (AD 796-873), Al Ghazali (AD 1058-1111) and Thomas Aquinas (AD 1225-1274) in the framing of the traditional Cosmological Arguments.

2.5. Hindu cosmological philosophy

In Hindu Cosmology life and time is viewed as an unending universe comprising unending cycles of existence. It is interesting and important to see how ancient Indian cultures were endowed with significant intellectual and mathematical ingenuities which gave them the advantage of applying mathematics and measurements in their spiritual endeavours. For

instance, the basic time cycle in Hindu mythology is a kalpa which last 4.32 billion years and each kalpa marks a recreation of the world. Every kalpa is made up of 14 smaller cycles within each of which there is a presiding deity, which recreates the human race. Quantitative measurements were an integral feature of existence in Hindu Philosophy and Cosmology, particularly in the parallelism between the microcosm and the macrocosm of the universe (Malville, 2008). This theme is substantially discussed by Malville (2008) in a manner which indicates how the Hindu mythological creation concept of the worlds recapitulates in philosophically important ways the origin and evolution of our universe as depicted in modern cosmology. Thus the initial chaos which prevailed at the time of the origin of our universe finds a similitude in the ways each universe, in Hindu Cosmology, comes to exist: "In the beginning was darkness swathed in darkness...." Rig Veda 10.129.3 (cited from Malville, 2008). The Hindu temple represents the microcosm of the macrocosmic universes and chaos in the center of a temple is metaphorically represented by water, darkness, disorder and potentiality from which the orderly universe arose. Metaphorical representations also exist in the occurrence of a connection between heaven and earth and a cave as a womb out of which the world and life found their creation. The stones in the wall and pillars of the temples represent the universe into which the central chaotic origin became transferred.

The metaphorical depiction of the transformation of the initial cosmic corpuscle into the big bang universe in modern cosmology is shown in the well-known Hindu story of the battle of Indra and Vrtra which is described as rich in thermodynamic meaning (Malville, 2008). The mythology describes that the imprisoned universe represented by dark still waters held by Vrtra which the Aryan god Indra succeeded in liberating: time and space became released and expanded to produce the space dilation and time contraction, which occurred during cosmic inflation (Guth, 1981, Linde, 1982, Peerally, 2013).

2.6. Cosmological arguments during the High Middle Ages

Philosophers have for three millennia not given up debating on the creation of the universe. A peak occurred when two natural theologians, Al-Ghazali and Thomas Aquinas fully developed their widely discussed Cosmological Arguments. Al-Ghazali's cosmological argument relies on the fact that every being which begins has a cause for its coming into existence. Therefore, the universe must have had a beginning at a finite moment in time. Al-Ghazali's reasoning was that an infinite series of events into the past was not possible for the present would not have come. This concept has been revisited and popularized by the contemporary American philosopher William Lane Craig (1997) as "The Kalam Cosmological Argument". Craig pointed out, in support of Al-Ghazali, that if there was an infinite series of events in the universe how could it have stopped now today. Since such an infinite scenario was impossible, based on Al-Ghazali's notion that for an event to begin there must be a cause, one can conclude the universe, an event, had a time in the past when it was created.

Thomas Aquinas' Cosmological Argument is based on the absolute existence of an "unmoved mover" of motion. Since the universe started in a state of motion, there must have been a mover from an outside dimension to set it in motion. If the universe started through an unknown mover, that was equivalent to having creation with a cause by an uncaused cause.

The Cosmological Argument in the sense of Aquinas and Al-Ghazali was supported and enlightened by such great thinkers like Wilhelm Leibniz and Samuel Clarke. It is enriching to see some of the ideas of Samuel Clarke which openly reaffirmed the reasoning of Aquinas and Al-Ghazali. Clarke (1705, 1706) for instance affirmed that the original cause of things cannot be known and proved a priori but a posteriori, through the application of the intelligence one is endowed with. Leibniz (1702) emphasized a strengthened principle of sufficient reason behind everything in the universe, and that reason must exist outside the contingencies of the universe.

2.7. Cosmological arguments in theology

The main theological sources of information which claims that the universe was created by a supreme power are the Bible, the Torah and the Quran, the holy scriptures of the Abrahamic religions. Religions exist basically to convey to their followers their interpretations of the universe and of how to engage in a spiritual life with moral values for the good of humanity.

2.7.1 Buddhism and Hinduism

In Buddhism our universe is eternally in a state of flux and appears and passes out in existence eternally similar to the infinite number of universes in existence. The Hindu belief on the origin of the universe seems to combine a number of different concepts. The unique universe, which was in cosmology initiated in the big bang, is regarded in Hinduism as the present universe we live in and was preceded and will be followed by an infinite number of universes. This cyclic recreation of universes is exactly what Bojowald (2003, 2007) proposed in his repetitive bouncing concept within the big bang theory. In Hinduism the creator of the universe is Brahman.

2.7.2 Torah and Bible: Jewish and Christian cosmological arguments

Jewish cosmology, which finds its origin as the Old Testament account of creation, is regarded as the Hebrew version of the origin of the universe. This version, which is also the Christian belief on the creation of the world, says that God is the creative force of the earth, oceans and heavens and everything else. The Jewish God Yahweh is thus the creator of all things through a series of stages as described in the Bible.

According to Genesis 1 in the beginning God created the heaven and earth and in the first day God said, "let there be light" and there was light and subsequently day and night and so on and so forth. So in the Judaic creation concept, which was totally adopted by Christianity, everything was created by God including consciousness, our morals and belief in the hereafter and the Day of Judgment.

The divine creation of the heavens, earth, the sea and all that is in them happened in six days (Exodus 20:11). The heavens demonstrate the glory and handiwork of a divine power (Psalm 19:1). The six days can, in retrospect, be given a figurative meaning compatible with the different stages of the different moments of the development of the universe as for instance in the big bang concept. The stretching out and expansion of the universe is also implied in Isaiah 40:22. The occurrence of stars and planets and other heavenly bodies floating in space is referred to on Job 26:7.

2.7.3. The Quran

The creation of the universe, combining the worlds and the heavens (cosmic space) is the subject of several references. Verse (Surah) 21:30 eminently describes that the heavens and earth were joined together before they were burst asunder. This verse is followed by the sentence: we made from water every living thing. The fact these two contiguous verses, in the same paragraph, refer to the origin of the universe and the creation of life is very interesting as one would expect in theology for it emphasizes that one is intimately connected to the other. Surah 4:166 says that the Creator has sent the universe and all that accompanies it through his own knowledge. A clear reference is implied by Surah 51: 47 where it is said that the universe was created through divine power and skill and that the firmament is being continuously expanded. Furthermore Surah 21:33 talks about the divine creation of the day and night, of the sun and the moon and stars each one in its own orbit and motion

3. DISCUSSION AND CONCLUSION

We can gather in conclusion that human reflections about our universe and its origin until the present time have rather quite parallel notions, generally speaking: eternal universe or a created universe and if created the belief has been through a supreme intelligence whether in ancient philosophy or in the Abrahamic religions.

Anaximander believed the universe arose from a widespread initial chaos as a germinating seed, surprisingly reminiscent roughly, in a manner of speaking, to the Big Bang. Heraclitus is known for his idea of change as being central to the universe and was a firm believer in the unity of opposites. Parmenides, on the other hand, believed in eternal existence because nothing, he says, comes from nothing. Plato (c. 427- 347 BCE) made what was the first reference to a cosmological argument and he believed that motion in the world and cosmos was induced motion that required a self-existing motion and he also argued that the cosmos was created by a supreme intelligence. Aristotle (c. 384-322 BCE) posited the occurrence of a First Cause or Unmoved Mover. Aristotle held the same belief as Plato that the universe had always existed and will remain so eternally and thus shared the philosophy put forward by Parmenides that nothing can come from nothing.

Modern concepts focus on two main approaches: on the probable role of an infinitely small corpuscle of energy called singularity which produced all the matter of the universe and on multiverse theories with energy processes capable of budding off trillions or infinite numbers of

universes. Only our universe in such an infinite series of universes had the right combination of laws of nature which enabled our physical, chemical and biological realities to emerge.

Rather than a mathematical description of how the whole macro cosmos suddenly originated as a totally materialistic entity what we need is a scientific explanation of our realities which should necessarily be the outcome of a scientific exercise. We need to search for clues from quantum mechanics, cosmology, astronomy, particle physics, the nature of matter, mass, gravitation and energy and from the role of entropy as well as from their interrelatedness. Subsequently in so doing there might emerge a concept of the origin of the universe capable of indicating why we have a universe like ours with its matter, energy, fundamental constants, life, consciousness and the realities of existence. We also need in our future work to understand whether there is such a thing as nothingness and whether universes or a universe must really have to originate from a state of nothingness.

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