

COSMOLOGY without HEADACHES

(Lecture Series)

(compiling, transcribing, researching, editing always in progress)

LECTURE IV: Early Oriental Cosmologies

Before we pursue the cosmological thought of ancient Greece, let us take a big step back and toward the East. It is true that the direct influence of Indian and Chinese contributions to the philosophy and science of modern Western civilization were relatively minor. Much of what we find here is hardly different from what we have seen in Egypt and Babylon. There are a superabundance of gods and myths, an anthropomorphizing of the celestial bodies, a rudimentary mathematics, a relatively inaccurate calendar, and a groping mysticism dominating government and politics. That might be enough said in our race through the infancy and early adolescence of civilization, but there are a few twists of thought that we need to examine that either did not occur in Mediterranean/Middle-Eastern history—unless such thoughts were held in secret and were not recorded—or they have not survived through time. And it is here, to the gurus of India and the ‘hundred schools’ of China, that a number of post-Einstein thinkers will return us as they seek deeper for answers to the riddles presented by quantum mechanics. In that period of our study (the exploration of quantumland) we will hear the likes of Fritjof Capra (*The Tao of Physics*) and Gary Zukav (*The Dancing Wu Li Masters*) suggest that the sages of 3,000 years ago may have had a more thorough understanding of the world than moderns who are finally, only in the last century, finding the way; who have been, in effect, sidetracked: limited by the very methodology that they once expected would lead unerringly to the truth—or at least the GUT. (The initials stand for ‘grand unified theory’—the ‘guts,’ as it were, of reality—the mention of which will be encountered here and there in the literature of modern cosmology.)

A. CHINA:

The Yellow River valley boasts of hominids of at least half-a-million years ago. Remains of Homo Erectus have been found dating to approximately 460,000 years B.C. The Chinese Bronze Age is born (1776 B.C.) just a couple of centuries before the Sheng Dynasty—essentially the first full-fledged civilization in China (1523-1028 B.C.), though embryonic forms probably were as old as Egypt or Mesopotamia. Records were not so well preserved in this climate, but the earliest records of the Sheng Dynasty indicate there were already approximately 1,800 city-states collected under this empire. It was not easy to keep it all together. It was a time of frequent warfare and required the shifting of the capital from place to place. Still they had writing (a lexicon of some 3,000 words) and a well developed form of government with a large bureaucracy.

Astronomically they were comparable with the much earlier Egyptian civilization, with a calendar of 360 days (10 days = 1 period; 3 periods [30 days] = 1 month; 6 periods [60 days] = 1 cycle; 6 cycles [360 days] = 1 year), which had to be adjusted from time to time by adding an extra period or two (‘intercalation’). There is one instance where the calendar was allowed to get so far out of synch with nature that a whole cycle (60 days) had to be added. There was a lot of fighting, a lot of rivalry between the cities, challenges to the king, intrigue at court, but not much in the way of deep thinking until approximately the 6th century, B.C.

For them, no less than in the Middle-East and Mediterranean, the world was filled with various sorts of gods and spirits that needed to be flattered and appeased, all of which were as much a part of reality as soil and air, water and fire. The beginning of the world was probably not of much interest to most. They may not have considered it at all, since life was not understood as a progressive movement through history. Of course, change was recognized. It was not, however, goal oriented, but more wave-like, or cyclical. For those interested in origins, there seem to have been three major opinions, none of which considered non-existence to have preceded existence. So, as with Zoroastrianism, there was no ‘creation;’ a something-out-of-nothing event, but only a rearranging of extant stuff (any dates or time periods associated with these mythologies indicate finding them in writing, whereas most of these stories were told and twisted orally for centuries, and their assignment as a product of, or as particularly influential to a given pre-historical period is pure guesswork). Here are the three general views:

1. Chaos was understood (by some few who thought deeply about it) to be a cloud of dense vapor suspended in darkness. The interaction of opposites led to multiple states: the variety of things, and ultimately the Universe. This is essentially the modern idea of the accidental universe deprived of all its post-subatomic scientific jargon concerning quark plasmas and the breaking of symmetry. While it does not really explain much (it can’t), this view is of special interest to this study because it does not involve personality. There is no consciousness behind the movement of these world forces. Here is an essentially barren view, from perhaps as much as 8,000 years ago, to which modern science was once expected (and some still do expect it) to lead us. That idea was not popular among pre-scientific humans, since there is no compassionate (or even wrathful) being to hear and respond to our whining. Where is justice—or at least vengeance? Where is ethics? Where is purpose? And, without all those, how can civilization arise? Furthermore, if the Universe is non-sentient, how did consciousness come to be; and if impersonal, whence came personalities? We don’t really know if these questions were asked, but we can surmise that this idea of creation was not so appealing either to rulers or ruled as were ideas 2 & 3 (below).

2. Two beings emerged from chaos to make sky and earth. Then, by the process of *yin/yang* (more about this later) their interactions gave form to all things. These two beings are at least capable of anthropomorphic development. Perhaps they are aware, so they have the consciousness of desire—will—a purpose; thus an interest in fulfilling that purpose, which would include an interest in humanity. So such beings might be susceptible to manipulation by humans. Now, at least, a shaman might arise, and even a priesthood might develop, around whose esoteric prattling (inspired and supported by observations of certain celestial regularities) a social system might be organized. But this idea is still too vague to be of assistance in controlling an empire. It allows for infinite variations and, thus, way too much conflict over who are the gods and how to please them. Something more detailed is needed; something that steers everyone in the same direction. A major god and a unifying mythology are needed. Until then, political stability in China is a hopeless endeavor.

3. In the 3rd century A.D., perhaps from some further west or central Asiatic influence, or perhaps a variation of Vedic India, we find again the dark mist of chaos. But now it is contained in a cosmic egg. The egg is fertile (how it became so may have something to do with the goddess Nu Wa, who becomes known as ‘Mother of the

World’—or not, since no one knew exactly how eggs became fertile. Some just were, some weren’t. Inside the egg Pan Gu begins to develop. He grows in the egg for 18,000 years, until he attains the form of a sort of troll-like carpenter with a chisel in one hand and an ax in the other, which he uses to break the egg. The lighter elements (the *yang* tendency) in the cloud of chaos begin to rise out of the egg to form the sky, and the heavier elements (*yin*) begin to sink, making the earth. As he grows, Pan Gu keeps pushing the sky and earth apart, chiseling and hacking at the joints until they no longer touch anywhere. He pushes them further and further apart for another 18,000 years, fearing that if he should stop, the new system would collapse back into chaos. Finally, his task having been accomplished, he lies down exhausted on the earth and dies.

In accord with *yin/yang*, out of life has come death, and now, out of death comes life. Pan Gu’s body becomes the mountains of the earth (where the other gods will take up their abode), his breath becomes the wind; his voice, thunder; his sweat, the rain; his eyes, the sun and moon; the hair of his head glistens as the stars; his blood becomes the rivers and streams; his flesh the fields; even the hair on his body become the grass and trees and vegetation. His teeth and bones are rocks and minerals; his semen and bone marrow become pearls and jade; and the fleas on his body develop into the human race.

There was also a matriarchal version of creation idea number three, with Nu Wa as the mother of us all, which includes a scene by a pond where, to amuse herself, like a young girl, she begins making little humans out of mud. She decides to populate the world with them. After several days of work at this, she realizes she will never be able to fill the earth if she has to mold them all by hand. She grows bored with this work, so she infuses her claymations with the power and desire to reproduce themselves.

In 1027 B.C. the Sheng Dyansty was finally overturned with the advent of the much more productive and creative Chou or Zhou Dynasty, which foresaw many slightly later Greek ideas. The Zhou Dynasty produced the earliest recorded Chinese literature (e.g., *The Book of Odes*) and the ‘Hundred Schools of Thought’; continued building the Great Wall; ‘discovered’ the five elements (soil or earth, fire, water, wood, and metal—as compared to the four: earth, wind, fire and water for the Greeks [plus speculation on æther or quintessence—which made up the celestial spheres and the stars]). They made substantial mathematical advancement. A Chinese math text from this dynasty included planimetry, proportions, ‘rule of 3’ arithmetic, root multiplication, geometry, equations with one and more unknowns, and even a theory of motion.

It was of the greatest good fortune that the early Zhou leaders were imbued with equal parts realism (in their return to order after the political disarray that marked the waning of the Sheng Dynasty) and altruism (believing that the lands and the people of China belonged to the gods, who entrusted their fair and just management and well-being to the temporal ruler). The institution of a semi-godhood in the king (or at least a direct connection to deity) was less pronounced perhaps than that of the Pharaohs. Nonetheless, it had a similar effect, for the most part, in that it made the ruler responsible to a higher power—with a few exceptions, whose misunderstanding of the arrangement and whose megalomania gave them the idea that they *were* the higher power, and who thus tended more toward exploitation than leadership. How to control the controller has been among the most difficult problems in human history. In the early world it was accomplished, if at all, only by the gods—or by assassination or the defeat of the Tyrant by a greater force (which often turned out to be as tyrannical, if not more so).



It was the Zhou Dynasty that saw the birth of both **Kongfuzi** (or K'ung fu zu—**Confucius**) and **Laozi** (**Lao Tse** or **Lao Tzu**),



two of the most influential thinkers in the development of the Chinese world-understanding, and who are both still revered, even in the West. **Confucius** contributed a system of 'right living' and a kind of guide for good government through his preaching, put together into a book called *Analects*. He may have edited a group of

ancient texts called the 'Five Classics' from which he often quoted, and which he considered the source of wisdom (*Shu Jing* [the Book of History]; *Yi Jing* ['I Ching'—Book of Changes]; *Shi Jing* [Book of Poetry]; *Li Ji* [Book of Rites]; and *Chun Qiu* ['Spring and Autumn,' of which he may have been the author], which is a history of his own province from 722-481 B.C.). The later Han Dynasty (in c.2nd century B.C. made Confucianism their official doctrine. As a precursor of Stoicism, it taught acceptance of the status quo; honor and dignity in behavior; respect for parents and ancestors; the virtues of peace, sincerity, obedience, fulfillment of obligations, and the need for order in public life and abundance of tradition and rituals. As to the foundation of such rules and rituals, he had little to say. He preached no religion, *per se*, considering all of it enigmatic: full of confusion without resolution.

The theosophical aspects he left to others, a position his counterpart of the same general era filled ably: **Laozi**. He is remembered for *Dao De Jing* [or *Tao*—'The Way and its Power'], filled with examples of paradoxical aphorisms that serve to support Confucius's concern about finding any truth in religion. Inconsistencies in doctrine or scripture, however, have never seemed to hinder the spread of a timely faith. The main recommendations of Laozi are clearly to seek solitude over society, and to present a 'yieldingness' to nature and the 'way of the world.' "The wise man," he wrote, "keeps to the deed that consists in taking no action." But the cryptic nature of his sayings allowed widely varying interpretations, and Taoism evolved toward mysticism and a return to nature, which paved the way for the influx of Buddhism that would occur several centuries later, following the Han Dynasty.

Most interesting to our examination is the fact that Laozi did not name his gods, and in fact seemed not to recognize gods at all—only the Tao itself: the ineffable well-spring of being. Naming, he thought, would involve differentiation, while Tao was everywhere, in everything as a primal force. The idea was to live in tune with the 'way of the world,' to flow with its current rather than trying to resist or control it. His recommended manner of living favored spontaneity over planning; the unconscious over the conscious mind; and *laissez-faire* government policies, i.e., non-interference and minimal control, submission to the Force, as it were.

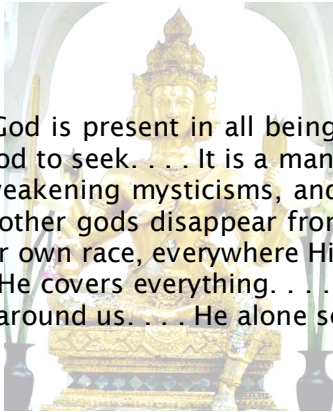
Neither thinker seems progressive, and the rulers were not very wise. In direct contradiction of the reigning philosophy, the reigning personalities made war. By the 4th century B.C. armies numbering over a million men were fielded, casualties increasing in proportion. Overwhelmed by sheer numbers, the victors at of Chang Ping (260 B.C.) slaughtered 400,000 prisoners of war. The power rivalry was finally decided and China was reunited in 221 B.C. under the First Emperor, Shi Huangdi, one of the most brutal but effective autocrats in history. He is not remembered kindly, especially by intellectuals,

since he is the one to have ordered the infamous Burning of the Books and the execution of 460 scholars. So much for philosophy. It was he who completed the Great Wall and the Magic Transport Canal (still in use today), and it is his tomb that contains the famous Terracotta Army of more than 6,000 individual, life-size statues of soldiers.

His reign, despite the glory of his achievements, lasted only eleven years, and he had decreed no mechanism for his replacement. After a period of squabbling over power, the people themselves rebelled, culminating in a seizure of power by Liu Bang, founder of the Han Dynasty, which in its turn lasted over 300 years. Liu Bang revived Confucianism. The Han rule, then, is concurrent with the Roman Empire, and is responsible for establishment of the Silk Road, which brought news of other cultures and other worlds, along with new artifacts, new ideas, and even a new religion in the form of Buddhism.

B. INDIA

The highest truth is this: God is present in all beings. They are His multiple forms. There is no other God to seek. . . . It is a man-making religion that we want. . . . Give up these weakening mysticisms, and be strong. . . . For the next fifty years . . . let all other gods disappear from our minds. This is the only God that is awake, our own race, everywhere His hands, everywhere His feet, everywhere His ears: He covers everything. . . . The first of all worships is the worship of those all around us. . . . He alone serves God who serves all other beings.



—Vivekananda

We saw an abrupt change in the multiplicity of gods in Egypt under Ikhnaton, which was immediately reversed with the death of its instigator, and the multitude of gods came swarming back. We saw monotheism appear again with Zarathustra, although it rapidly declined there, too, because it was out of synch with the flow of history; against the grain of Tao, as it were, and Zoroastrianism was soon corrupted with polytheism. The world was again crowded with demons, perhaps exceeding anything the pagans had invented. The monotheistic idea stuck lastingly with the Israelites, but only after a long incubation and refinement of the culture around their personally interested god; a tribal, racial god. And, through them, He still had to do battle with ‘other gods.’ Furthermore, their unusual religion had little effect on the world beyond their alternately expanding and collapsing boundaries, until it spawned its greatest heresy: Christianity.

So far it seems polytheism is a natural outgrowth of pre-historic life. The thickly populated over-world was challenged again in China. This time by ignoring religion almost entirely (due to the very philosophically confusing and conflicting pantheon) in favor of a non-questioning life of sheer practicality (Confucius) and by recognizing only a principle (a cosmic movement: ‘the Force,’ as it were) in place of the gods—the Tao (Lao Tse). Both concepts were soon reabsorbed and reshaped to fit into the more traditional modes, and Kongfuzi’s and Laozi’s ideas were ushered into temples in the custody of priests. All these attempts to reduce religious confusion have had their share of influence in what seems to us as a general decline of pagan polytheism. It is by no means dead, however, and may yet enjoy resurgence. We see signs of it even now, in our western ‘world/cities’ with the increasing popularity of such as Wicca and the New Age movement. As faith in science weakens, metaphysics prospers. Religion, it seems, thrives on confusion and fear of the unknown. Again and again the horde of gods is resurrected.

In India, however, in the *Vedas* we find surprisingly ancient descriptions of a godless cosmogony something like that of Confucius and Lao Tzu, but more detailed: a world rising by itself, and a complex thought structure supporting it that does not seem to have been invented as a reaction to the absurdities presented by multigods. Nor has the world arisen at the command or by the will of a particular superbeing. In our very first session we seemed to have traced what might have been a natural development of religion of multi-deities growing out of primitive magic. But in Northern India (what is now Pakistan), along the banks of the Indus, we find that our general rule may have been defied. It is possible that, here, in a reversal of normal procedure (and in order for the sages to become useful geniuses, instead of like natural piano prodigies in ancient Rome before invention of the keyboard), these purely abstract and mystical forces may have needed anthropomorphizing to influence the physical world—popularization in order that they could have an effect on the behavior and attitude of average, untrained, and less introspective humans.

The *Vedas* are a written collection of some of the oldest advice and explanations about the world and how best to deal with it. As such, they may be records (read rather re-creations) of the world's earliest attempt at philosophy. These, and the history and beginnings of Indian civilization in general, as well as that of China, were hidden from the West for many centuries. It seemed, especially so in the case of India, that there was just no occidental interest in the orient (beyond exploitation) since there was apparently no direct linkage to Western culture. It was convenient to believe (because we could not understand most of it—and we still don't) that there was nothing of value in the thought of ancient India; that is was simply a darkness: a huge and primitive land fought over for centuries by barbarians. That attitude only began to change during the 19th century as poets and philosophers of the West, notably Ralph Waldo Emerson (influential philosophical essayist and American 'transcendentalist') and Schopenhauer (*The World as Will and Idea*), began to read translations of these ancient texts and to recognize their surprising profundity—an unexpected blossoming of elevated thought from such early minds. Of course we must keep in mind, the 19th century was strongly under the influence of Hegel and just beginning to examine the ideas of his pupil, Karl Marx, promulgator of the concept of historicism whereby, in reading the ancients through modern eyes (due to the natural progress of the dialectic), we could, it was surmised, understand them better than they understood themselves. Are we thus granting these sages a profundity they did not actually possess? But they do not need to be seen as moderns out of step with their time. They were extraordinary and sufficiently great men *of* their time without our projecting quantum physics onto their thought.

As with any of the more complex concepts in history, and even the simplest mythology of early cultures, the Indian cosmic ideas are buried in an illiterate past. As with the Bible and Homeric poetry, the basis of the Vedic ideas will always be more ancient than the oldest written verses that might be found. Thus we can never know exactly how these ideas were born or developed from their infancy, or how they may have been twisted to suit the purposes of the compilers, translators, and writers. Nor do we know, except by the same traditions, just who these sages and scribes were and what they may have meant by these very confusing and oft-conflicting verses.

Wherever and however it started, over a period of about two millennia Indic mythology grew into a range of concepts that we now tend to lump together as Hindu

philosophy. 'Hindu,' incidentally, is of Greek—more likely Macedonian—derivation from the word Indus, which means simply river. (So, as with the 'Rio Grande River,' to speak of the 'Indus River' is redundant.) Their theosophy is traditionally divided into six schools of thought, called *darshanas*.

The oldest is called *Samkhya*, attributed to a sage named Kapila. His founding of the school is not disputed, but there is no evidence of his having anything to do with its texts. The earliest extant text comes from c.3rd century A.D., though it is surely a copy and is likely a re-interpretation of even earlier written texts (now lost), which were themselves interpretations of purely oral traditions whose origins have faded beyond recovery. The ideas continued developing at least through the 17th century. *Samkhya* is in fact a non-theistic cosmogony, postulating that the material world is derived from two *a priori* principles: *Purusha* (having to do with soul and self—perhaps consciousness in general, or the possibility thereof) and *Prakriti* (creative energy, agency, perhaps 'potential' having to do with matter). Thus we find a version of duality, here, but which eschews personality—i.e., no god(s). There is a kind of eternal proto-consciousness, generally speaking, without attributes or qualities. There is also a 'pre-matter' that consists of three *gunas* ('dispositions' or modes). These are: *sattva* (steadiness?—goodness); *rajas* (activity?—passion or motivation); and *tamas* (dullness?—ignorance, degradation). *Purusha* and *Prakriti* (mind and matter) are not found separately. There is an everlasting interrelationship between them, however; a tension in fact, leading to an imbalance (imperfection; broken symmetry?) which causes the world to evolve.

A state of *samsaara* (bondage to the flesh) is generally the condition of humans. Fulfillment of an individual's potential occurs when a self/soul is liberated from *Purusha*, as it were, by the realization of the difference between soul (or mind) and the world (quasi-material, which interacts with mind via the ever-present body; the senses). Escape from the body (the material world), however, is temporarily possible by following the rituals and practices detailed in the Vedas. Beyond *Prakriti*, then, by rigorous conditioning of the soul/mind, *Purusha* is unbound—*nirvana* is attained.

God (*Ishvara*), as a creator, finds no place in this scheme. The argument from *Samkhya*, against such a necessarily eternal being, is that he would be beyond knowing; that *Ishvara* cannot be proved to exist; and that an unchanging *Ishvara* cannot be the source of change. The school includes an epistemology, which proposes three sources of knowledge: direct sense perception; logical inference; and verbal testimony. (Even so, they understood that direct perception does not result invariably in true knowledge). Perceptions are of two kinds: determinate and indeterminate. *Indeterminate perceptions* may be data rich, but carrying no understanding or meaning, so these cannot be differentiated or categorized—for instance, those of animals or of an infant. Only *determinate perceptions*, processed and properly interpreted, generate knowledge.

Knowledge of *Prakriti* includes not only evolution—the transformation of primordial matter into the five elements or major substances: ether, air, fire, water, and earth; hence the multiplicity of real world things—but also the reverse: the dissolution of temporal material back into undifferentiated quasi-substance, only to evolve again in a never-ending cycle. This is highly suggestive of modern theories of the accidental Universe. But a mystical cult is hard to gather around the concept of sheer accident, so the evolution is said to be engendered by purpose. *Prakriti*, it seems, transforms or evolves for the *purpose* of releasing the spirit in bondage, perhaps to free it so *purusha*

can observe and understand ‘the other’ (*Prakriti*) before it is dissolved again. But fear not. *Satkaarya-vaada*—the theory of existent causes—holds that nothing can come out of or dissolve back into nothing. There is always something so the cycle can continue.

Even today, relatively few have the conceptual acumen to grasp such a level of abstraction. It must have been especially challenging to its ancient devotees (not to mention fruitless on a practical level, as was Confucianism and Taoism) until anthropomorphed into supernatural personalities. Again, where is justice, compassion, morality? It was probably inevitable that theism would be infused into *Samkhya*, thus the next *darshana*: *Yoga*, as expounded by Patanjali. *Yoga* is hardly more than *Samkhya* with theistic drapery: a cosmos directed or designed by god(s) [Ishvara]. Can Ishvara intervene in some way; at least assist the self in its realization and guide it to right action? Does this help shape an ethics; engender morality?

Sage Patanjali thought it did, so he describes *Yoga* as the means of governing or limiting the oscillations of the mind. The mind must be under control in order to be in control, and it must free itself of the distractions of hard reality if it is to be liberated.

Every thought, feeling, perception, or memory you may have causes a modification, or ripple, in the mind. It distorts and colors the mental mirror. If you can restrain the mind from forming into modifications, there will be no distortion, and you will experience your true Self. —Swami Satchidananda

Yoga differs from *Samkhya* in that it includes some help in encouraging the long and hard practices that are prescribed and the attitude of faith that is necessary for attaining liberation for the soul. Such help was provided through the worship of Ishvara. In some variations the creator god has female nature (thus Ishvari). There are further subdivisions of Vedic thought on this idea: 1) that God is not omnipotent and does not make the pre-world, but merely controls its evolution, and that the god is thus supernatural. Upon thinking of this supreme and eternal power, its spirit is projected onto the human mind as Ishvara, but only seems, thereby, to have human attributes. Or, 2) that Ishvari is the incorporeal creator and controller of the Universe, who is himself unchangeable and eternal (causeless), yet has certain human attributes and is therefore interested in the course of real events. He is thus made the basis of morality and the distributor of karma (thus more effectively influencing behavior). Or, 3) Ishvara is worshipped in a less abstract form in the various representative persons of Shiva, Vishnu, or Shakti: a more practical idea as it is easier to conceive of and identify with and align oneself with the wishes of a personal and caring god who advocates and promulgates the abstract principle he/she represents; of which he/she may be the source.

In 4th century B.C. India, with religion curiously separated from politics, we find open rejection of a spiritual world by opposing thinkers—Michael Nudaus of their day—arguing that worship of unseen powers is a waste of time and ought to be suppressed. Here too is anticipation of Epicurus, holding worldly pleasure to be nature’s only antidote for the pains of worldly existence. Anti-religious thinkers wandered, like the sophists Greece, seeking contentious dialogues with Vedic sages and mounting arguments refuting the priests. Often these discussions were held as competitions with prizes for the winning rhetoricians, making them perhaps the earliest professional intellectuals. Their opposition to the gods may have been the impetus behind the rise of two religious-like movements or ‘ways’ *without* personified gods made in essentially human image: the Jains and followers of **Siddhartha Gautama** [c.563-483 BC] the **Buddha**.

These antagonists did not deny the metaphysical, *per se* (Buddha would not discuss it at all, considering that the questions could not be answered—expecting that even if there were gods, they would not be able to resolve the dichotomy between the finite and the infinite). Instead, they sought influence over the state of their eternal souls by purification in the temporal world. For the Jains the ultimate goal was to prevent rebirth by making no wave and leaving no footprint in the real world, thus purifying the soul, lightening it so that it would not need to return continually for improvement. For Buddhists it was a state of high perfection that could be reached, right here on Earth (‘enlightenment’) rather than in some imagined afterworld, by aesthetic living and by turning away from worldly things—mainly the overcoming of personal desires.

Eternal wanting brings infinite dissatisfaction: ‘sorrow’ at failure to satisfy our desire. An end to worldly desire, therefore, is an end to sorrow: the reaching of nirvana—a state not of heavenly joy or ecstasy (though it may seem so relative to the pains undergone to reach it) but something more like euphoria; at least of sorrowlessness. Though Gautama laughed at the various ideas of afterlife and of wrathful and vengeful gods that attempt to influence temporal behavior, he still clung inexplicably to eternal recurrence (which seems to necessitate some sort of other-world) and recommends the *eightfold way* as the means of escape from this terrible cycle and to avoid rebirth: right views; right intention; right speech; right action; right living; right effort; right mindfulness; right concentration—the very means to political salvation that, today, would be lawfully enforced on the world by a godless left.

“There is nothing stranger in the history of religion,” comments Will Durant (THE STORY OF CIVILIZATION),

...than the sight of Buddha founding a worldwide religion, and yet refusing to be drawn into any discussion about eternity, immortality, or God. The infinite is a myth, he says, a fiction of philosophers who have not the modesty to confess that an atom can never understand the cosmos.

There is more that comes, now and then, to the surface from Jainism and Buddhism. Both would reduce (and presumably end) reincarnation by chastity, leading absurdly to human extinction. That may have been considered a logical means of effectively eradicating sorrow, until one sees that even the higher beasts experience sadness and loss. Perhaps this is the earliest form of advocating human extinction (humans as the promoters of the artificial and technological) that we now see emerging on the extreme left in favor of protecting the natural world. But while they voice disapproval of procreation, they do not generally argue in favor of chastity as the best means of saving the planet. [By the way, ‘procreation,’ it will one day actually be argued (mark my words—if it hasn’t already been so stated), and thus eternal rebirth, is the curse of heterosexuality and, thus, Nature will be truly served at last when everyone is gay.] Anyway, if soul resides in everything—even the very rocks and bodies of water—then even the expunging of all bio-forms would not stop the cycle of reincarnation, and, in a world of eternal beginning and ending; becoming and decaying, somehow the rotation of the Great Mandela would always re-establish whatever seemed to have been lost.

In any case, without the demands of God(s) and/or a spiritual realm (or at least the working out of some benefit to such, or to the whole world by individual humans following the eightfold path), seeking nirvana can be seen as purely selfish in nature; something like the argument that, uselessly to society, monks and nuns live austere

only so they will be individually rewarded in heaven. Without the expectation of heaven, of course, the Buddhist can only find *self*-satisfaction *now* (and that only temporarily) in the experience of *nirvana*. In the attempt to reach that state he expresses, it would seem, the ultimate in the very thing he is attempting to suppress: selfish desire. If it is truly the failure to satisfy desire that leads to sorrow (as Buddha indeed holds); then its opposite, fulfillment of desire, ought to avoid sorrow. The fulfillment of finding or achieving *nirvana* proves that it is fulfillment, not avoidance of desire, which relieves the world of sorrow, and which then points toward the opposite absurdity: absolute hedonism.

The Vedas and the sages that have shaped and modified them over the centuries have shown an extraordinary depth of thought, but their very success in the spreading of their exceeding reverence for the inner self and the quest for mental liberation has perhaps cast a non-progressive spell over the outward life of India. Add to this the later spread of Buddhism and the resurgence of Confucianism and Taoism in China and we have a situation whereby progress toward freedom is something which happens only to the soul. In fact it is written that the temporal world—at least the world of humanity—is actually degrading. This might have been expected considering their socio-political situation with its many restrictions of class or caste, and it may be the main reason, despite their advances in the concepts of mathematics and science, that little of practical value emerged from these endeavors, and daily life went on, for the most part, without change and devoid of aspirations. After all, one needs no automobile or rocket ship nor any sort of mechanical assistance to reach *nirvana*.

TIME:

According to the *Rig Veda*, *Yuga* (the creation cycle), or the duration of the Universe, is 4,320,000 earth-years. No numbers of such enormity are fathomed in any other pre-scientific culture. This constitutes one Brahman day or *Kalpa*. Brahma sleeps for another 4,320,000 years (one Brahman night), after which he awakens to start the creation again. A *Kalpa* is divided into 1000 segments called 'great ages.' Each great age consists of 4 parts (somewhat akin to the Greeks' ages of gold, silver, bronze, and iron) during which humanity inevitably deteriorates. The *Puranic* interpretation has it that this repeats for 100 Brahman years (311 trillion earth years), the completion of Brahma's life. Another 100 Brahman years of virtually nothingness elapse (how they are measured is not established), after which a new Brahma is born (or Brahma is *reborn*) to begin the incomprehensible cycle all over again. And it may well be this very incomprehensibility that suggested its use as a means to faith. If numbers are imaginable, yet there can be so many as to become unimaginable, then experienced reality might be magnified and extended beyond the power of imagination as a physical continuum: a solid foundation for an airy faith.

SPACE:

Astronomy vs. Revelation:

Excerpt from:

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Reflections in Religion and Metaphysics
A. K. Chakravarty

The exact origin of astronomical studies in India is not known to us though it is fairly clear that it eventually formed part of ancient Vedic people. The earliest text on this subject now available, *Vedanga Jyotisa*, aims at determining the most suitable time for performing a *yajna* in consideration of the luni-solar-stellar situation at that time. The subject was based on so crude astronomical parameters that its failure could not escape the notice of any sky-watcher, till then it was never questioned by anybody perhaps because of its association with religious *yajnas*. This scheme of astronomy survived for some 2000 years.

In later India, these parameters were scraped, scope of astronomy was extended to include natural phenomena, like, eclipses, identification of planets and formulations of their motions, etc., till then astronomers often invoked metaphysics to explain cosmological facts. It occurs to us that the general people of that period in that class-ridden society was more interested in earning *punyaphala* through religious functions than acquiring pure knowledge. Astronomers could not or did not ignore this sentiment and so, to honour this sentiment, they found it necessary to blend religion and metaphysics with cosmology in an astronomical background. Science in ancient times had to be supplemented by speculative materials and was thus mixed up with myths and metaphysics.

So, while Ujjian, India, seems to be the birthplace of zero (the first known text to mention zero is the Brahmasphutasiddhanta, within +/-50 years of the birth of Christ), and the knowledge of mathematics and geometry was relatively advanced, Hindu astronomy could not break its shackles to religion.

Here is a sample of the cosmic/astronomic concepts of ancient India. The content of the following sketch would seem surprising if their thought was as profound as many contemporary intellectuals have come to believe. (It could be that it only seems profound due to the practically unavoidable tendency to read back into the past the lessons compounded by centuries of change and our extraordinary advantages in the organization and availability of information).

There are winds in the heavens blowing the 7 planets about, or even reins connected from the planets to the hands of the gods.

There are 7 *lokas* above Earth (including Earth) and 7 *talas* under the Earth. They are planes, levels or dimensions with specific life forms and standard of life. From the top to the bottom of the universe they are (according to Srimad Bhagavatam 5.23-24)—(in descending order):

Satyaloka (Lord Brahma and the most advanced sages)
 Tapoloka (even more advanced sages)
 Janaloka (more advanced sages)
 Maharloka (sages)
 Svar(ga)loka (devas)
 Bhuvārloka (lesser devas, ghosts)
 Bhu(r)loka (humans—Earth plane)
 Atala (demons)
 Vitala (Lord Shiva and Bhavani with their associates)
 Sutala (Lord Vamanadeva with Bali Maharaja and other demons)
 Talatala (Maya Danava and other demons)
 Mahatala (serpents)
 Rasatala (demons)
 Patala or Nagaloka (serpents)

Below Patala is the Garbha ocean (Garbhodaka) filling half of the universe on which Garbhodakasayi Vishnu lies on Ananta Shesha and from His navel grows a lotus. In the stem of this lotus are situated all the planetary systems (SB 3.28.25, etc.).

Outside this universe Maha-Vishnu is lying on the Causal Ocean and while He is exhaling, millions of universes are coming as bubbles from His body and they are developing again. And when He is inhaling, millions of universes are going within Him. Thus these material universes are being created and again annihilated.

"The Maha-Vishnu, into whom all the innumerable universes enter and from whom they come forth again simply by His breathing process, is a plenary expansion of Krishna. Therefore I worship Govinda, Krishna, cause of all causes." [Brahma-samhita 5.48]

Related: a dialogue concerning a problem of Vedic cosmology

Q: Srimad Bhagavatam, Fifth canto, speaks of an arrangement of planets in our solar system that places the Earth's moon further away in space from the Earth than is the Sun. If this is true then we would never see a solar eclipse when the moon partially blocks the light of the Sun and casts a shadow on the Earth. Obviously, the moon must be closer to the Earth than is the Sun if it comes between the two to cause an eclipse. If the Bhagavatam is correct in the description of the fabulously complex workings of the Creation then how can something as simple as a map of our solar system be wrong?

A: Srila Prabhupada said that one should rather ask how the Vedas should be understood, not if they give true information or not. This is the basic trust in the scripture we need to even start our spiritual path.

[This is elaborately dealt with by Sadaputa Prabhu (Dr. Richard Thompson) in his book VEDIC ASTRONOMY AND COSMOGRAPHY and a more recent one, [MYSTERIES OF THE SACRED UNIVERSE](#) (accompanied by a CD with visual simulation.)]

Short answer would be that Moon is higher than the Sun - measured above the plane of ecliptic (Bhu-mandala) - and thus 'further away'. Eclipses are caused not by Moon but by Rahu/Ketu grahas (*a kind of 'planet'*), which correspond with northern and southern lunar node, points where eclipses occur.

Q: My distress over this apparent flaw is complicated by the fact that I have had a small glimpse of Paramatma; the 'visual' aspect of the realization was exactly as described in the scriptures and I am left asking 'How can the scripture be simultaneously right and wrong?'

A: Yes, the Lord let's see Himself when He is pleased with us or when we need encouragement. As I said, scripture is right, but we may not be fully able to understand it now.

This explanation of the difference between what is true and what is observed was used by the magi of every civilization until the full flowering of Newtonian (mechanical or ‘classical’) physics during the Western age of science. Metaphysics would then be discredited as a source of knowledge, as science declared its independence from philosophy—until it was realized that science was only a pragmatic solution to the problem of ‘What is true?’. It gave us sufficient truth to provide flush toilets and hot water and electric lights and rapid transportation—making possible world prosperity. The difference between what we observe, however, and the fundamental structure of reality, as it turns out, cannot actually be resolved. Thus, either there is no truth or (what is practically the same thing) we can never have knowledge of it.

That discussion, however, must wait until we have investigated the ideas of Greece, seen the development of philosophy, passed briefly through the conceptual near-desert of sway-intoxicated Rome, and endured the long submission of philosophy to scripture among the ‘schoolmen’—until, that is, the Renaissance reminds us at last of the alternative. The dead weight of an impotent medieval culture and the awful pressure of a tyrannical, scheming, and ironically worldly Christian church (so corrupt as to be openly selling tickets to heaven while torturing and burning heretics), finally pushed open a previously unsuspected fissure at the top of their mental dungeon: a portal to enlightenment, and Western culture was drawn upward along a radical new path: an inclined road that promised to carry the world out of the cave of doubt, above the mists of speculation, finally beyond what was a weakening faith in a confusing scriptural authority that so clearly contradicted observation, experiment, and rational hypotheses, ultimately into the realm of knowledge. Science promised to reveal the great truth.

Looking back from a post-Hegelian, post-Marxian perspective, science looks to be the expected ‘synthesis’ between *philosophy* on the one hand (the ancient classical ‘thesis,’ which attempted for centuries to separate knowledge from opinion by reasoning) and *revelation* on the other (philosophy’s ‘antithesis’: essentially an unsettled set of internecine religious ‘opinions’ parading as knowledge—the monotheistic, Judeo-Christian-Mohammedan kind). Religion in the West, however, for several centuries, managed to enslave philosophy rather than find an actual synthesis of revelation and reason. This use and abuse of reason was carried out brilliantly by the Church ‘doctors’ from Augustine to Aquinas, but the arguments were often reinforced by sharpening the base of the Cross and upending it for use as God’s ‘terrible swift sword.’

In the Islamic Middle-East philosophy was simply disallowed, except for rare clerics who knew how to borrow from its logic a means of support for scripture and prophecy, not allowing its more extreme conclusions to trickle down—thus to prevent Plato’s Socrates from corrupting their world by distorting and weakening theo-political control over Mohammed’s submissive society. Those subversive Greek ideas were not too hard to keep in check since there were no books. Why would there be? Hardly anyone, excepting those severely trained in religion, could read. Reading, generally, was a useless skill in those days, since it was forbidden for the multitude to read anything but the Q’ran. So, in both cultures (Christian and Islam—but also among the Jews) scripture needed to be filtered, interpreted, adjusted (‘censored, if you will’) so as to have the ‘proper’ influence on society—for the ‘general good’, of course (meaning social control and stability), but also for the particular good of the interpreters (meaning honor and respect, certainly, but, most important, security in their status—i.e., wealth and power).

HANDOUTS:

PREVIEW:

Chapters XVI 'The Theory of Concentric Spheres:
Eudoxus, Callippus and Aristotle' and XVII 'Aristotle, cont.'
in ARISTARCHUS OF SAMOS: *The Ancient Copernicus* by Sir Thomas Heath;
Dover edition, 2004 [of Oxford (Clarendon Press) 1913];
pp.190-248

AND (*To be determined, combine with short paper—see Lec. 7-B or 8-B if applicable*)

Aristophanes: *The Clouds*; GBWW, vol.5
AESCHYLUS / SOPHOCLES / EURIPIDES / ARISTOPHANES
pp.488-506