宇宙的气

The Qi of the Universe

As far as mankind can recall, everyone has lived under one sky, the same sky. But, not every observer sees the sky exactly the same as the next person; rather, they see the sky differently leading to numerous ideas and philosophies being created. The ancient Chinese cosmology of the 3rd to 5th century AD and medieval European cosmology of the 3rd to 15th centuries are two forms of cosmology that greatly differed. Unlike European cosmology, which explained the position of the earth relative to the other planets, Chinese cosmology only positioned China and the Earth in the structure of the universe. Moreover, while European cosmology acknowledged a creator-creation relationship with God, Chinese cosmology did not believe in such a relationship. Instead, Chinese cosmology revered the emperor, known as the "Son of God," who performed "astronomically timed rituals" to maintain the balance between heaven and earth (North 137, Krupp 193). Despite the vast differences between cultures and time periods, these two ancient cultures still share similarities such as: a set of twelve symbols to represent the cycle of the year, a belief that irregularities in the sky are omens, and a theory that the universe is fashioned from certain elements. Even though medieval European cosmology came after ancient Chinese cosmology, it is interesting to note that the Chinese were more advanced when dealing with cosmological aspects.

Of the various universes imagined, three models of the universe were prominent in Chinese cosmology during the Han Dynasty (around 180 BC). The three models were known as the: *Gai Tian* ("Heavenly Canopy), *Hun Tian* ("Hen's Egg") and *Xuan Ye* ("Empty Space") cosmology (Penprase 121-22).

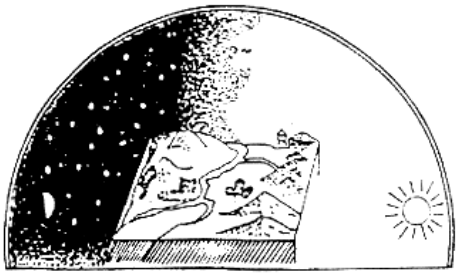

Figure 1: Gai Tian (Zhang)

As seen in Figure 1, "the heavens were imagined as an inverted bowl covering the earth, which was itself thought of as another inverted bowl" (Needham and Ronan 83). *Gai Tian* also depicted the universe with China positioned in the center of the earth, and the earth located in the center the universe. The "center" was considered very important to the Chinese because that is where the heavens and earth meet – where balance is kept. As Figure 2 demonstrates, the *Hun Tian* cosmology is similar to the *Gai Tian* as earth is also positioned in the center; however, the heavens enclose the earth completely in a spherical shape. Also, the base of the earth is not square, rather, "inside the lower part of the heavens there is water. The heavens are supported by *chhi* (vapor); the earth floats on the waters" (Needham and Ling 217). The last concept, *Xuan Ye* cosmology, presents the cosmos "in which space goes on forever, with the stars not arrayed in a crystalline sphere or canopy, but spreads throughout the dark and infinite space" (Penprase 122). In other words, the "seven luminaries," which are the: sun, moon and first five stars observed by the Chinese, were all either floating freely in space or "remained stationary in the universe" (Penprase 122). This free movement explained why the seven luminaries' appearances and disappearances varied greatly.

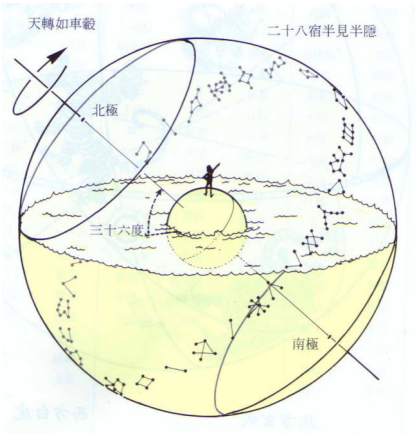

Figure 2: Hun Tian (Volkou)

While Chinese cosmology held three prominent cosmology concepts, medieval European cosmology focused primarily on Ptolemy's geocentric model of the universe.

Unlike a hen's egg, medieval European cosmology resembled an onion with many layers surrounding the earth. The first layer composed of the four elements: earth, water, fire and air, which were then followed by the seven luminaries and lastly, the "outermost in this scheme was the *Priumum Mobile* ["Prime Mover"], sometimes divided into three spheres of the Crystalline Heaven, the First Moveable, and the Empyrean, or highest heaven" (Jokinen). This Prime Mover is what many medieval European cosmologists also referred to as God. Slightly resembling the *Gai Tian* cosmology in which the movement of the sun was a result of the sun being attached to the heavens (considered a "god" to the Chinese), this belief of God, the Prime Mover, setting the system of the universe into motion was asserted by the European cosmologists (Needham and Ling 213). Though these two cosmologies began formulating during different time periods, they do share some similarities regarding the structure of the universe: a geocentric (earth-centered) universe, a heaven that was above Earth as well as an infinite space in which the Earth and cosmic bodies were suspended (Jokinen). Both Chinese and medieval European cosmology also intertwined certain aspects of their religion into explaining the structure of the universe with the Chinese integrating the Taoist notion that the heavens were spherical and the Europeans using God to explain the movement of the cosmos (Penprase 122). Nevertheless, for the most part, ancient Chinese and medieval European cosmologies still differed as a result of their beliefs and traditions.

Of the differences between ancient Chinese cosmology and medieval European cosmology, the most blatant difference is the absence of a supreme deity within the Chinese culture. While medieval European cosmology deemed God as the being responsible for the creation of everything in the universe, the Chinese believed otherwise.

To the Chinese, a series of deities were responsible for the creation of the universe (寧). But, the Chinese did have a creation story, similar to the medieval European which detailed one single deity as the creator of the world. Born out of an egg, P'an-ku opened his eyes 18,000 years later to see that he was surrounded by chaos (寧). Just as Figure 3 depicts, P'an-ku began "to struggle to tear the chaos world apart," after much effort the "chaos world" began to tear apart with the "light chi" raising to the top and forming the sky while the "heavy chi" sank down and became the earth (寧). Afraid of the sky and earth combining, P'an-ku, used his head to support the sky to keep the heavens and earth from meeting.

Figure 3: P'an-ku separating the heavy and light chi (石)

Similar to the European creation story where God rested on the seventh day, P'an-ku also decided to rest. Unfortunately, he never opened his eyes again and as he was dying "his breath became the wind and the clouds; his voice became lightening; his left and right eye became the sun and moon" (寧). His hands and feet became the four edges of world. The rest of his body became miscellaneous things ranging from trees to raw materials like iron.

The story of P'an-ku was created merely to satisfy "what the outsiders want" (Mote 18). Europeans who came to China often asked, "What is China's creation story?" which led to the Chinese adopting the tale of P'an-ku (Mote 18). Ancient Chinese cosmology mainly focused on the emperor who, as the Son of Heaven, was expected to

maintain balance between the heavens and Earth. Any "irregular motions of celestial objects or the appearance of new objects in the sky," such as an eclipse, were seen as detrimental to the future health and successes of the reigning emperor (Penprase 122). To ensure the safety of the emperor, an imperial astronomer and astrologer kept watch at night, predicting the next eclipse. If a predicted eclipse failed to materialize, it was because the emperor had prevented the omen with his powers (North 141). This ominous sign only concerned the emperor's life. Regarding the common people, "a man can be ill… not necessarily only a punishment for some bad act, certainly never as the result of blind fate, but often for quite natural reasons such as the consequences of heat and cold, fatigue or bad food" (Mote 88). Compared to the emperor whose fate was determined by the cosmos, commoners did not need to worry about such problems.

Unlike the Chinese cosmology that revered no omnipotent deity, medieval European cosmology held a high regard for God. Heaven was not a god; it was a place where people, free from sin, could enter. Moreover, "everything between heaven and earth had its eternal place, chosen by God" (Primack). Since God was the one responsible for creating humankind, this meant that all ominous events were a form of punishment for a wrongful act. Compared to Chinese cosmology that only concerned the irregularities of the sky with the emperor, medieval European cosmology was also concerned with the abrupt changes in the sky, but these changes affected everyone. The 1345 plague that struck Europe was believed to have been caused by the "triple conjunction of the planets Mars, Jupiter, and Saturn" where "the result's of Jupiter's "warm, humid vapors," were "set fire" by Mars" (Penprase 254). This alignment is what caused a disturbance in the air inducing the plague onto Europe. Even though ancient Chinese cosmology and medieval

European cosmology both regarded irregularities in the sky as omens, the difference between the acknowledgement of a non-bodily entity and a physical supreme ruler is what sets the two cosmologies apart. The Chinese understood that misfortune was caused by natural reasons such as a change in body temperature, making their logic more grounded. Medieval European cosmology relied on nothing but their religious faith to protect them from any catastrophes.

Luckily, the astronomers of ancient Chinese cosmology and medieval European cosmology learned that the stars and planets followed a consistent pattern when appearing and disappearing from the sky. These patterns allowed both cosmologies to develop a source of time-keeping. Similar to modern day calendars that divided the year into twelve months, both ancient Chinese and medieval European cosmologies also kept track of the number of days that had passed through twelve segments. As a majority of medieval European cosmology been influenced by religion, mainly Catholicism, the creation of timekeeping was no exception. Using Jesus' "designation of 12 hours in a day in John 11:9," a day was divided into two sets of twelve even hours – twelve hours for sunrise to sunset and twelve hours for sunset to sunrise (Farrell). Corresponding with the 24-hour day, the Church divided the day into "eight [uneven] liturgical Hours or Offices, each marked by prayer:" Vigils, Matins, Prime, Terce, Sext, None, Vespers and Compline (Farrell). Community churches would ring bells for every office except the Vigil. Besides the ringing of the Church bells, tracking the movement of the sun through the sky also allowed people to tell time (Farrell). The invention of the sundials and water clocks also provided more accurate ways to tell time. Basically, a person's life was coordinated around these seven bells.

Similarly, ancient Chinese cosmology divided day and night into twelve equal hours. The Chinese also used sundials and water clocks to tell time. In addition to those inventions, to keep track of hours and months and years, the system of "Twelve Earthly Branches" was created (China Travel Depot). When counting years, every Earthly Branch was always associated with one of the animals from the Chinese Zodiac. The "Ten Heavenly Stems" were simply used to record the days in addition to helping "synchronize the calendar with the seasons (China Travel Depot, Penprase 158). Together, the Twelve Earthly Branches and Ten Heavenly Stems created a 60-year cycle which mapped the: year, month and day by taking "one character from "Heavenly Stems" as the first character and taking another character from "Earthly Branches" as the second" (China Travel Depot). Besides the Branch-Stem system, Ancient Chinese cosmology created a more evenly distributed way to keep time through the use of "shi chen," which is the equivalent of two hours in modern time (China Travel Depot). This meant that there would be more consistency throughout the day at two hour intervals compared to the random European church bells. Although not as important, medieval European cosmology also invented a zodiac, but instead of using animals, the medieval zodiac was based on the constellations. Similar to Chinese cosmology which used the twelve zodiac animals to represent a year, medieval European also used the twelve figures to depict the cycle of the year known as Labors of the Months (Hayes). Depending on the month, a different figure would represent what most farmers would be doing. For example, the eleventh month was known as "preparing for winter" and depicted a man fattening up a pig (Hayes). Both ancient Chinese cosmology and medieval European cosmology shared

similar traits when counting time. The only difference is that the Chinese created a more organized and evenly distributed way to count time.

Besides time, both ancient Chinese cosmology and medieval European cosmology shared a belief that the universe was composed of several elements. Both stressed that "earth, water, air, [and] fire" was what the universe was made of, with the addition of metal and wood for the Chinese (Jokinen, Penprase 158). As Figure 4 displays, the Chinese had five elements: water, fire, wood, metal and earth. On the other hand, the medieval Europeans ranked their elements as: earth, water, air and fire. Moreover, the order of the European elements was based on weight with earth being the "heaviest element… Arranged around it there was water, somewhat unevenly but nevertheless covering the majority of the earth, above that was the air, and finally fire" (Simek 101). Continuing with the idea of balance, the Chinese did not believe in a particular order; rather, the elements were all connected in a never-ending cycle of mutual promoting and mutual restraining. Moreover, each element coincided with a direction. The directions: north, east, south, west and the center, were represented by: water, wood, fire, metal, and earth, respectively (寧). Regardless of the order, both cultures believed that these elements are what the universe is comprised of.

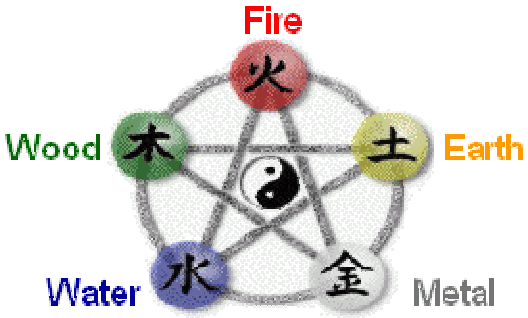

Figure 4: The five elements the Chinese associated with the idea of balance (Beaufortninja).

It cannot be expected of science to "homogenize all cultures rapidly enough for us to be spared the trouble of understanding those different from our own" (Mote 28). If mankind ever wishes to discover the true origin of the universe, mankind must first learn

to accept the ideas of other cultures. Although the Europeans were not entirely fond of ancient Chinese cosmological concepts, even referring to the ideas as “absurdities,” the Chinese were not affected (Needham and Ronan 439). The religious Europeans failed to acknowledge any other entity responsible for the creation of the universe other than God. Because the medieval European cosmology mainly revolved around God, it negatively affected how they perceived other cosmological concepts. Chinese cosmology, which developed before the European cosmology, proved to be superior to the latter. In terms of offering different perspectives of the universe’s birth, explaining sky phenomena, and tracking time amongst other things. By incorporating other cultures’ cosmological concepts, regardless of how ancient the culture may be, then can mankind truly be under the same one sky.

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