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SPECIAL ISSUE ARTICLE

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Remains of Sacrificial Offerings to Heaven and the Concept of Reverence for Heaven in the Neolithic Age of China: Features at the Gaomiao, Niuheliang, and Lingjiatan Sites

Abstract Since about 8,000 years ago in China, humans started to hold ceremonies to offer sacrifices to heaven and reverence for heaven at low-lying terraced landscapes or on circular mounds on the hilltops. Typical archaeological features and remains of such activities can be noticed at the Gaomiao, Niuheliang, and Lingjiatan sites, indicating that a somewhat complex cosmology and definite concept of reverence for heaven and acts of offering sacrifices to heaven had well begun in the Yangtze River, Yellow River, and west Liaohe River valleys in the Neolithic Age, which continued, with succession, integration, and development, through the Xia, Shang, and Zhou dynasties, and even into the the whole ancient China after the Qin and Han dynasties. The concept of reverene for heaven co-evolved with ancient astronomy, which had far-reaching influences on the political system, philosophical thinking, science and technology of acient China. Like the veneration of the dead, it has become the core cultural gene of the Chinese nation.

Keywords Neolithic Age of China, sacrificial offerings to heaven, reverence for heaven, Gaomiao, Niuheliang, Lingjiatan

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I

"Reverence for Heaven" or the worship of "*Tian* 天 (Heaven)" and "the Celestial Deities" is one of the core attributes of Chinese civilization, and a full-fledged set of rites for holding sacrificial offerings to heaven had well developed as early as in the Western Zhou Dynasty (1046–771 BCE). To the folks in the Zhou Dynasty (1046–256 BCE), despite variations in the phrases, such as *Tian* 天 , *Shangtian* 上天 , *Haotian* 昊天 , *Huangtian* 皇天 , *Mintian* 旻天 , *Shangdi* 上帝 , *Haotian Shangdi* 昊天上帝 , *Huangtian Shangdi* 皇天上帝 , "Heaven" represented supremacy and referred exclusively to the ultimate master or the supreme deity reigning over heaven and the earth. For example, in the Zhou Dynasty, its monarchs were known as "the Son of heaven" 天子 , who ruling over the populace was known as the ruling in "the land under heaven" 天下 , which replacement of the Shang Dynasty (1600–1046 BCE) was known as "the punishment on the latter from heaven" 天罚 ,[1] and its seizure of the political power from the previous dynasty was construed as "the mandate of heaven" 天命 .[2] In short, folks in the Zhou Dynasty had a strong mentality of reverencing heaven or a strong concept of destiny, namely they worshiped and believed in heaven,[3] which is reflected in their sacrificial offerings to heaven, the highest-level sacrificial rite at the time. The *Offices of Spring* of the *Rites of Zhou* 周礼 · 春官宗伯 states that "*Yinsi* 禋祀 (sacrifices of burning whole animals with jade objects and silk fabrics) shall be offered to Haotian Shangdi, *Shichai* 实柴 (sacrifices of burning part of animals with silk fabrics) to the sun, the moon, and stars, and *Youliao* 槱燎 (sacrifices of burning part of animals) to *Sizhong* 司中 (a deity in charge of human life), *Siming* 司命 (a deity in charge of human death),

[1] In "Speech at [the Battle of] Muye" 牧誓 of the *Book of Documents*, "Now, I, Ji Fa, am simply executing respectfully the punishment appointed by heaven."

[2] In "Announcement of Duke Shao" 召诰 of the *Book of Documents*, "We have received the decree of heaven, and it shall be great as the long-continued years of Xia; yea, it shall not fail of the long-continued years of Yin."

[3] In "Ban of the Decade of Sheng Min" 生民之什 · 板 of the *Classic of Poetry*, "Reverence the anger of heaven, and presume not to make sport or be idle. Reverence the changing moods of heaven, and presume not to drive about [at your pleasure]. *Haotian Shangdi* is intelligent, and is with you in all your goings. *Haotian Shangdi* is clear-seeing, and is with you in your wandering and indulgences." In "Wo Jiang of the Decade of Qing Miao" 清庙之什 · 我将 of the *Classic of Poetry*, "Do not I, night and day, reverence the majesty of heaven. Thus to preserve [their favor]."

Fengshi 风师 (a deity in charge of four seasons and climate changes), *Yushi* 雨师 (a deity in charge of the rain)." Obviously, *Haotian Shangdi*, the supreme deity was the highest-ranking one among all the celestial deities,[4] or rather, all the other celestial deities are nothing but various avatars of the supreme deity, whereas the sun, the moon and, stars are actually parts of the supreme deity. Similar records on the rituals of offering sacrifices to and reverencing heaven were also founded in the inscriptions on the oracle bones unearthed at the Zhouyuan 周原 (in now Shaanxi Province) site and the inscriptions on the bronze wares in the Zhou Dynasty.[5]

The Yinsi ceremony for the supreme deity in the *Rites of Zhou* 周礼 is the rite where sacrifices are burnt with woods to generate smokes for the supreme deity up in the Ninth Heaven 九天 (the highest of heavens), as described in the *Book of Etiquette and Ceremonial* 仪礼 ,[6] but the *Shichai* ceremony for the sun, the moon, and stars and the *Youliao* ceremony for *Sizhong*, *Siming*, *Fengshi*, and *Yushi* also contained some rituals like *Yinsi*, such as burning animals or jade objects and silk fabrics to generate smokes.[7] The *Rites of Zhou* also clearly states that the sacrificial offerings to heaven should be done on the date of the Winter Solstice 冬至 on a circular mound 圜丘 ,[8] while the *Book of Rites* 礼记 states that the rite should be done on a Grand Altar 泰坛 ,[9] which is usually in the southern suburb (of the capital), thus being known as the Suburban Sacrificial

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[4] Wang Zhaoyu (in the Song Dynasty) noted that: "*Haotian Shangdi*, the supreme deity is heaven. While heaven is the incarnation of the supreme deity, the supreme deity is the agent of heaven." Wang Zhaoyu, *Zhouli Xiangjie* (Di-shiqi Juan), in *Wenyuange Siku Quanshu*.

[5] For example, the inscriptions on bones or tortoise shells at the Fengchu site H11:96: "Sacrificial offerings to the heaven, to march west and meet no disasters." *He Zun*: "Building an altar for sacrificial offerings to heaven."

[6] In "Rites of the [Imperial] Audience" 觐礼 of the *Book of Etiquette and Ceremonial*, "Sacrificial offerings to heaven, burning firewood."

[7] In "Offices of Spring " 春官宗伯 of the *Rites of Zhou*, Zheng Xuan (noted): "Yin 禋 is smoke. People in the Zhou Dynasty emphasize the smell and lead the smell of smoke to heaven. You 槱 is to stack fireworks.... During sacrificial offerings, burning firework, animals or jade artifacts or silk fabrics to generate smoke, which will rise to Heaven."

[8] In "Musician-in-Chief " 大司乐 of the *Rites of Zhou*, "In winter, play the music on a circular mound. If the sounds of the music changes, the supreme deity descends and accepts the offerings."

[9] In "Law of Sacrifices" 祭法 of the *Book of Rites*, "With a blazing pile of firewood on the Grand Altar, they sacrificed to heaven."

Rite or Suburban Offering.[10] According to the *Classic of Poetry* 诗经 , the *Book of Zhou* 逸周书 (*Yi Zhou Shu* known as the *Zhou Shu* 周书) and the *Discourses of the States* 国语 , during the Suburban Sacrificial Rite, Hou Ji 后稷 , the founder of the Zhou Dynasty, also benefited,[11] in addition to heaven. Yet, the rites should not always have been held in the southern suburb (of the capital) or on a man-made mound or altar as the ceremony for heaven upon a hill has also been an important practice since ancient times.[12] According to the ritual practice in the Zhou Dynasty, the ceremony for heaven is the act exclusive to the monarchs,[13] but as the rigorous rite system relaxed, feudal kings also held the ceremonies for heaven in the Eastern Zhou Dynasty (770–256 BCE),[14] letting alone the faith and reverence for heaven by the populace. Since the Qin and Han dynasties (221 BCE–220 AD) and beyond, the practice of sacrificing and reverencing heaven has come down as a tradition, serving as the ritual witness to and the ideological source of the justification of various regimes over age.

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[10] In "Single Victim at the Border Sacrifices" 郊特牲 of the *Book of Rites*, "The space marked off for it was in the southern suburb—the place most open to the brightness and warmth (of the heavenly influence)... The place was the suburb, and therefore the sacrifice was called the suburban or border." "This border sacrifice is the illustration of the way of Heaven." In "Conveyance of Rites" 礼运 of the *Book of Rites*, "They therefore sacrificed to the supreme deity in the suburb (of the capital), and thus the place of heaven was established."

[11] In "Si Wen of the Sacrificial Odes of Zhou" 周颂 · 思文 of the *Classic of Poetry*, "O accomplished Hou-ji, Thou didst prove thyself the correlate of Heaven." In the "Foundation of Luo Town" 作雒 of the *Book of zhou*, "To build a mound in the southern suburb of the town, offer sacrifices to the supreme deity and Hou-ji." In "Discourses of Lu-I" of the Discourses of the States 国语 · 鲁语上 "Under Zhou they gave the place of honour to Ku, and made Ji the correlate at the border sacrifice, they sacrificed to king Wen as their ancestor, and to king Wu as their honored predecessor."

[12] In "Religious Sacrificial Ceremonies" 封禅书 of the *Records of the Grand Historian*, "Since ancient times, the altars have been built in Yongzhou for sacrificial offerings to the heavenly deities. This tradition might have emerged since the Yellow Emperor. The suburban offerings took place even in the late Zhou Dynasty." See also Yang Tianyu, "Xizhou Jiaotianli Kaobian Er Ti," *Wen Shi Zhe*, 91–96.

[13] In "Summary of the Rules of Propriety Part Ⅱ" 曲礼下 of the *Book of Rites*, "The Son of Heaven sacrifices (or presents oblations) to Heaven and the Earth." In "Royal Regulations" 王制 of the *Book of Rites*, "The Son of Heaven sacrificed to Heaven and the Earth; the princes of the states, to the (spirits of the) land and grain; Great officers offered the five sacrifices (of the house)."

[14] In "The Conveyance of Rites" of the *Book of Rites*, "Confucius said: The border sacrifice of Lu, (however,) and (the association with it of) the founder of the line (of Zhou) is contrary to propriety—how have (the institutions of) the duke of Zhou fallen into decay! At the border sacrifice in Qi, Yu was the assessor, and at that in Song, Xie was the ancester; but these were observances of the sons of Heaven, preserved (in those states by their descendants)."

Just as in the Zhou Dynasty, the concept of reverence for heaven had come into being as early as in the Shang Dynasty as evidenced by the oracle inscriptions on tortoise shells or animal bones unearthed at Yinxu 殷墟 (Ruins of Yin), which carried the descriptions, such as *Shangdi*, *Lingyu* 令雨 (dominating the rain), *Lingfeng* 令风 (dominating the wind), *Linglei* 令雷 (dominating the thunder), *Jiang Wo Jin* 降我堇 (馑) (calling down hunger), *Jiang Huo* 降祸 (calling down disasters), *Jiang Ji* 降疾 (calling down diseases), meaning that the supreme deity condescend to decide on major events for human beings, including weathers, harvests, blessings, and hardships,[15] thus taking on the attribute of the supreme deity.[16] The phrases in the oracle inscriptions, such as *Tian Yu* 天御 (ruling by the supreme deity) and *You Sui Yu Tian* 侑岁于天 (sacrificing the supreme deity), apparently suggested that a personified supreme deity had come into being.[17] The descriptions in the "Speech of (King) Tang" of the *Book of Documents* 尚书 · 汤誓 , such as "but for the many crimes of the sovereign of Xia, heaven has given the charge to destroy him" 有夏多罪 , 天命殛之 and "the sovereign of Xia is guilty, and as I fear the supreme deity, I dare not but punish Xia" 夏氏有罪 , 予畏上帝 , 不敢不正 , and ones in the "Eulogies of Shang "of the *Classic of Poetry* 诗经 · 商颂 , such as "the supreme deity commissioned the swallow to descend and give birth to (the father of our) Shang" 天命玄鳥 , 降而生商 and "the supreme deity raised the son (of its daughter), and founded (the family of) Shang" 帝立子生商 , obviously suggested that heaven and the supreme deity were the same. This notion could go back to the Xia Dynasty (ca. 2070–1600 BCE) or even earlier.[18]

In contrast with the voluminous literature, the remains of sacrificial offerings to heaven during the Xia, Shang, and Zhou dynasties have scarcely been

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[15] Hu Houxuan, "Yin Buci Zhong de Shangdi he Wangdi," *Lishi Yanjiu*, 23–50, 89–110; Zhu Fenghan, "Shangzhou Shiqi de Tianshen Chongbai," *Zhongguo Shehui Kexue*, 191–211.

[16] Li Yanong, *Yindai Shehui Shenghuo*.

[17] Feng Shi, *Zhongguo Gudai de Tianwen yu Renwen* (Xiudingban), 68.

[18] In "Speech at [the Battle of] Gan 甘誓" of the *Book of Documents*, "The lord of Hu wildly wastes and despises the five elements (that regulate the seasons), and has idly abandoned the three acknowledged commencements of the year. On this account, Heaven is about to destroy him and bring to an end his appointment (to Hu)." In "Canon of Yao" 尧典 of the *Book of Documents*, "He commanded the Xihe, in reverent accordance with (their observation of) the wide heavens, to calculate and delineate (the movements and appearances of) the sun, the moon, the stars, and the zodiacal spaces, and so to deliver respectfully the seasons to be observed by the people." In "Canon of shun" 舜典 of the *Book of Documents*, "Thereafter, he sacrificed specially, but with the ordinary forms, to the supreme deity; sacrificed with reverent purity to the Six Honoured Ones; offered their appropriate sacrifices to the hills and rivers; and extended his worship to the host of spirits."

discovered in field archaeological activities,[19] albeit the remains of similar kinds as early as in the Neolithic Age have already been discovered across wide swathes of the country. This paper makes a concise analysis of remains of sacrificial offerings to and the concept of the reference for heaven in the Neolithic Age of China through three typical historic sites: Gaomiao 高庙, Niuheliang 牛河梁, and Lingjiatan 凌家滩.

II

On the northwest margin of the Anjiang Basin in Hongjiang, Hunan, the Gaomiao site is located on the bottom terrace on the northern bank of the Yuanjiang River, covering an area of approximately 30,000 square meters. In its lower layer, a large sacrificial site of the Gaomiao culture was found, covering a restored surface of approximately 1,000 square meters and dating back approximately 7,080–7,000 years ago. The four square pillar holes in the sacrificial site were about one meter in side length and might have been for something of "terraced bent-frame structure" according to the excavators. In addition, there were also dozens of sacrificial pits, supporting facilities and others. Burnt animal bones, such as cattle, sheep, deer, turtles and fish, and sea shells were unearthed in all the sacrificial pits, and some bones of human beings were also found in a few sacrificial pits. The unearthed white potteries, likely to be sacrificial vessels according to excavators, were very exquisite and inscribed with complex patterns, with some of them corresponding to the "terraced landscape" patterns on main buildings on the sacrificial site and the patterns of eight-pointed stars, fanged deities, the sun, and birds.[20]

[19] The pair pieces of jade disks found at the building foundations in Third Team of Xiaotun Village are believed to be the remains of sacrificial offerings to heaven by monarchs in the late Shang Dynasty. The circular rammed earth alters and sacrificial pits at the Xishan site in Lixian, Gansu are believed to be related to the West Altar where Duke Xiang of the Qin Kingdom offered sacrifices to the White Emperor at the turn of the Western Zhou Dynasty to the Eastern Zhou Dynasty (770 BCE). But, the White Emperor and the supreme deity are still different. See Shi Zhangru, "Yizhi de Faxian yu Fajue · Yibian · Yinxu Jianzhu Yicun" in *Xiaotun*; Wang Zhiyou and Liu Chunhua, "Qin-Han Xizhi Duibi Yanjiu," in *Qin-Han Yanjiu* (Di-jiu Ji), 16–174.

[20] Hunan Provincial Institute of Cultural Relics and Archaeology, "Hunan Qianyang Gaomiao Yizhi Fajue Jianbao," *Wenwu*, 4–23; "Hunan Hongjiang Shi Gaomiao Xinshiqi Shidai Yizhi," *Kaogu*, 9–15.

In the Gaomiao site, the "terraced bent-frame structure" over the four large pillar holes about one meter in side length should have been a towering facility, and together with the "terraced landscape" patterns on unearthed white potteries, patterns of deity face, bird patterns and heaven-themed patterns as well as the sacrificial pits for burnt humans and animals during *Youliao*, should suffice convincingly to bring back the then scene of sacrificing to heaven. For sacrificial remains of this kind, the centerpiece has always been a towering "terraced landscape," and the sacrificial objects have also been the deities represented by these patterns of deity face, the sun patterns, and the eight-pointed star patterns. And for the Gaomiao site, its low-lying location might exactly be the reason why a "terraced landscape" had been created to reach up out to heaven. By the patterns on white potteries, there seemed to have had at least three types of "terraced landscape," namely the triangular-roofed ladder-shaped tower, the three-beamed wire-shaped tower and the pyramid-shaped tower with two slant external air wires.

The deities in these patterns had one prominent feature: one or two pairs of buckteeth sticking out of a gaping huge mouth, which seems to gobble up anything in its path, and, in most cases, one pair of protruding wings on either side of their bodies. They resided largely at the same level as, or even slightly above the "terraced landscape" in the patterns but extended wider. These ferocious monsters were more convincingly presumed by He Gang 贺刚, to be "Flying Dragons." [21] Yet, with all the images being front views, their bodies were invisible. Near each of the four mouth corners of some dragons, there is one arc-sided quadrangle together with some arc lines, which are also found in the central areas of eight-pointed star patterns. The dragon images were often flanked by two "terraced landscapes" or held high by phoenix birds.

Some eight-pointed star composite patterns are quite complex, with one arc-sided quadrangle in the central area of a pattern being surrounded in order by one outer ring, one eight-pointed star composite ring, one multilateral ring, and even others. Such a layout, according to He Gang, indicated that the rudimentary cosmology had taken the shape that "heaven is round and the earth is square," [22] and likely represented the concepts such as the "four

[21] He Gang, *Xiangxi Shiqian Yicun yu Zhongguo Gushi Chuanshuo*, 254–62.
[22] Ibid., 342–45.

directions and five orientations," "eight directions and nine zones" and the "round heaven and square earth," just as did the inscribed signs of the Chinese pictographic characters such as 十 , 井 , and 亞 unearthed at the Shuangdun 双墩 site in Bengbu, Anhui, which is confirmed to have gone back to the largely same or slightly later archaeological age.[23] The eight-pointed star patterns and others, such as cross-shaped patterns, diagonal line patterns, eight-direction patterns, and sixteen-starred patterns, discovered at the Gaomiao site, are supposed to be the symbols of the universe of heaven and the earth, and in most cases, these eight-pointed star patterns were also held high by phoenix birds. But there is also a presumption that these eight-pointed star patterns represent *Tianji* 天极 (celestial poles).[24]

Beneath some eight-pointed star patterns, there were also patterns of being similar to human arms and bodies. The two types of patterns worked together to look like a human-shaped "deity" with a head of the eight-pointed composite patterns, calling to mind the descriptions of human beings "with heads as round as heaven and feet as square as the earth" 头之圆也象天,足之方也象地 in "Seminal Breath and Spirit" of the *Huainanzi* 淮南子 · 精神训 . The inscription on bones, shells, and bronze wares of the Chinese pictographic character 天 (*Tian*, "heaven" in English) is interpreted as a front-facing and standing human-being-like figure with a round head representative of heaven canopy, suggesting the notion of a tangible heaven might have come into being in the Gaomiao culture period.[25] By the way, the Chinese pictographic character 沅 in the geographic name 沅江 (Yuanjiang River)—the river valley being home to the Gaomiao site—also might likely have relations with the Chinese pictographic character 天 .[26] On white potteries from the Tangjiagang 汤家岗 culture, which developed later than but from the same origin as the

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[23] Feng Shi, *Wenming Yizhi: Shanggu de Tianwen Sixiang yu Zhidu*, 46–78.

[24] Li Xinwei, "Zhongguo Shiqian Taoqi Tuxiang Fanying de 'Tianji' Guannian," *Zhongyuan Wenwu*, 81–93.

[25] Feng Shi, *Zhongguo Gudai de Tianwen yu Renwen* (Xiudingban), 66.

[26] In "Northeast Corner of the Sea" 海内东经 of the *Classic of Mountains and Seas*, "Yuan stream pours among hills eastward into the River and further into the Dongting Lake"; in "Central Highlands" 中山经 of the *Classic of Mountains and Seas*, "Rivers of Li and Yuan pour into the Xiaoxiang River and further into the Jiujiang River." In "Nine Songs" of the *Songs of Chu* 楚辞 · 九歌 , "Orchids grow on the banks of Yuanjiang River." So, the Yuanjiang River had existed as early as in the pre-Qin period. 沅 is 元 and may be related to "Heaven" and also to the supreme deity with a human-being body and a round head at the Gaomiao site.

Gaomiao culture, there were also some more regularized eight–pointed star patterns, and the figures of being similar to human bodies and human limbs for each square section of these patterns shared the same one head: the four-pointed star image in the central section of a pattern.[27] These patterns on white potteries should be some evolutionary formations of the "supreme deity" of being similar to human beings in the Gaomiao culture.

III

Being clustered among the three counties, namely Jianping, Lingyuan, and Kazuo in western Liaoning, the Niuheliang sites consist of at least 20 localities of historic ruins along a north-south hilly ridge running more than 10 kilometers, and the most significant ruins are the temples, altars, and mounds going back to the period from the slightly late mid-term to the late-term of the Hongshan 红山 culture,[28] namely approximately 5,700–5,000 years ago.[29] Among them, Locality 2 with the largest scale commands an area of nearly 6,000 square meters and is home to multiple layers of altar-shaped mounds made of rubble from different historic periods. By the stratigraphic sequence and the unearthed pottery, the lower mound in Mound No. 4 was built earliest; the pair of circular altars in the upper mound (Z4B1 and Z4B2) later; the square altar (Z4A), which superposed the two circular altars in Mound No.4, and Mound No.3 to the west (Circular Altar Z3)[30] further later; Mound No.1 and Mound No.2 (Square Altars Z1 and Z2) to the west of Mound No.3 likely

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[27] Hunan Provincial Institute of Cultural Relics and Archaeology, *Anxiang Tangjiagang—Xinshiqi Shidai Yizhi Fajue Baogao*, 55.

[28] Liaoning Provincial Institute of Cultural Relics and Archaeology, *Niuheliang—Hongshan Wenhua Yizhi Fajue Baogao (1983–2003 Niandu)*.

[29] In the four sets of dating data on the mid/late periods of the Hongshan culture at the Niuheliang site, the adjusted dendrochronologic periods of the three sets dating data were respectively 3799–3517 BCE, 3771–3519 BCE, and 3700–3521 BCE, and the other was 3360–2920 BCE. Thus, the mid/late periods of Hongshan culture are presumed to be 3700–3100 BCE. Liaoning Provincial Institute of cultural Relics and Archaeology, *Niuheliang*, 479; Liu Guoxiang, *Hongshan Wenhua Yanjiu*, 18–20; Wang Fen and Luan Fengshi, "Niuheliang Hongshan Wenhua Jishizhong de Fenqi he Niandai," *Zhongyuan Wenwu*, 27–33.

[30] Tian Guanglin and Liang Jingxin, "Guanyu Niuheliang Di-er Didian Hongshan Wenhua Si Hao Zhong de Ji Ge Wenti," *Liaoning Shifan Daxue Xuebao (Shehui Kexue Ban)*, 131–36.

around the same period as Mound No.3;[31] and all the tombs, which superposed the mentioned-above mounds and altars, likely latest.

The lower mound in Mound No.4 (the earliest) contained 10 tomb mounds in four rows. All the mounds (with an identifiable profile) are circular in shape and six or seven meters in diameter and are circled by bottomless cylindrical pottery vases. Evenly covered with gravels, these mounds are home to tower-shaped potteries and in the center of each mound, there is a tomb, together with exquisitely painted pottery urns with lids, hoof-shaped cylindrical jade artifact, and other rarities in it. These circular gravel mounds on the hilly ridge are highly prone to leading to their connections with "circular mounds" or "elevated altars" used for sacrificing to heaven in later periods. Cylindrical devices around each mound were laid upright to have a through-hole between neighboring layers, and thus such a unique layout might likely have had something to do with the communication between heaven and the earth. Though these tower-shaped devices on the mounds are speculated by scholars to be phallic-shaped items,[32] their structural configuration of tapering off and being hollowed vertically does rule out the possibility that they were something of a furnace cover and were placed during sacrificial rites over a pile of burning firewood to guide the smoke to rise to heaven. The tomb in the center of each mound might be the one for the wizard. For the offerings where there were the benefited and sacrificed, the funerary objects, namely hoof-shaped cylindrical jade artifacts being laid to be vertically hole-through, were likely the props by which the wizard reached out to and communicated with heaven. But the reason why there were so many as ten tiny altars at that period might be that crowds from various areas held their own ceremonies at this sacred venue of sacrificial offerings.

In the upper mound in Mound No.4, the two circular altars (Z4B1 and Z4B2) each had three gravel terraces, which were staked out by standing stone pillars to form the outer boundary pile circles of about 19 and 15 meters in diameter, respectively. Cylindrical potteries were arranged along the inner side of the inner stone boundary pile circle, and a tower-shaped pottery device

[31] Gao Yunyi, "Niuheliang Yizhi 'Nüshenmiao' yu Jishizhong Niandai de Zairenshi," in *Bianjiang Kaogu Yanjiu* (Di 26 Ji), 63–74.

[32] Guo Dashun, "Niuheliang deng Hongshan Wenhua Yizhi Suojian 'Zuxian Chongbai' de Ruogan Xiansuo," in *Liaohe Xungen Wenming Suyuan—Zhonghua Wenming Qiyuan Xueshu Yantaohui Lunwenji*, 100–6.

stood in the center of the altar. Especially, the eastern stone wall east of the eastern circular altar (Z4B2) in the upper mound in Mound No.4 extended south to meet the southern stone wall, and should a similar arrangement have also been adopted for the western circular altar (Z4B1), then the whole layout of the upper mound in Mound No.4 would have been the architectural complex of the round northern section and the square southern section. The circular altar was likely used for sacrificial offerings to heaven but the square altar was used for sacrificial offerings to the earth or simply served as a supporting facility to the circular altar. There were only two circular altars in the upper mound, and they were much larger than those in the lower mound, suggesting that there likely existed two larger sacrificial groups and obviously a rising concentration of sacrificial powers. In addition, the absence of tombs in the center of circular altars was likely to further highlight the sanctity of the sacrificed.

The layout took form slightly later: The large circular mound altar No.3 (Z3) was in the center, to its east was the square altar (Z4A), to its west was the large square mound (Z2), and further western was a swatch of mound tombs. Despite being similar in structure to older circular altars, Mound Altar No.3 had greater outer and inner boundary pile rings, approximately 22 meters and 11 meters in diameter respectively and a gradient surface from the center to the margin, whereas the square altar (Z4A) in Mound No.4 in the east was more than 12 meters in side length (after restored). The two square altars may have been respectively used for sacrificial offerings to heaven and the earth or mainly used for sacrificial offerings to heaven. Feng Shi 冯时 , presumed that this circular altar may be "the most complete prehistoric illustration of the theory of Canopy-Heavens 盖天宇宙论" [33] that has ever been discovered, and noted that its outer diameter was exactly twice its inner diameter, and exactly equal to the ratio of outer/inner diameter[34] shown in the Seven-Measure Picture 七衡图 in the *Arithmetical Classic of the Gnomon and the Circular Paths of Heaven* 周髀算经 . According to Guo Dashun 郭大顺 , this circular altar "is extremely similar to the circular mounds built in the Ming and Qing dynasties

[33] Feng Shi, "Hongshan Wenhua San Huan Shitan de Tianwenxue Yanjiu—Jian Lun Zhongguo Zuizao de Huanqiu yu Fangqiu," *Beifang Wenwu*, 9–17.
[34] Feng Shi, *Zhongguo Gudai Wuzhi Wenhua Shi · Tianwen Lifa*, 301–5.

(1368–1911) in the Temple of Heaven in Beijing." [35] If so, the astronomical concept represented by the circular altar structure at the Niuheliang site should have experienced an evolutionary process as such a ratio was not found with older altars, such as the circular altars (Z4B1, Z4B2) in the upper mound of Mound No.4. Furthermore, Circular Altar No.3 was larger and also was the only one left, suggesting likely that various communities in the vicinity of the Niuheliang site into a single sacrificial group. In the center of the Grand Square Mound (Z2) just next to the circular altar was the highest-level tomb at the Niuheliang site—Grand Tomb M1, and its owner might have been the senior wizard in charge of sacrificing to heaven and the earth, while the Grand Square Mound (Z2) and the large and medium-scale tombs in the western mound tomb area might have been for other wizards of various levels, constituting the sacrificial group of wizards.

The funerary objects in these tombs are mostly exquisite jade artifacts. In addition to hoof-shaped cylindrical items, *bi* 璧 (jade disks)/dragon/phoenix/ hooked cloud-shaped items, turtle shells, etc., should also be related to the sacrificial offerings to heaven. Jade disks were considered to be sacrificial vessels in the Zhou Dynasty literature.[36] Just as Zheng Xuan 郑玄 said, *Bi Yuan Xiang Tian* 璧圆象天 (for their shapes like the sky), jade disks, especially rare round jade items with round holes and regular shapes, may have already been used for sacrificing to heaven by the period of the Hongshan culture. Just like the jade tablet of *Luoshu* 洛书 (Pattern of Changes in the Space of Heaven and the Earth) discovered at the Lingjiatan site, the square jade disks with round holes and rounded edges, the most typical in the Hongshan culture, may have been the symbolic complex of "heaven is round and the earth is square." Jade dragons looked like pigs, bears, or larvae of some insects such as cicadas. Yet, whatever they looked like, they should, in fact, be dragons and should have been related to "heaven," just as jade phoenixes were. Some jade dragons in the Hongshan culture also had buckteeth,[37] but they were far from being so big as the tusks of "Flying Dragons" expressed on white potteries of the Gaomiao culture. The hooked cloud-shaped jade artifact may represent the Merak (Beta

[35] Guo Dashun, "Hongshan Wenhua de 'Weiyuweizang' yu Liaohe Wenming Qiyuan Tezheng Zairenshi," *Wenwu*, 20–26.

[36] In "Offices of Spring" of the *Rites of Zhou*, "White jade artifacts are used as sacrifices for heaven, and yellow jade artifacts are used as sacrifices for the earth."

[37] Liu Shujuan, "Hongshan Wenhua Yuqi Leixing Tanjiu," *Liaohai Wenwu Xuekan*, 22 .

Ursae Majoris, abbreviated β UMa) 天璇 in the Big Dipper, while, just like the jade turtle shells in the Lingjiatan culture and the turtle shells in the Jiahu 贾湖 culture, the jade turtle shells may likely carry the cosmology of "heaven is round and the earth is square" due to their round carapaces and square plastrons.[38] In addition, with hands on the chests and legs slightly bent, the jade figurines looked to be very reverent, which were likely the true portrayal of sacrificial wizards.

Besides the remains of sacrificial offerings to heaven, there should also be remains at the Niuheliang site of sacrificial offerings to the earth, female deities or ancestors, and of which no further discussion is needed herein.

IV

Located on the north bank of the Yuxi River in Hanshan, Anhui, the Lingjiatan site covers an area of approximately 1.4 million square meters. Its main remains originated from the Lingjiatan culture and are traced back to about 5,600–5,300 years ago. The relics of one sacrificial altar were found in the northern center of the site. The restored altar is largely rectangular, covering an area of about 1,200 square meters.

The sacrificial altar is made of three layers: the lower soil layer, the closely-compacted mid layer of gravel and adhesive, and the mixed upper layer of pebble, gravel and clay. Several small gravel circles and three small rectangular pits were found on the altar, and in the pits, various artifacts, including potteries, stone *yue* 钺 (battle-axes), and bird bones, were unearthed. In the oval tomb, namely Tomb M1, burnt soil particles, three jade figurines, one jade-like stone disk, and several jade ornaments were found, suggesting according to Shuo Zhi 朔知 that these pits may also have served as sacrificial pits.[39] According to speculations by excavators, the burnt soil grains and thick plant ash layers in the southeast corner of the sacrificial altar and large swatches of terracotta block buildings between the sacrificial altar in the southeast

[38] There are the descriptions in *Luoshu*, "the Magic Turtle has a protruding back like heaven and a flat belly like the earth" ("Scaled Animals Section: Turtles 11" of the *Primary Anthology* 初学记 · 鳞介部龟第十一引).

[39] Shuo Zhi, "Lingjiatan Jitan Yiji Shilun," in *Lingjiatan Wenhua Yanjiu*, 170–80.

and residential areas were likely the remains of burning sacrifices and "deity temples." [40] Dozens of tombs were found in the south of the sacrificial altar. These tombs are all laid around the sacrificial altar, with larger ones directly the south of the sacrificial altar, and thus were speculated that they should be built simultaneously with and closely related to the sacrificial altar. In addition, funerary objects, such as jade tablets, turtle shells, turtle-shaped items, jade disks, various jade artifacts in the form of "birds," dragons, human beings, etc.,[41] and jade figurines and jade-like stone disks found in sacrificial pits might all have something to do with "heaven."

The most important jade artifact at the Lingjiatan site is the rectangular jade tablet unearthed at Mound 87M4. In the center of the tablet, there was an inner concentric circle, and an eight-pointed star pattern was carved inside it. The outer concentric circle was evenly divided by eight straight lines, with an outward arrow inside each division, and the four outward arrows pointing to four directions outside the outer concentric circle. The jade tablet had five, five, four, and nine tiny holes on its four sides respectively. Chen Jiujin 陈久金 and Zhang Jingguo 张敬国 believe that the four directions and eight directions of the jade tablet might be related to the four quadrants and eight trigrams and seasons, and the numbers of the holes on the sides were consistent with *Luoshu*, and thus should be the jade tablet of *Luoshu*.[42] Qian Boquan 钱伯泉 believes that they were exactly the divination boards repressing the cosmologies such as "heaven is round and the earth is square" and "the earth is still while heaven is moving" [43] Feng Shi also compared them with divination boards, and believes that they represented the concepts such as "four directions and five orientations," "eight directions and nine zones," and "round heaven and square earth." [44] Nowadays, it has been known that the jade tablet of *Luoshu* can be traced to the same origin as the eight-pointed star pattern in the Gaomiao culture. The jade turtle shells unearthed from the same tomb as the jade tablet

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[40] Anhui Provincial Institute of Cultural Relics and Archaeology, *Lingjiatan—Tianye Kaogu Fajue Baogao zhi Yi*, 29–33.

[41] Anhui Provincial Institute of Cultural Relics and Archaeology, *Lingjiatan*; Zhang Jingguo, "Anhui Hanshan Xian Lingjiatan Yizhi Di-wu Ci Fajue de Xin Faxian," *Kaogu*, 7–17.

[42] Chen Jiujin and Zhang Jingguo, "Hanshan Chutu Yupian Tuxing Shikao," *Wenwu*, 14–17.

[43] Qian Boquan, "Lingjiatan Xinshiqi Shidai Yizhi Chutu de Yuzhi Shipan," in *Wenwu Yanjiu* (Di-qi Ji), 152–57.

[44] Feng, *Wenming Yizhi*, 65–67.

have slightly round carapaces and square plastrons, which were tied with each other through tiny holes, and also might be related to the cosmology of "heaven is round and the earth is square" but the possibility could not be ruled out that they might have been used for turtle divination, just like the turtle shells found at the Jiahu and Wangyin 王因 sites. Three jade turtle-shaped artifacts were unearthed from Tomb 07M23, the largest at the Lingjiatan site, and some jade divination lots were found in these artifacts. Therefore, excavator Zhang Jingguo clearly asserted that they should be turtle divination tools.

The jade "Eagle" unearthed from Mound 98M29 at the Lingjiatan site is also very significant. It has a circular eight-pointed star pattern carved on its chest and abdomen and a pattern of a beast head on each of its wings. Some excavators believe it is the image of a pig head, but others believe that it is that of a bear head. The image of a pig would be believed to be related to the Big Dipper.[45] In fact, this pattern is very similar to the images of phoenix birds holding up the eight-pointed star and dragons found on some white potteries of the Gaomiao culture. If it was so, then the "Eagle" on this jade artifact might be a "Phoenix," and the beast head might be a "Dragon" head. The jade dragon discovered from Mound 98M16 is convincing evidence that the dragon image had come into being in the Lingjiatan culture. Likewise, the giant jade "pig" found in the filled earth over Tomb 07M23 also might be regarded as the head of a jade dragon. The number of jade or jade-like stone disks found at the Lingjiatan site is relatively large, but most of them are smaller in size. The larger ones among them are of more than 12 centimeters in outer diameter (for example, 98M25:1), and should indeed be used for jade rites. Three jade figurines were founded from Mound 98M29, and similar jade figurines were also found in other tombs. These figurines posed a pious gesture with hands on their chests and their legs slightly bent, and are extremely similar to these figurines in the Hongshan culture that should be wizards.

Taken together, the sacrificial altar at the Lingjiatan site should have been used for sacrificial offerings to heaven, and the tombs south of the altar should also be mainly related to such offerings by wizard groups. The remains at the Lingjiatan site should largely come down in the same category as those at the

[45] Feng Shi believes that the image of pigs was traditionally related to the Big Dipper in ancient China. Feng, *Wenming Yizhi*, 538–48.

Gaomiao site. For example, they are both located on low-lying flat terrains, have the sacrificial site layouts of being roughly rectangular instead of being round, and use the profoundly implied eight-pointed star patterns. Though no obvious "terraced landscape" remains were found at the Lingjiatan site as at the Gaomiao site, excavators believe that large swatches of burnt soil blocks in the southeast of the sacrificial altar should be the remains of "deity temples" and the possibility of the existence of "terraced landscape" buildings could not be ruled out. Meanwhile, jade artifacts from the Lingjiatan culture have many similarities to these from the late Hongshan culture[46], for example, jade figurines, jade dragons, jade turtles, jade hoof-shaped devices, slightly square jade disks with rounded edges, and pairing jades, and most of them reflect the absorption of spiritual elements of the Hongshan culture, such as cosmology and sacrificial beliefs,[47] while jade turtles, jade hoof-shaped devices, and stone battle-axes show the reverse influence of the Lingjiatan culture on the Hongshan culture.

V

The typical remains of sacrificial offerings to heaven at the three sites may broadly be classified into two categories: low-lying "terraced landscapes" represented by the Gaomiao site and "circular mounds" on the hilltops represented by the Niuheliang site. There are likely many other remains of sacrificial offerings to heaven from the earlier ages across China, but most of them should fall into the two categories.

The remains of sacrificial offerings to heaven of low-lying "terraced landscape" could only be roughly determined as the usual absence of the towering ladder-shaped buildings and "terraced landscape" patterns featuring large pillar holes as found at the Gaomiao site. For example, at the Nanzuo site in Qingyang, Gansu from the late Yangshao 仰韶 culture, the circular fire altar of over three meters in diameter in the center of the core palace-style building

[46] Tian Mingli, "Lingjiatan Mudi Yuqi Yuanyuan Tanxun," *Dongnan Wenhua*, 18–25; Tian Mingli, "Lingjiatan Yicun yu Hongshan Wenhua," *Wenwu Yanjiu* (Di-shiwu Ji), 79–90.

[47] Li Xinwei, "Zhongguo Shiqian Yuqi Fanying de Yuzhouguan—Jianlun Zhongguo Dongbu Shiqian Fuza Shehui de Shangceng Jiaoliuwang," *Dongnan Wenhua*, 66–72.

and the nine rammed-earth sacrificial terraces of several dozens of meters in the square side around the palace area may be related to sacrificial offerings to heaven and the earth. Another example is the Fanshan 反山 cemetery of the Liangzhu 良渚 culture, where a large number of funerary objects were often found in high-status tombs, such as jade disks and *cong* 琮 (a long hollow piece of jade with rectangular sides), were unearthed. If the face patterns of deity/human on these jade artifacts were understood as the patterns of deities riding on dragons, together with the common phoenix bird patterns on jade artifacts, lacquer wares, and pottery wares, you would find that these patterns on the funerary objects are very similar to the contents in white potteries from the Gaomiao culture,[48] but whether the Fanshan cemetery might have been related to the chief wizard for sacrificial offerings to heaven is still yet to be determined. Yet, funerary objects such as many *congs* but no or few jade disks unearthed at cemeteries at the Yaoshan 瑶山 and Huiguanshan 汇观山 sites should have been less of the ages when they were made but more of the purpose that they were made for sacrificial offerings to the earth.

The remains of sacrificial offerings to heaven of "circular mounds" on the hilltops have also been found at other sites of the Hongshan culture, such as the large circular mound at Locality 13 of the Niuheliang site,[49] the small circular stone altar at the foot of the Dongshanzui 东山嘴 site in Kazuo, Liaoning,[50] etc. At the Ashan 阿善 site in Baotou, Inner Mongolia Autonomous Region, the remains of bead-like stone piles in the third stage of Ashan of the Yangshao culture were found, and the largest circular stone pile has a bottom diameter of 8.8 meters. These stone piles are surrounded by calabash-shaped stone walls.[51] These relics may also be remains of sacrificial offerings to heaven of "circular mounds" on the hilltops.

Many other remains may also have been related to "heaven" or sacrificial offerings to heaven, for example, the turtle shells, rectangular bone vessels and bone plates unearthed at the Jiahu site in Wuyang, Henan of the Peiligang 裴

48 He, *Xiangxi Shiqian Yicun*, 271.
49 Guo Dashun, *Hongshan Wenhua*, 88–91.
50 Guo Dashun and Zhang Keju, "Liaoning Sheng Kazuo Xian Dongshanzui Hongshan Wenhua Jianzhu Qunzhi Fajue Jianbao," *Wenwu*, 1–11.
51 Liu Huanzhen, "Neimenggu Daqingshan Xiduan Xinshiqi Shidai Yizhi," *Kaogu*, 485–96.

李岗 culture,[52] the giant stone pile dragon at the center of the Chahai 查海 site[53] and the face patterns of tusked deities on stone tablet-shaped vessels at the Tachiyingzi 塔尺营子 site[54] in Fuxin, Liaoning of the Xinglongwa 兴隆洼 culture, the inscribed signs of the Chinese pictographic characters such as 十 , 井 , and 亞 at the Shuangdun site in Bengbu[55], Anhui of the Shuangdun culture, the patterns of birds and the sun over the mountains on the pottery wine vessels and the arc-lined four-pointed star patterns on potteries discovered at the Lingyanghe 陵阳河 site in Juxian, Shandong and other sites of the Dawenkou 大汶口 culture,[56] the semicircular "viewing platform" remains at the Taosi 陶寺 site of the Taosi culture,[57] and so on. Given a high occasionality with archaeological discoveries, only a few remains have preliminarily been determined to be related to "heaven" or sacrificial offerings to heaven. Yet, there were not necessary that sacrificial offerings did not take place in places with no

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[52] Besides being used as divination tools, turtle shells may also represent heaven and the earth; rectangular bone vessels and bone tablets are believed to have been used for celestial observations. Henan Provincial Institute of Cultural Heritage and Archaeology, *Wuyang Jiahu*; Henan Provincial Institute of Cultural Heritage and Archaeology and Department for the History of Science and Scientific Archaeology of University of Science and Technology of China, *Wuyang Jiahu Er*; Yang Yuzhang et al., "Henan Wuyang Xian Jiahu Yizhi 2013 Nian Fajue Jianbao," *Kaogu*, 3–20; Li, "Zhongguo Shiqian Yuqi" ; Wang Nan and Hu Anhua, "Yinzheng Shenhua Chuanshuo: Jiahu Yizhi Faxian Guzhi 'Guiju'," *Zhongguo Chengshi Bao*, July 22, 2019.

[53] Liaoning Provincial Institute of Cultural Relics and Archaeology, *Chahai: Xinshiqi Shidai Juluo Yizhi Fajue Baogao*.

[54] Liu Yong, "Liaoning Fuxin Chahai Yizhi Faxian Qi Qian Wu Bai Nian Qian Shidiao Shen-ren Mianxiang," *Guangming Ribao*, September 29, 2019.

[55] Feng Shi believes that these inscribed signs represented the concepts of "four directions and five orientations" and "eight directions and nine zones." See Anhui Provincial Institute of Cultural Relics and Archaeology and Bengbu Museum, *Bengbu Shuangdun—Xinshiqi Shidai Yizhi Fajue Baogao*; Feng, *Wenming Yizhi,* 46–78.

[56] The most common symbol that a sun-shaped pattern is over a flame-shaped pattern from the late Dawenkou culture is also relatively similar to the 天-shaped pattern from the Gaomiao culture. Together with the pattern of continuous hill ridges below it, the symbol can be understood as a mixture of the sun and a bird on the summit or "the heaven" over the hills. The arc-sided four-pointed star pattern is similar to the eight-pointed star pattern discovered at the Gaomiao site, and may be related to the center of heaven or Tianji (north and south poles of heaven). See Wang Shuming, "Cong Lingyanghe yu Dazhucun Faxian Taozun Wenzi Tanqi," in *Dongfang Kaogu* (Di-yi Ji), 385–403; Han Jianye and Yang Xingai, *Wudi Shidai: Yi Huaxia Wei Hexin de Gushi Tixi de Kaoguxue Guancha*, 149–70.

[57] The "Observatory Platform" remains may also be the remains of sacrificial offerings to heaven on the date of the Spring Equinox. See Shanxi Team of the Institute of Archaeology at the Chinese Academy of Social Sciences et al., "Shanxi Xiangfen Xian Taosi Chengzhi Jisiqu Daxing Jianzhu Jizhi 2003 Nian Fajue Jianbao," *Kaogu*, 7–24; "Shanxi Xiangfen Xian Taosi Zhongqi Chengzhi Daxing Jianzhu II FJT1 Jizhi 2004–2005 Nian Fajue Jianbao," *Kaogu*, 3–25.

discovered remains. As described in the *Religious Sacrificial Ceremonies* of the *Records of the Grand Historian* 史记 · 封禅书 , in Yongzhou, the main area on the Loess Plateau, there has been a tradition since ancient times that alters were built on hills to sacrifice heaven. Monarchs had over ages held ceremonies to sacrifice heaven on the Mount Tai or the Yishan Mountain in the region of Qingzhou and Yanzhou since the Qin and Han dynasties. The sacrificial offering tradition in the Mount Tai region and many other places may even have already emerged in the Neolithic Age.

In short, by the Middle Neolithic Age about 8,000 years ago, a complex cosmology and definite concept of reverencing heaven and acts of offering sacrifices to heaven had developed in China. In sharp contrast with the "clan burial" custom arising earliest in the Yellow River valley, the concept and acts of sacrificial offerings to heaven may from the very beginning have served as the means of "long-distance exchanges in upper classes," [58] first appearing in the valleys of Yangtze River, Yellow River and west Liaohe River and having finally expanded across the whole China by the Qin and Han dynasties after constant inheritance, integration, and development throughout the Xia, Shang, and Zhou dynasties. The concept of reverencing heaven also developed simultaneously with ancient astronomy, having a far-reaching influence on the political system, philosophy, and science & technology in China, and just like the concept of veneration of the dead, had been a core cultural gene of the Chinese nation.

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[58] Li Xinwei explains the cultural and social commonalities that emerged across China after about 3,500 BCE by the model of "the long-distance exchange network in the upper classes of the prehistoric society in China." This model is more effective in explaining the commonality of thoughts & ideas and knowledge systems in most regions of China in the Peiligang period. See Li Xinwei, "Zhongguo Shiqian Shehui Shangceng Yuanjuli Jiaoliuwang de Xingcheng," *Wenwu*, 51–58.

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