

# When the Sky Leaned over (in Ancient China)

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## Summary:

Chinese mythology offers us a myth of the earliest times that is quite different from that found in western mythologies. Rather than a memory of a great flood at the dawn of time, we find instead a memory of a time when the sky leaned over, and rivers changed their courses. Typically, this is treated as a creation myth, or as primitive cosmology, rather than as recording a real event. This article will investigate the astronomy associated with the ancient event as it is described; how it may be co-ordinated with the western myths; and suggest an approximate calendar date for the cosmic event based upon modern evidence of archaeology, climate and sea-level changes in East Asia.

For those of us who are unable to study the Chinese sources directly then we must rely upon the various translations by western Scholars. Among these are [Joseph Needham's](#) monumental work *Science and Civilisation in China* [1] and the abridged version by Colin Ronan [2]. The nineteenth century translations of the mythology by James Legge and those by [Edward Werner](#) in the 1920s remain as useful as ever [3]. The mythology given in these sources will suffice for a cross-disciplinary investigation.

The myths and legends recall an early rebel named Kung Kung (sometimes transliterated as [Gong Gong](#)) who fought with a legendary emperor Chuan Hsiu (Zhuan Xu) for the control of the empire. In the violence of the ensuing warfare Kung Kung struck his head against the pillar that supposedly supported the sky. Consequently, the balance of the entire world was disturbed causing the sky to lean-over towards the north-west; all the stars moved from east to north-west and the rivers began to flow towards the south-east. This episode would apparently explain the floods of the great rivers as they determined their new courses across the flat plain of northern China. Another version of the story would describe the goddess Nü Wa (sometimes [Nüwa](#) or Nü-kua); she along with her brother (and husband) Fu-hsi is credited with repairing the hole in the sky and restoring order to the world after the period of chaos. For most scholars, both Chinese and western, it is deemed adequate to dismiss all this as just a form of primitive creation myth.

In these memories of Kung Kung and Nü Wa we may see the attribution of natural catastrophes to real kings and queens reigning at the time (or perhaps they claimed to control them). This is much as we find in other societies, such as ancient Egypt or Ireland, with the rulers purporting to act as intermediaries with the all-powerful deities. Inevitably, with the passage of time, these powerful personalities merged as demi-gods with the true deities. Some myths would make Nü Wa the creator-mother of mankind supposedly 18,000 years after the creation of the world by P'an-ku. In this we may again see similarities with the long mythical chronologies found in Egypt, Mesopotamia and India. These cosmogony myths disguise for us the era when real history should begin.

The Chinese historical period only really begins at 1675 BC with the Shang Dynasty, before which everything must be considered legendary. There are no king lists equivalent to the Egyptian or Mesopotamian chronology; and so, confirmation of the legendary dynasties and rulers remains open to debate. Prior to the Shang was the Hsia Dynasty, loosely to be dated between 2100 BC and 1600 BC. Although long considered legendary, archaeology now suggests the existence of a recognisable civilisation in the low-lying plains. We hear of a ruler named Yu in whose time severe river flooding occurred. He is said to have controlled the overflows by dredging the rivers and channelling streams. Counting back the reigns of these early rulers in the legends gives an approximate date no later than 2850 BC for the supposed era of Fu-Hsi and Nü Wa. Further discussion of the legendary chronology and related archaeology may be pursued in the links below:

The worldview of the later Confucian historians demanded that China should always have been subject to the central authority of an all-powerful emperor. In the earliest times however, the extent

of the Chinese ‘empire’ must be limited to the northern plain around the mouth of the Hwang-Ho, known as the Yellow River due to the colour of the loess deposits through which it flows. The accounts of the founding of the Shang Dynasty (c.1600 BC) and the semi-legendary Hsia Dynasty (c.2100 BC) both commence with rulers whose primary concern was the control of devastating river floods at the mouth of the Hwang Ho. For earlier periods we have only the shadowy accounts of rulers like Fu-Hsi and Yao who seem almost like demi-gods, comparable to Heracles or Osiris in the western myths.

In wedding her brother Fu-hsi, empress Nü Wa is credited with the invention of the institution of marriage in what had previously been a matriarchal society. Fu-hsi is also credited with many innovations, among them the breeding of silkworms and the introduction of the first calendar. The supposed era of Kung Kung and the cataclysmic events must therefore be placed sometime earlier than these legendary rulers.

The myths go on to say that Nü Wa stabilised the cosmos by cutting-off the feet of the great tortoise upon whose back the world rested. Later Chinese cosmology would envisage the world as an inverted, square-cornered bowl, with the four cardinal points situated at each corner, which was either likened to the back of a great turtle, or simply floating upon the ocean. The sky above was viewed as an inverted circular dome, which rested upon and rotated about a great mountain, the Un-rotating Mountain; also known as the Imperfect Mountain: [Mount Buzhou](#). The mountain was deemed ‘imperfect’ because the repair made by Nü Wa had left the sky leaning over.

When investigating the astronomical consequences underlying such myths it may be simpler to cut through the confusion of later interpretations, by both ancient and modern commentators, and to trust the wording of the original legendary source, as here translated:

*Heaven's pillars broke; the bonds with earth were ruptured,  
Heaven leaned over to the north-west,  
Hence the sun, moon, stars and planets were shifted,  
And earth became empty in the south-east. [4]*

We may test these legends alongside the latest archaeology. Chinese archaeologists recognise an early Neolithic civilisation known as the Yangshao culture in the Loess plateau of the upper Hwang Ho; recognisable by its distinctive red pottery and artefacts with intricate coloured designs; later sites would show evidence of millet farming. The original Yangshao discovery in Henan Province during the 1920s is now viewed as an outlier of the principal site at Banpo near Xi'an, dated 4500 – 3750 BC. Archaeologists also consider that the Yangshao were a matriarchal culture, which we may equate with the memories of Nü Wa as an early empress or goddess.

After about 3200 BC the Yangshao sites abruptly declined, to be supplanted by a new culture centred in the lower reaches of the Hwang Ho and Yangtze rivers. This new culture is termed the Longshan after the principal site on the Shandong peninsula. All the known early sites are situated on low hills above the flood plain and the transformation of customs is identifiable by its distinctive pottery style; black and undecorated. Yangshao pottery has been found at some Longshan sites, but not the other way around; thus, archaeologists suggest that this new culture spread from Shandong into western China.

Within this overview, which developed from the early discoveries of pottery, a more complex picture emerges. Archaeologists now recognise a number of local cultures in northern China, trading and influencing each-other over a long period before a truly unified ‘empire’ came into existence. Also dating to the third millennium BC is the solar-aligned platform at [Taosi](#). Alignments to the summer and winter solstices would indicate the early origins of a formal calendar echoing the references found in the legendary sources.

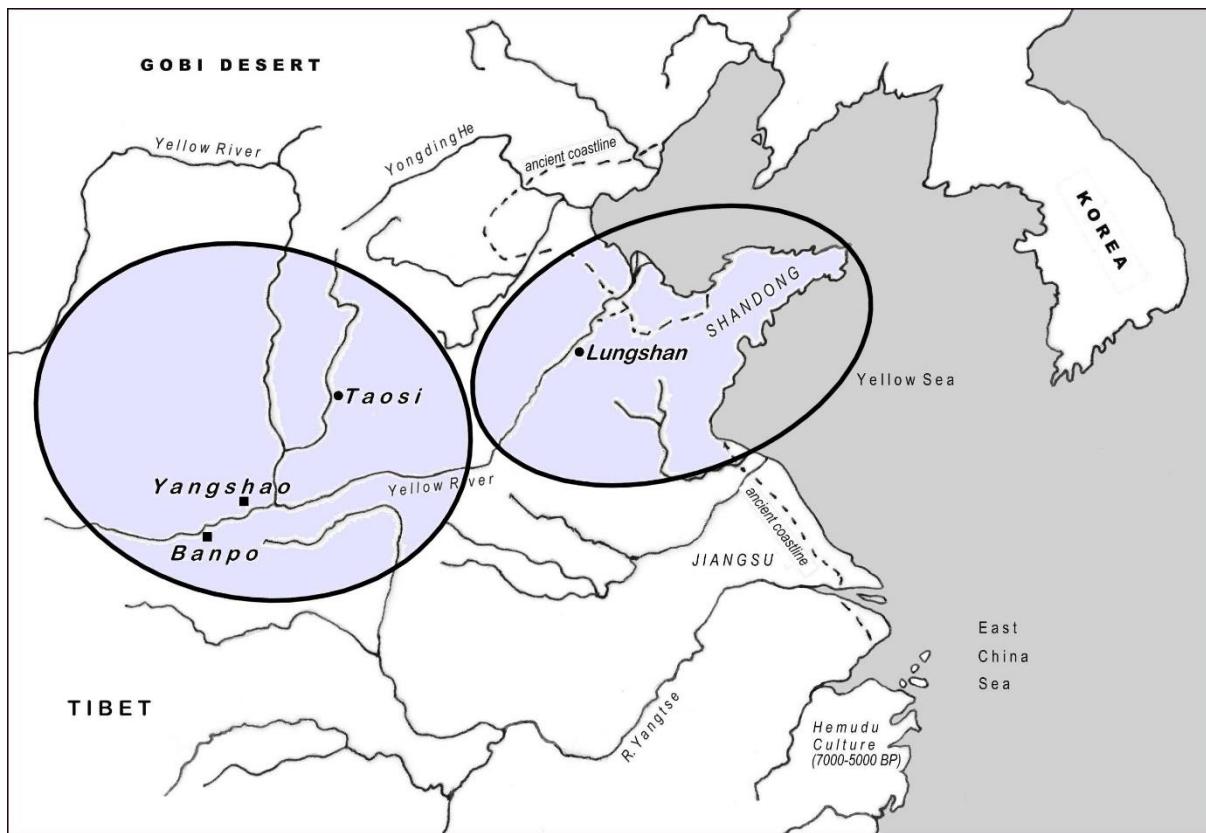


Figure 1 A summary map showing the principal sites and regions mentioned in the text.

Of significance is the abrupt decline of the Yangshao in the higher valleys and the beginnings of an agricultural civilization in the lower plains where none had been before. It has always been something of an enigma to explain why the earliest Chinese civilisation developed higher up the river valleys rather than in the fertile plains. Back into Ice Age times the Shandong peninsula was certainly an island surrounded by a shallow sea (analogous to the shallow European continental shelf) but precisely where the coastline lay in the later Holocene has been a matter for debate, since it is now disguised by so many years of intensive agriculture. Radiocarbon dates from coastal studies may help to place a more precise date on this transition.

A comprehensive study by Wang & Zhao [5] cited 'hundreds' of radiocarbon dates from Holocene sediments, between the Yellow Sea and Hainan island as evidence for Holocene sea level variations. Their data suggests a maximum transgression of the sea all along the coast between 7000 and 3000 BP with most dates falling between 6000 and 5000 BP, varying in different regions. They further suggest that since that time, the sea has retreated 'step by step' to present shores. Each 'step', of course, could represent a rapid change – but field researchers have to word their studies with a uniformitarian caution and respect for long established theories. In a paper covering similar bounds, Xiong et al are brave enough to suggest:

*"there are significant misfit between sea-level data and glacial isostatic adjustment models, and a revision to the existing ice melting history for the early Holocene is possibly needed". [6]*

A study of Holocene sea level changes in the Fuzhou basin (opposite Taiwan) revealed hill-top settlements dated to 5500-5000 BP that are now 80 km inland from the modern coast. These were formerly islands within an estuary that occupied the entire basin. Since that era, the coastline has retreated. [7] They find that the plain was rapidly occupied by rice farmers as the sea withdrew – as close a reference to a sudden and unexplained change of sea level as we might expect to a find within an academic study.

Recent investigations in Jiangsu province (just south of Shandong) reveal that the coastal plain was beneath seawater or low-lying wetland throughout the early Holocene. Much of the Lixiahe Plain remained a coastal lagoon until 6000–5500 cal. BP. [8] Other studies suggest that the rice-growing Hemudu culture that occupied the coastal region of the Lower Yangtze river was interrupted when the region alternated between intertidal mudflats and freshwater wetlands during the mid-late Holocene. [9] These conservatively worded specialist studies do not of course suggest a catastrophic or sudden change of sea level, but they would confirm the legendary accounts of great river floods.

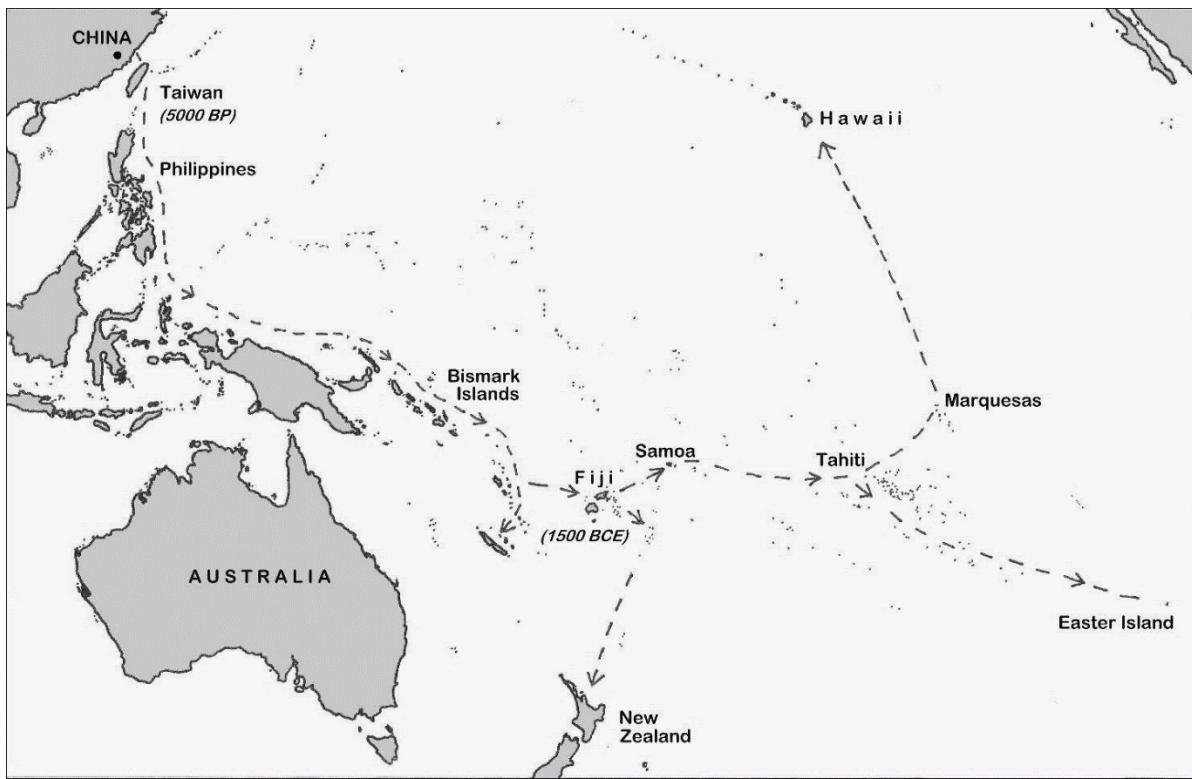
Climate researchers also detect a transition at this same era. Between 6000–5000 BP, the climate of eastern China remained relatively warm and wet, and forest cover was extensive. However, the subsequent retreat of the forests and increased grassland is attributed to a decline in temperature and precipitation during the 5000–4000 BP period. [10] The cool humid period (4800-3400 BP) was followed by milder arid conditions. [11] This would be in line with comparable evidence of a mid-Holocene warm period that is evident from other parts of the world.

So, what might be intended by that enigmatic report in the Kung Kung myth: *...earth became empty in the south-east?* Translation ambiguities apart, this is a strange form of words. Does it mean that the land became uninhabited? Or does it imply a complete desolation of all vegetation and life? It would be a fair description of mudflats emerging from the sea after a rapid sea-level change. This is an example of something that I have referred-to elsewhere as a ‘fossil’ within a myth, which can be checked against the best science available. If you prefer to view the Chinese myths and legends as just primitive beliefs to be dismissed then I cannot help you; however, should you seek to validate them then this enigmatic phrase could only be remembering the period around five-thousand years ago when researchers find clear evidence of new and uncultivated land emergent from the sea, along with the cultural break that is recognised by the archaeologists.

The myths recall the sky tilting over and the courses of sun, moon and stars being disturbed. It may not be immediately apparent to the non-astronomer that this implies many of the effects that are described in myths from other parts of the world. If the obliquity changed then it must affect the calendar: the solstice sunrise, the seasons, and the latitude of the tropics and Arctic Circle. When we hear myths from other nations, of the sun going away or periods when its motion was irregular, then it is important to appreciate that these may be describing the same event as is recalled in China.

In the equivalent cosmogony myths from Japan, we hear of the sun goddess Amaterasu who hides herself away in a cave and has to be lured-out with trickery by the other gods. Again, the era of sea level change and emergence around Japanese coasts can be dated by archaeological finds to the Jomon period around 5,000 years ago. Although the Japanese myths may be more naïve and offer less detail than the Chinese stories, they again remember an abnormal solar event.

Archaeologists now recognise southern China and Indochina as the point of origin for the [Lapita](#) pottery culture found in Melanesia and the Bismarck Islands. [12] This culture was the forerunner of the Polynesian migrations, now confirmed by DNA evidence. [13] It was around 5,000 years ago that they began their island-hopping voyages into the Pacific in a sequence that can be traced via Taiwan, Philippines and on to Melanesia and Polynesia by 1500 BC. Once again, the ancestral sites are found on former small islets on the coastal plain of south-east China; another coincidence to add to the cultural break further north at this same era.



*Figure 2: The Polynesian Migrations. DNA analysis now confirms the theory that the dispersal of the Lapita-Polynesians began from Taiwan and southern China around 5000 BP.*

Although Polynesian myths vary from one island chain to another, they have a common root in their beliefs about the demi-god [Maui](#), who is variously credited with fishing the Pacific islands out of the ocean and also with lengthening the hours of daylight to give the people more time to go about their daily tasks! In Hawaiian myths the movements of the sun are said to have been irregular and unpredictable before Maui snared the sun and made it behave. Underlying these naïve myths must be some real astronomy that predates the Polynesian dispersal. The typical modern researcher who might take an interest in mythology is unlikely to be an astronomer and so may miss the significance; conversely scientifically minded astronomers are unlikely to take much notice of myths. Hence, the coincidences within the myths and legends remain neglected as a potential source of evidence about real ancient events.

The emergence of islands from the Pacific is essentially the same phenomenon as barren coastal land rising from the ocean. The attempts by Maui to lengthen the hours of daylight may be a naïve experience, by a tropical people confined on oceanic islands, of the seasonal variations of daylight that are normal in the temperate zones; they may be rationalised by a transient nutation of the axis that would bring temperate seasonal variations to an isolated tropical community that had never experienced them before.

A rapid change of sea-level, producing emergent coastlines and islands, is as would be expected following a pole shift. Coastal emergence of the scale recorded by the specialists would demand a permanent pole shift of amplitude no more than a third or a quarter of a degree of latitude – modest, but still large by modern experience. Although pole-shift theories are not favoured by the various specialists, the prevailing theories of sea-level change simply cannot explain the emergence of east-Asian coasts in addition to the post-glacial sea-level rise that is employed to explain the [submergence of coasts in Europe and North America](#) (see: [www.third-millennium.co.uk/raised-beaches-submerged-forests](http://www.third-millennium.co.uk/raised-beaches-submerged-forests) ). There can only be one worldwide ‘eustatic’ sea-level. Emergence at the east-Asian coasts and Pacific islands would therefore demand a mechanism to raise the land by some 20-30 m on top of that required to annul the sea level rise of some 120m attributed to polar

melt since the Ice Age. Only a theory based on pole shifts can resolve such anomalies; it would leave a world-wide pattern of emergence and submergence in alternate quarter-spheres.

It is important to appreciate that tiny shifts of the poles are triggered every time that a crustal earthquake occurs. The phenomenon is well understood by geophysicists and must trigger a transitional episode of axis-wobble before it can settle to a new position. A larger excursion of the axis of rotation, as recorded by the Chinese, merely demands a ‘quake’ of greater amplitude and an explanation as to what might trigger it. Visualize that a quake deep down in the mantle or the core causes a change to the geoid (the flattened shape of the rotating earth); the centre of gravity jumps to a new position; the figure axis must shift to pass through the new centre of gravity, hence the rotational poles on the surface migrate and a wobble commences as the axis of rotation seeks the new axis of figure. At the surface this would manifest as temporary variations in sea-level called pole tides, until the ellipsoid of the planet permanently settled to its new axis; the coastline is left in some places above and in others below the former shoreline. Along the Chinese coast, the sea-level apparently fell, whereas in other parts of the world there was submergence at the same era.

A geographical pole shift must be distinguished from a change to the obliquity. In popular literature these concepts are often muddled. A motion of the geographical poles (a wobble) is measured relative to axes that rotate with the Earth – a rotating frame of reference. A change of obliquity, or an ‘axis tilt’ in common parlance, is measured relative to a frame that is fixed in space. This may be compared to the forced nutation that occurs due to the gravitational pull of the sun, moon and planets on the equatorial bulge. The solid earth and oceans move together and therefore do not cause pole tides. The Chinese myths that would portray the sky leaning-over are describing an apparent change of obliquity rather than a pole shift. So, what might be the connection between this, the river floods and the coastal emergence?

A change of obliquity requires an external force from space, but a geographical pole shift could be triggered by movements of mass internal to the Earth. However, this could imply some earlier external event that had left an imbalance waiting to be triggered. We may compare this to the tension on a fault that builds prior to a crustal earthquake but on a larger scale. It is disturbing to think that there might be such an imbalance of mass beneath our feet right now, in the mantle or the core, just waiting to be triggered! However, the Kung Kung myth, as described, would seem to be describing a force from space that was the immediate cause of both the axis-tilt *and* the creation of empty land, with many subsequent episodes of river flooding recurring in later dynasties.

While it may be the norm for single-subject specialists to dismiss myths as just the naïve tales of our ancestors, this is less tolerable when so many parallels can be seen between the myths of unrelated cultures in other parts of the world. To give just a few other contemporary examples: If we look to the western myths such as the Mesopotamian flood of c.3100 BC, as derived from the Babylonian king lists, then we see another event that requires a change of geodesy to properly explain it. In Irish myth we find memories of the sun standing-still, which are associated with the building of Newgrange (c.3150 BC); and in Manetho’s chronicle of the Egyptian Third Dynasty we are told of an abnormal waxing and waning of the Moon, which so terrified the Libyan people.

From a cross-disciplinary analysis of such myths we may discern the degraded memory of a worldwide cataclysmic event and we are given an approximate era to look for more concrete evidence. Pole-shifts are the missing link that could turn the myths into history. Rather than dismissing ancient stories like that of Kung Kung, perhaps we should instead be asking what was the nature of the cosmic force that could so drastically disturb the earth’s axis in the way that our ancestors have recorded.

Relevant website links:

<https://www.writtenchinese.com/neolithic-china-beginnings-chinese-civilization/>

[https://www.ancient.eu/Longshan\\_Culture/](https://www.ancient.eu/Longshan_Culture/)

<http://factsanddetails.com/china/cat2/sub1/item32.html>

<http://www.chinaknowledge.de/History/Myth/personsgonggong.html>

<https://www.britannica.com/topic/Lapita-culture>

<https://anthrogenica.com/showthread.php?7766-Oceanian-Genetics-Beginners-Guide-and-FAQ>

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- 3) Werner, Edward, T.C. (1922) Myths and Legends of China, George G. Harrap & Co. Ltd. London Bombay Sydney.
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**Tags:** Chinese mythology, Kung Kung, Gong Gong, sea level changes, pole shift, Maui, Polynesian mythology, Lapita Culture, Yangshao, Longshan, Nü Wa, Nüwa

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