



Large-bodied Hominoid fossils in China

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FIRST PARAGRAPH: Southern China was an important refuge for hominoid since the Late Miocene to Pleistocene when hominoids became extinct throughout the rest of Eurasia. *Lufengpithecus*, *Gigantopithecus*, *Pongo*-like and hominin fossils represent the major members of hominoid in China which might be related to the process of early hominin origin and evolution in east Asia.

中国的大型类人猿化石

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首节: 中国南方有丰富的大型类人猿化石, 时代从晚中新世到更新世末期, 分布范围主要在云南、广西、广东、海南及三峡鄂西地区。主要种类有禄丰古猿、巨猿和猩猩, 这些化石对研究东亚地区大型类人猿的演化、分布、绝灭与气候环境变化, 及早期人类起源等相关问题有重要意义。

Large-bodied hominoid fossils have been discovered from several late Miocene sites of Yunnan Province, China since 1956. All of them are attributed to the genus *Lufengpithecus*. *Lufengpithecus* has been generally grouped within the *Sivapithecus-Pongo* lineage, but some further study and new discoveries of *Lufengpithecus* suggest that this genus might be on Homininae lineage other than Ponginae lineage. It is also possible that *Lufengpithecus* represents a side branch split from the basal stem of the Hominidae. The early Pleistocene “*Homo*” mandible found in Longgupo site of Wushan is very similar to *Lufengpithecus* from Yuanmou. The coexisted *Gigantopithecus* and archaeological evidence in Longgupo makes this issue complex.

Gigantopithecus blacki is the largest primate of the extinct and extant, and it was mainly found in southern China. Three mandibles and more than one thousand isolated teeth have been found in more than 10 cave-deposit sites in Southern China and only one in northern Vietnam. The geological age of *Gigantopithecus blacki* is from early Pleistocene to middle Pleistocene. *Gigantopithecus blacki* may be evolved from its Siwalik predecessor. But the taxonomic status of Late Miocene Siwalik

Gigantopithecus is argued that it should be reallocated to *Indopithecus* Pilgrim, 1915. It was suggested that *Gigantopithecus* must be a gigantic form of Early Man by Weidenreich or was placed with the Australopithecinae. However, there is little evidence to support *Gigantopithecus* to Homininae relationship. *Gigantopithecus* probably is on the *Sivapithecus-Pongo* lineage. But it is interesting *Gigantopithecus blacki* coexisted with hominin fossils or archaeological artifacts in several early Pleistocene sites, such as Longgudong of Jianshi (Zheng, 2004), Longgupo of Wushan (Huang et al., 1995). Is the unique derived *Gigantopithecus* a branch member of early Homininae or Ponginae? Key fossils such as skulls and postcranial skeletons need to be discovered, because we now have only mandibles and isolated teeth of *Gigantopithecus*.

A great number of *Pongo* and *Pongo*-like fossil teeth have been discovered in Southern China (Zhao et al., 2008). The geological age was from early Pleistocene to late Pleistocene. The distribution range is mainly south-west China in Guangxi, Guangdong, Yunnan, Guizhou and also Hainan island. The fossil evidence of *Pongo* in China is only teeth, and was assigned as a subspecies *Pongo pygmaeus*

weidenreich (Hooijer, 1948). It was suggested that fossil *Pongo* population in China is considerably larger in overall size than extant *Pongo*.

It is interesting that von Koenigswald (1957) recognized several teeth from a large number of *Pongo* teeth from southern China. The most typical form is of *Pongo* size, but misses the fine wrinkles which are so characteristic of the latter. Because of the likeness with *Paranthropus*, Koenigswald gave the new genus and species as *Hemianthropus peii*, and suggested a higher primate of subhuman affinities rather than a true member of *Pongo*.

All above hominoid evidence shows that Southern China was an important refuge for hominoid since the Late Miocene to Pleistocene when hominoids became extinct throughout the rest of Eurasia. An important contributing factor in survival of hominoids, such as *Lufengpithecus*, *Gigantopithecus* and *Pongo* in Southern China may be related to uplift of the Tibetan Plateau and the regional climatic

conditions which isolated them geographically and ecologically. Is any of those taxons related to the early hominin evolution in Asia? It is difficult to be answered at present. More key materials are to be discovered.

Australopithecus-like fossils is another important group of hominin fossils in China. More than ten teeth found in an Early Pleistocene cave deposit site of Jianshi are thought to be comparative to *Australopithecine* from Africa, and they possibly belong to a new species of *Australopithecus* in Asia. Besides the teeth from Jianshi site, there are some similar teeth from other regions. *Australopithecus* probably distributed widely as *Gigantopithecus* in China. Unfortunately, only isolated teeth are found.

Besides the hominoid fossils, several archaeological sites of Plio-Pleistocene age have been discovered in Southern China, such as Longgupo of Wushan, Longgudong of Jianshi, Renzidong of Fanchang et al. All these indicate the strong evidence of early hominin survival in Southern China.