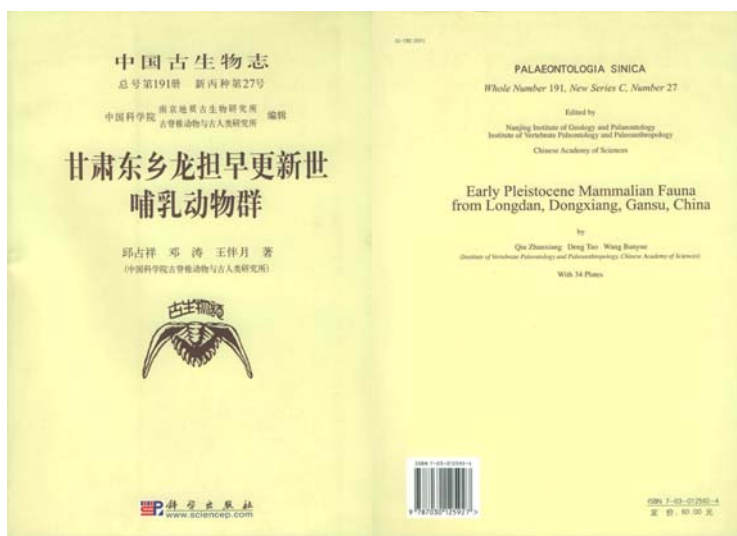


Zhanxiang, Q., D. Tao & W. Banyue. 2004. Early Pleistocene mammalian fauna from Longdan, Dongxiang, Gansu, China. - Palaeontologia Sinica. Whole number 191. New series C 27 (Science Press).

Book review by J. de Vos



In Europe, roughly during the last half of the nineteenth and the first half of the twentieth century, new Early Pleistocene sites were discovered and excavated. To become more specific, sites like Tegelen in The Netherlands, St. Vallier, Senèze, Chagny in France and Valdarno Supérieur, Olivola, Villaroya in Italy. The first descriptions of the faunas of these sites showed that they had species in common, in most cases the larger faunal elements, like the proboscideans. But they also showed differences in composition of species, mostly the cervids and smaller carnivores. This was caused, among others, by:

- the fact that species were lacking, because they were not found
- the fact that per site for comparable faunal elements new species were created; one paid too much attention to small differences in characters
- the material was sometimes fragmented in such a way that good determinations could not be given.

In this way the fauna of every site had its own set of species. I call this 'local palaeontology'. The absence/presence of species and differences in species of comparable faunal elements in the different sites were interpreted as a difference in time between the sites and a biostratigraphy was presented. The fauna from Tegelen, The Netherlands, became a stage, called the Tiglian. However, from Tegelen there are only few fossils and the absence of a species is no evidence for its absence in the fauna. Furthermore, the faunal elements of Tegelen were considered to represent particular species, different from other Early Pleistocene European sites. The cat *Panthera schreuderi* turned out to be *Panthera gombasgoensis*, or *Panthera onca gombasgoensis* known from several Early Pleistocene sites. The Tegelen fauna is nothing more than a Villafranchien fauna. In the course of time the European Early Pleistocene faunas from different sites became more and more similar, because more fossils of a site were found and differences in species in a particular genus seemed to be insignificant. Good examples for showing that the comparable faunal elements of a genus from different sites were interpreted as different species, but in reality belong to the same species, are the large cervids from the genus *Eucladoceros*. The remains of this genus from Senèze, Tegelen and Valdarno Supérieur were considered to be different species, named *Eucladoceros senezensis*, *Eucladoceros tegulensis*, and *Eucladoceros ctenoides* respectively. In total there were 12 different species of the genus *Eucladoceros* created for the different sites. A revision of the genus *Eucladoceros* showed that there are only three species valid. One species, *E. ctenoides*, is the senior synonym of ten other species. A similar story can be told for the European Early Pleistocene middle-sized cervids with six tined antlers from the genus *Cervus*, also attributed to the genus *Dama* or *Pseudodama*. Present in Tegelen was the species *Cervus rhenanus*, in Senèze the species *Cervus philisi*, etc. A revision of those middle sized cervids showed that the species *Cervus rhenanus* is the senior synonym for four other species. So, the differences in the Early Pleistocene faunas are not real and we are dealing with a fauna from an Early Pleistocene ecosystem, spread over Europe.

In the well-known series Palaeontologia Sinica, a monograph appeared about an Early Pleistocene mammalian fauna from Longdan, Dongxiang, Gansu, China, in 2004. Pity enough, the paper is in Chinese, but has an English summary of 32 pages. The fossils were purchased from local private owners, but the data on their provenance and stratigraphic position are beyond any reasonable doubt. The described fossils are very well

figured in 34 plates. It is the first Early Pleistocene site in China where the fossils are coming from the loess and not from caves, fissure fillings or fluvio-lacustrine deposits. The authors describe 31 species; among them there is one new genus and there are eleven new species. The new genus and the eleven new species reminds me to the 'local palaeontology', mentioned above. The question is whether the new species are valid, or has to be attributed to already existing species. What is surprising if looking through the faunal list, is that only one species, which is also known from Western Europe (the sabre-toothed cat *Homotherium crenatidens*), is present. So, you wonder "what is that species doing there, and is this the only European species which reached China?". One possibility is that the determination is not correct, but that is not the case: it is a sabre-toothed cat. Another possibility is that this species is very opportunistic and is indeed the only species that migrated from Western Europe to China. This assumption is not very likely. A lot of species has been proposed within the genus *Homotherium*, mostly based on fragmentary material, but it turned out that they can be attributed to one species *Homotherium latidens* including *Homotherium crenatidens*. *Homotherium latidens* is accompanied in Western Europe, in most of the cases, by another sabre-toothed cat, namely *Megantereon megartereon*. A second sabre-toothed cat from the Longdan fauna is described as, *Megantereon nihowanensis*, and this species is considered to be different from the West European species *M. megartereon*. The authors compare it with the west European *Megantereon cultridens* and write: "Megantereon cultridens is better represented by the skull material from St. Vallier described by Viret (1954)". However Viret described *M. megartereon* and not *M. cultridens* and considered *M. nihowanensis* (Teilhard de Chardin & Piveteau, 1930) as a junior synonym of *M. megartereon* (Croizet & Jobert, 1828). In other words, the *M. nihowanensis* from Longdan can be considered as *M. megartereon*.

Three species of *Paradolichopithecus* are known: *Paradolichopithecus arvernensis*, *Paradolichopithecus geticus* and *Paradolichopithecus sushkini*, which are close to each other in size and similar in morphology, differing only in minor points. In my opinion also the Longdan species differ little from the other three. Probably we are dealing with only one species *P. arvernensis*.

The authors describe three new species of large dogs: *Canis teilhardi*, *Canis longdanensis*, and *Canis brevicephalus*. They write about their new species *C. brevicephalus*: "It is interesting to note that in size the teeth are close to those of the largest European species *Canis faconeri*". However it differ in minor points from it; probably the new species *C. brevicephalus* is the same as *C. faconeri*.

A six-tined new cervid species, *Nipponicervus longdanensis*, is described from Longdan. The antler morphology is similar to the European six-tined cervid *Nipponicervus rhenanus* (*C. rhenanus*, *Dama rhenanus* or *Pseudodama rhenanus* is now put in the genus *Nipponicervus*, as the authors propose to put all the six-tined cervids into the genus *Nipponicervus*). *N. rhenanus* differs from the Longdan species by shorter beam below the 2nd forking and the 3rd tine slightly larger than the 2nd one. These are minor characters. The length of P2-M3 (120 mm) of the fragmentary skull of *N. longdanensis* is larger than those of *N. rhenanus* (78 mm-92 mm; N=46), but it falls within the range of *Eucladoceros* species (117 mm-145.5 mm; N=44).

The authors refer to a paper in which an early Pleistocene fauna, the so-called Kuruksay fauna, is described from Central Asia. According to the authors the fauna bears a mixture of European and Asian elements. Striking is that most of the carnivores were identified as those of European faunal elements, including *Nyctereutes megamastoides*, *Ursus cf. U. etruscus*, *Pachycrocuta perrieri*, *Chamaporthetes lunensis*, *Megantereon megartereon*, *Homotherium crenatidens*, *Acinomyx cf. A. pardinensis* and *Lynx ex gr. Issiodorensis*. Only the dog, *Canis kuruksaensis* is a new species and an exception. The artiodactyls, especially the cervids, show clear Asian affinity. Remarkable is that Longdan and Kuruksay have as well as *Paradolichopithecus* as *Homotherium crenatidens* in common.

The point I like to stress is that more attention must be paid to similarities than to differences. Nowadays and in the past we are dealing with large ecosystems, like the Mammuth Steppe Fauna in the Late Pleistocene, which spread from England over Euro-Asia into Alaska. More or less in the whole area we find the same faunal elements. In that way we must also treat the ecosystem from the Early Pleistocene ranging from about 2 Ma until about 1 Ma. It seems that more and more species from China are the same as the European species, like *Anancus arvernensis*, *Trogontherium cuvieri*. Probably a large ecosystem, an open woodland, stretched from Western Europe via Central Asia into China. True, it is clear that I am a lumpner, but in that case the Chinese colleagues are splitters.

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