# Fact or fiction: the Middle Palaeolithic in China

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*The subdivision of the Chinese Palaeolithic is a controversial topic. A recent article in* Antiquity *(Yee 2012) critiqued Gao's two-stage model that distinguished only an Early and a Late Palaeolithic. Yee argued that the two-stage model should be abandoned, and that a distinct Middle Palaeolithic phase can be identified. Responding to Yee, Feng Li argues that there is no solid evidence of distinctive and widespread technological changes before the Late Palaeolithic, and that it is hence premature to abandon Gao's two-stage model at present.*

*Keywords:* China, Early Palaeolithic, Middle Palaeolithic, Late Palaeolithic

## Introduction

Questions surrounding the Middle Palaeolithic and the hominins who made it are among the most contentious issues in Palaeolithic research. In East Asia, the very meaning of the term Middle Palaeolithic has become controversial (Gao 1999, 2000a; Gao & Norton 2002; Norton *et al*. 2009; Yee 2012). Gao proposed a two-stage model for the Palaeolithic in China (Early and Late), similar to that first suggested by Ikawa-Smith (1978a), in place of the traditional three-stage system (Gao 1999, 2000a). This model was further elaborated by Gao and Norton (2002; Norton *et al.* 2009). By contrast, in reviewing the evidence for the Middle Palaeolithic in China, Yee (2012) concluded that assemblages traditionally assigned to that period were sufficiently distinctive for the phase to be reliably differentiated from earlier and later periods. Consequently, Yee recommended that Gao's two-stage system should be abandoned. Here I re-examine Yee's evidence and show that although some technological changes did occur during the so-called Middle Palaeolithic, they are not sufficient to warrant a return to a Western-style three-phase system.



## The 'Middle Palaeolithic' in East Asia and response to Yee's critiques

The European Middle Palaeolithic is often equated with the Mousterian, although it encompasses other technological styles such as the Micoquian and the Taubachian. Generally speaking, the period is characterised by the emergence and spread of Levallois technology and various flake tools, beginning about 250 000–300 000 years ago (e.g. Klein 2009; Villa 2009). In China, however, Levallois technology is very rare, occurring only in some early Upper Palaeolithic assemblages in the western and northern parts of the country (Wang *et al*. 2010; Boëda *et al.* 2013; Li *et al*. 2014).

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Consequently, other features have been used to identify the Chinese Middle Palaeolithic. The term was first used in Chinese Palaeolithic research by Western scholars to describe assemblages with 'transitional' features marking the change from the Mousterian to the Aurignacian in the Shuidonggou area (Boule *et al.* 1928). Following the investigations of Locality 1 and the Upper Cave in Choukoutien (now Zhoukoudian), Pei (1937) proposed a complete three-stage system for the Chinese Palaeolithic, and later modified it (Pei 1955). Many sites that were subsequently discovered were assigned to the Middle Palaeolithic by Zhang (1985) and Qiu (1985, 1989), usually on the basis of their absolute or relative age and by association with fossils of archaic *Homo sapiens* (Gao 1999, 2000a; Gao & Norton 2002).

In order to identify a cultural period, clear criteria are necessary that distinguish it from earlier and later stages. Information on human ecology and social organisation in late Middle Pleistocene and early Late Pleistocene China is scarce. As a result, features of lithic technology are used almost exclusively to subdivide the Chinese Palaeolithic. In particular, Gao and Norton (2002; see also Gao 1999, 2000a) emphasised the role of technological changes in determining cultural stages. They reviewed all of the assemblages then assigned to the Middle Palaeolithic and assessed the technological changes according to four criteria: raw material procurement, core reduction, retouch and typology. They concluded that there were no clear differences between assemblages traditionally classified as Lower Palaeolithic and those of the so-called Middle Palaeolithic. However, differences between these assemblages and those of the Upper Palaeolithic were very obvious and widespread.

Yee critiqued each of the four criteria used by Gao and Norton. Raw material selection and transportation were thought by Gao and Norton to be important markers of human behavioural variability. The use of local, low-quality raw materials in the Middle Palaeolithic was similar to that at Early Palaeolithic sites, but different from the Late Palaeolithic. Gao and Norton (2002: 404) interpreted the "irregular, small and simple" morphology of the artefacts as a by-product of the low quality of the raw material, and did not present artefact morphology as the main criterion for abandoning the Chinese Middle Palaeolithic.

Yee claimed that superior exotic, higher-quality raw materials were not used in the Middle Palaeolithic but were widespread in Upper Palaeolithic Eurasia, and that they are not unique in the Chinese Palaeolithic. However, the exotic raw materials of higher quality reported in the European Upper Palaeolithic are not the same as the long-distance transported materials in the Late Palaeolithic of Gao and Norton's paper. Even though there has been little specific research on the sourcing of raw materials in China, it is clear that many the of high-quality stones utilised at Early Palaeolithic sites are derived from alluvial deposits, and could have been collected from rivers located only short distances (<5km) from those sites. The point is that the long-distance transported materials (>5km), irrespective of quality, are almost entirely absent before the Late Palaeolithic in China, a situation very different from that in western Eurasia (Féblot-Augustins 1993, 2008; Adams & Blades 2009).

Both Gao and Norton and Yee agreed that increasing complexity of core exploitation and reduction should characterise the transition from the Lower to the Middle Palaeolithic. Gao and Norton insisted that core reduction remained simple and casual in China prior to the Late Palaeolithic. Yee considered the frequent presence of discoid core reduction at so-called Middle Palaeolithic sites to be an indicator of a marked shift in the elaboration of reduction.

Furthermore, Yee suggested that discoid core reduction could be a marker of the Middle Palaeolithic, citing the British Middle Palaeolithic as one example. However, discoid core reduction has been found in the Lower Palaeolithic of Africa at sites such as Olduvai (Leakey 1971), and at Chinese sites such as Xiaochangliang in the Nihewan Basin (see Chen *et al.* 2002: fig. 1). In fact, discoid technology was used over a very broad period of time in China, as it was in the Iberian Peninsula (Vaquero & Carbonell 2003). Given that it recurs in so many places and times, it is not a reliable marker of the Middle Palaeolithic. The frequent occurrence of discoid reduction in the British Middle Palaeolithic is also accompanied by features such as bifaces (White & Pettitt 2011), which form more reliable indicators but were never a part of the Chinese Middle Palaeolithic.

Yee (2012: 622) cited a number of Chinese sites that have yielded discoid cores, including Zhoukoudian Locality 15, Xujiayao, Gezidong, Jiangjiawan and Banjingzi. At the Gezidong, Jiangjiawan and Banjingzi sites, however, the discoid cores are not typical: some of them are not discoid cores at all. There is just one "discoid-like core" out of a sample of nine simple cores at Gezidong (Archaeological Team at Gezidong 1975: 126), and one "discoidal scraper" at Jiangjiawan, originally described by Qiu (1985: 198). At the Banjingzi site, 215 cores classified as single-platform, double-platform and multi-platform were reported (Li *et al.* 1991). Among double-platform cores, two were classified as discoidal due to their morphology, but this does not necessarily mean that they are true discoid cores. The Zhoukoudian Locality 15 and Xujiayao sites are well studied: discoid cores were found and more detailed chronological information is available. The proportions of discoid cores in these assemblages demonstrate their rarity. At Zhoukoudian locality 15, 33 of 130 cores are discoid, while at Xujiayao 23 of 186 cores are discoid (Jia & Wei 1976; Gao 2000a & b; Ma *et al.* 2011). Furthermore, the blanks from the assemblages containing the discoid cores are generally similar in shape and size to earlier Palaeolithic assemblages with fewer discoid cores.

Yee stated that stone tool standardisation required more detailed study beyond abstract and simplistic descriptions, but she did not deny the role played by standardisation of retouched tools in technological evolution. Gao and Norton (2002) demonstrated there were more formal and finely retouched tools in the Late Palaeolithic than in the Early Palaeolithic. Direct observations show that the so-called Middle Palaeolithic tools are no more standardised than Lower Palaeolithic artefacts, although further metrical and statistical analyses are needed.

The practice of lithic typology analysis in China has been critiqued by many scholars, both within and outside the country (see Yee 2012 and references therein). Some typological subdivisions are problematic, but the classification of general types is more reliable. Moreover, most of the well-known sites were studied by experienced scholars, many of whom were trained in the West. Gao and Norton (2002) proposed that an increase in the variety of tool types is to be expected over time as technological knowledge accumulates. Although their statement on the relationship between the variability of tool forms and settlement is problematic, as Yee observed, there is no evidence that Middle Palaeolithic assemblages contain a wider variety of artefact forms than Lower Palaeolithic assemblages. In contrast, Late Palaeolithic assemblages contain a range of novel types, including formal endscrapers, burins, bifacial points and so on.

In summary, the main points of Gao and Norton (2002) are that: 1) the so-called Middle Palaeolithic in China has been identified on the basis of the age of the sites and their association with fossils of archaic *Homo sapiens*; and 2) changes in raw material use, core reduction, retouch and typology are not sufficient to isolate a clear Middle Palaeolithic phase in China; abrupt and widespread shifts in these features occur only at the beginning of the Late Palaeolithic. Yee argued that the procurement of raw materials, the emergence of formal retouch, and typological variety cannot be used as criteria to divide cultural stages, and that the discoid cores reported in the Middle Palaeolithic indicate gradual technological change. However, discoid forms are not universal in the so-called Chinese Middle Palaeolithic, nor are they absent from earlier phases. Even if some of the criteria used by Gao and Norton are problematic, it does not make sense to abandon Gao's two-stage model and define a Middle Palaeolithic purely on the basis of the higher frequencies of discoid cores at some sites. Moreover, it is difficult to assign the Middle Palaeolithic to a time range of 140–30 ka given the uncertain and controversial dating of many so-called Middle Palaeolithic sites (Gao & Norton 2002; Norton *et al.* 2009).

## Discussion and conclusion

Cultural stages are events in time (Chazan 2009) that are identified by archaeologists from widespread changes in ancient societies, and they are used to summarise human behavioural evolution and assign archaeological evidence to broad time frames. This stage-based approach was popular and important when scientific archaeological work began in the late nineteenth and early twentieth centuries. At that time, little was known of the Palaeolithic beyond Europe, so it was only natural to extend the three-stage model generated in Europe and apply it to discoveries elsewhere. With the accumulation of information in other regions, especially in East Asia, more has been learned about a trajectory of technological evolution that was clearly distinct from that of western Eurasia (Iwaka-Smith 1978b and papers therein; Schick & Dong 1993; Lin 1996; Gao 1999, 2000a, 2013; Gao & Pei 2006; Bar-Yosef & Wang 2012; Li *et al.* 2013, 2014). Application of the three-stage model to archaeological material from across the world is no longer appropriate or desirable, given the variability in behaviour documented over the last century. Regionally specific systems for assigning sites to broad cultural stages are far more appropriate.

It is also important to point out that the two-stage model does not deny changes within the Chinese Early Palaeolithic (Gao & Norton 2002; Norton *et al.* 2009) any more than assigning both the Oldowan and Acheulean industries to the Lower Palaeolithic denies that they are different. Discoid cores may have become more frequent over time but that is not enough to mark a new cultural stage. Other technological changes may be discovered in future studies of the Early Palaeolithic in China as scholars apply appropriate approaches not tied to pre-existing technological modes or cultural stages. A more vital task for researchers is to understand the particular adaptations and evolutionary processes in China that led to the observed variability in human behaviours in different periods and areas (Li *et al.* 2014). A useful approach to studying technological evolution is to rely on time sequence data without reference to archaeological periodisation, such as Oxygen Isotope Stages (Chazan 2009) or numerical ages (if available). This is preferable to simply assigning assemblages to cultural

stages. The approach has already been applied in China by Wang (2005; see also Bar-Yosef & Wang 2012), who has attributed assemblages to the Early, Middle and Late Pleistocene on this basis, although these first attempts are inevitably somewhat coarse-grained.

Yee's (2012: 624–25) critique of the practice of archaeology in China (including restricted access to most Chinese assemblages, dispersal of collections, incomplete databases, limited information on context and lack of international publication) echoes earlier statements by Keates (1997, 2001: 167). Conditions have improved, however, over the past decade. Many Palaeolithic assemblages are now easily accessed in institutes and universities, and practical and bureaucratic barriers to research are more easily overcome than before (Norton & Jin 2009). Moreover, Chinese scholars are keen to initiate collaborative programmes with their Western colleagues, knowing that better results can be achieved by working in teams (Norton & Jin 2009; Peterson & Manvick 2009 and papers therein). More and more research is being published by Chinese scholars and their Western co-workers in English. The world is getting smaller and lack of access to information is less of an impediment.

The critiques directed by Yee against Gao's two-stage model do not demonstrate the presence of technological changes that are sufficiently convincing for a clear Middle Palaeolithic phase to be distinguished from the Early Palaeolithic in China. Given the limited scope of the technological criteria that are currently available, it is possible that more will eventually be learned about evolutionary processes in the Chinese Palaeolithic as further information on foraging, ecology and social organisation accumulates in the future. However, as François Bordes (1978: ix) remarked in the foreword to *Early Paleolithic in South and East Asia*, "East is East, West is West". We should keep in mind that the history of behavioural evolution in East Asia may be quite different from that documented in the West. Even if future research enables us to isolate new cultural stages within the Early Palaeolithic, they should not be expected to match those in other parts of the world.

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