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New evidence of a lithic assemblage containing *in situ* Late Pleistocene bifaces from the Houfang site in the Hanshui River Valley, Central China

Nouvelle preuve d'assemblage lithique du Pléistocène supérieur contenant des bifaces in situ : le site de Houfang dans la vallée de la rivière de Hanshui en Chine centrale

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ABSTRACT

As few lithic assemblages containing *in situ* bifaces in China have been dated to over 600 ka and few industries with the association of *in situ* bifaces and reliable Late Pleistocene dates have been formally reported, the nature and evolution of Chinese industries with bifaces remained unclear for a long time. The Houfang site, deposited in the Aeolian soils of the second terrace of the Hanshui River, Central China, yielded 162 stone artifacts including 2 typical bifaces in stratigraphic context. TT-OSL dating indicated that the sediments containing bifaces were deposited between 110 and 90 ka B.P. Preliminary technological analysis suggested that the percentage of bifaces in this assemblage is much lower (< 3%) than in the Acheulean complex and that the operative schemes for producing typical bifaces are totally different from those of Acheulean implements. So, on the one hand, it provides new evidence for questioning the validity of the “Movius Line” *sensu stricto* and, on the other hand, it serves as an important marker for investigating the technological evolution and possible cultural affiliation within East Asia and casts new light on the technological specificity and continuity in East Asia and on the main cultural differences between this area and the Old World Acheulean Complex.

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R É S U M É

La nature et l'évolution des industries lithiques à bifaces de Chine est restée confuse pendant longtemps, du fait que le peu d'assemblages contenant des bifaces *in situ* en Chine ont été datés à plus de 600 000 ans et que peu de séries attribuées au Pléistocène supérieur ont été publiées. Le site de Houfang, déposé dans les sédiments éoliens de la deuxième terrasse fluviale de la rivière de Hanshui en Chine centrale, a livré 162 artefacts lithiques incluant deux bifaces typiques en stratigraphie. Les datations TT-OSL indiquent que les sédiments

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contenant les bifaces se sont déposés entre 110 000 et 90 000 ans B.P. L'analyse technologique préliminaire que nous avons effectuée suggère que le pourcentage des bifaces dans cet assemblage est plus bas (< 3 %) que celui attendu dans un complexe acheuléen et que les schémas opératoires de production des bifaces typiques sont totalement différents de ceux des outils acheuléens. Donc, le site de Houfang fournit, d'une part, de nouveaux éléments pour remettre en question la validité de la « ligne de Movius » *sensu stricto*, et sert, d'autre part, d'élément clé pour explorer l'évolution technologique et la possibilité d'une affiliation culturelle en Asie de l'Est. Il peut mettre en lumière la particularité technologique et la continuité en Asie de l'Est ainsi que la différence culturelle essentielle de cette région par rapport au complexe acheuléen de l'Ancien Monde.

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1. Introduction

Since the proposal and definition of the “Movius Line” (Movius, 1949; Swartz, 1980), the presence or absence of bifaces in China, their relationship with the Acheulean industries of Europe and Africa, as well as the nature and characteristics of Chinese Paleolithic cultures have been hotly debated. At present, the existence of bifaces in Chinese Paleolithic is beyond question in light of their discovery in several site complexes including Bose Basin (Hou et al., 2000; W. Wang, 2005; Wang et al., 2008; W. Wang et al., 2014), Luonan Basin (S.J. Wang, 2005, 2007; Wang et al., 2005, 2011), Lantian area (Wang et al., 2014a, b), Hanshui River Valley (Li, 1998; Li et al., 2009) and the Danjiang River Valley (Pei et al., 2015; Wang and Hu, 2000; Wang et al., 2013). However, most of the lithic assemblages containing bifaces were surface finds and very few sites yielded bifaces in a primary stratigraphic dated context. These include Fengshudao (Wang, 2005b; W. Wang et al., 2014), Damei Nanbanshan (Wang et al., 2008), Shuangshu (Li et al., 2011, 2014b), Liangshan Longgangsi (Sun et al., 2012), Dishuiyan (Liu and Feng, 2014), Ganyu and Jijiawan (Wang et al., 2014a, b), Maling 2A (Pei et al., 2015). As reported, most of these sites were dated to over 600 ka (late Early Pleistocene to early Middle Pleistocene). Apart from Dishuiyan (Liu and Feng, 2014), Maling 2A (Pei et al., 2015) and several localities in the Lantian area (Wang et al., 2014a, b), few lithic industries with *in situ* bifaces and reliable Late Pleistocene dates have been formally reported. In view of this, the newly discovered Houfang site from the Hanshui River Valley which has yielded a lithic assemblage containing *in situ* bifaces dated to the early Late Pleistocene, provides new well-documented evidence of late occurrences of bifaces and will contribute greatly to our understanding of the nature and evolution of lithic assemblages containing bifaces in China and East Asia.

2. Geological background and stratigraphy

The Houfang site (32°48' 32" N, 110°35' 4" E) is located in Wangjiashan Village, Qingqu Town, 20 km west of Yunxian County of Hubei Province, 1.5 km south of Yunxian Man site, and 184 m above sea level (Fig. 1). The site was discovered in 1994 during the surveys undertaken by IVPP (Li, 1998). The rescue excavation was carried out by a team comprised of Wuhan University, Nanjing University and Yunxian Museum of Hubei Province from October to

November in 2010, exposing an area of 400 m². The excavation zone was divided into two parts (zone I and II), comprised of a 10 m × 10 m grid (IT1), a 5 m × 20 m grid (IT2) and two 10 m × 10 m grids (IIT1 and IIT2).

The Houfang site is situated in Yunxian Basin, on the left bank of the upper reaches of Hanshui River. The geological formation of this region is mainly Paleozoic metamorphic rock series, covered by Tertiary red rock series near Yunxian County (Shen, 1956). Four Pleistocene terraces are located along the valley near the site, closely related to the uplift of the Qinghai-Tibet Plateau and the development of the Hanshui River. These four terraces, numbered 1, 2, 3, 4 from bottom to top, are respectively situated 10 m, 25 m, 40 m and 50 m above the old river level. Apart from the first terrace, the fluvial gravel bed and coarse fluvial sands underlie Aeolian soils varying in thickness: 2–10 m on the second terrace, 1–5 m on the third and 20 m on the fourth terrace. On the fourth terrace, in particular, the loess–paleosol sequences are very clear, enabling the identification of 5–6 paleosol layers. The Houfang site stone artifacts were buried in the Aeolian soils of the second terrace.

Six layers were identified from top to bottom and stone artifacts were unearthed respectively in Layers 2 and 3. The stratigraphic sequence of the Houfang site is as follows (Fig. 2):

- a gray-brown layer, made up of loose silty-sandy clay, containing sporadic gravels and modern cultural relics, 0.1–0.85 m in thickness;
- compact yellow-brown clay, with vertical joint structure, ferrimanganic mottling, adhesive film and crumb structure, containing some wormholes and plant root holes, 1.5 m thick, containing 89 stone artifacts including bifaces and picks;
- variegated and relatively compact bluish-grey clay, with very fine reticulate texture. This layer is mainly distributed in excavation zone IT2, and partly extends into IT1. The sediments are much thicker in the northwest than in the southeast, the central part is concave, with an average thickness of 0.8 m, bearing 73 stone artifacts;
- relatively compact dark yellow-brown sandy clay, with ferrimanganic mottling, adhesive film and a few wormholes and plant root holes, 1.8 m in thickness, with a transitional contact with the layer above;
- very fine brown sandy silt, solidifying after drying, very widely distributed, > 4 m in thickness;

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