

RESULTS OF RECENT RESEARCH INTO THE LITHIC INDUSTRIES FROM LATE PLEISTOCENE/ EARLY HOLOCENE SITES IN NORTHERN VIETNAM

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ABSTRACT

The principal sources of evidence for human behaviour in the Pleistocene and Early Holocene periods in Vietnam are the lithic and faunal remains found in the caves and rock-shelters of Bac Bo. The earliest investigations of these caves were carried out by the French archaeologist, Madeleine Colani, in 1929 and 1931 (see Colani 1931). This paper reports the results of recent archaeological investigations into the assemblages found in the Dieu Rockshelter in Thanh Hoa province.

DIEU ROCKSHELTER

Mai Da Dieu Rockshelter is located high in the limestone mountains of Thanh Hoa Province, in the village of Ha Trung, in Ba Thuc District (Fig.1). Three seasons of excavation have been conducted at the site. The first took place in 1986 (Nguyen Khac Su et al. 1986), the second in 1988-1991 (Nguyen Van Binh 1994), and a third season was undertaken in 1995 (Nguyen Gia Doi 1998).

Table 1 gives a series of uncalibrated radiocarbon dates obtained for the site, ranging from $19,700 \pm 150$ BP, to 4940 ± 90 BP.

STRATIGRAPHIC EVIDENCE

Three distinct layers were identified in Dieu Rockshelter, through a vertical thickness of 5.2 metres of sediment. Layer 1 (the basal layer) consisted of hard, coherent, yellowish laterite soil. Shellfish are notably absent from this layer, and ash and charcoal are rare. Layer 1 contained the fossilised bones of a wide range of animals, including the following genera: *Pongo*, *Macaca*, *Hylobates*, *Presbytis*, *Bubalus*, *Rusa*, *Capricornis*, *Muntiacus*, *Axis*, *Sus*, *Rhinoceros*, *Elephas*, *Helarctos*, *Ursus*, *Arctonyx*, *Paradoxurus*, indeterminate Viverridae, *Hystrix*, and *Rattus*. According to Vu and Popov (1991), the faunal remains are late Pleistocene.

The pollen and macro-botanic remains from layer 1 indicate that the climate was cold and dry during the late Pleistocene period, which is consistent with research findings on the palaeoclimate of China and Southeast Asia.

Layer 2 above consisted of a coherent brownish sediment containing copious numbers of shellfish. Burnt soil

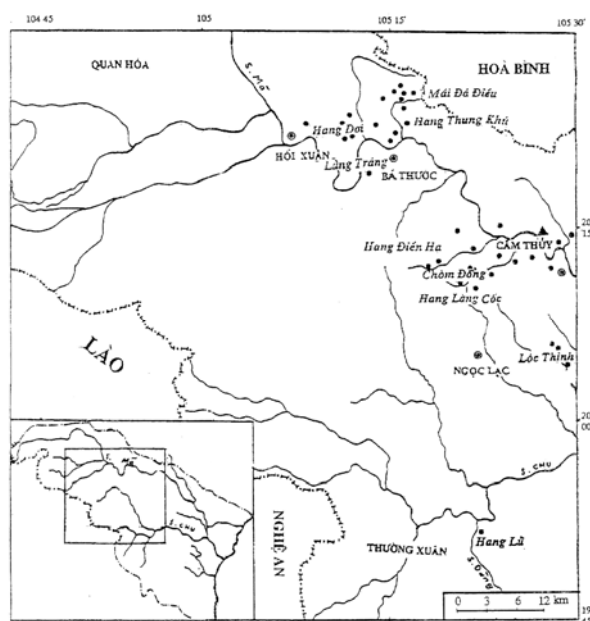


Figure 1: The location of Mai Da Dieu (top right).

Table 1: Radiocarbon dates for the Dieu Rockshelter.

Samples	Uncalibrated dates
Bln 3542-86MDDL19b (charcoal)	19,700±150 BP
Bln 3541-86MDDL12a (charcoal)	7970±70 BP
Bln 3540-86 MDDL10b (charcoal)	8200±70 BP
ANU-10367-95MDDL20a (land snail)	7720±70 BP
ANU-10377-95MDDL30a (land snail)	8610±80 BP
NU-1118-95MDDL10a (land snail)	6360±125 BP
NU-1119-95MDDL17a (land snail)	4940±90 BP

was found in this layer, in association with burials. Layer 2 also produced sub-fossil bones of a fauna indicative of warmer and wetter climatic conditions during the transition between the late Pleistocene and early Holocene,

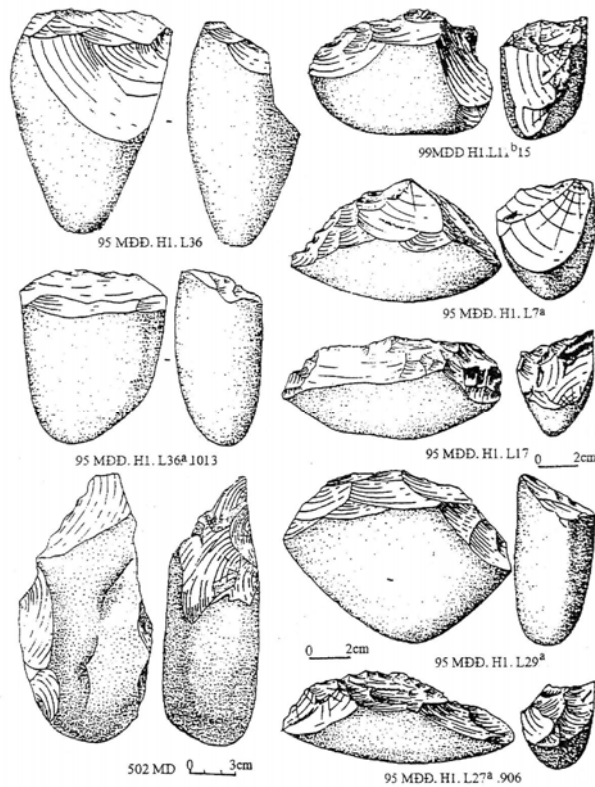


Figure 2. Pebble tools from Mai Dai Dieu.

dating between 23,000 and 12,000 BP. Genera represented include *Macaca*, *Hylobates*, *Bibos*, *Sus*, *Cervus*, *Rusa*, *Muntiacus*, *Tragalus*, *Capricornis*, *Felis* (tiger), *Ursus*, *Rhizomys* and *Hystrix*. Macrobotanical remains included *Gnetum* sp., *Quercus* sp., *Salix carpinus* and *Lithocarpus*.

Layer 3, the upper layer, comprised greyish incoherent sediments containing limestone, burnt soil and burials. Freshwater shellfish such as *Antimelania* sp., *Lanceolaria* sp. and *Astacus fluviatilis* were recovered. Layer 3 contained the same fauna as layer 2. Analysis of macrobotanical material showed an abundance of *Canarium* sp., which also indicates a warmer and wetter climate after 12,000 BP and into the Holocene.

THE CHRONOLOGICAL SEQUENCE

A chronological sequence for Dieu Rockshelter was established from the radiocarbon dates. The Early Period (layer 1) is dated to between 24,000 and 30,000 BP, and is marked by a cold and dry climate. The Middle Period (layer 2) is dated between 12,000 and 24,000 BP, and can be divided into 2 phases; a lower dated 24,000 to 19,000 BP and an upper dated 19,000 to 12,000 BP. The Middle Period belongs to the transition between the late Pleistocene and Early Holocene, and is marked by a warmer and wetter climate. The late period dates between 12,000 and 5000 BP.

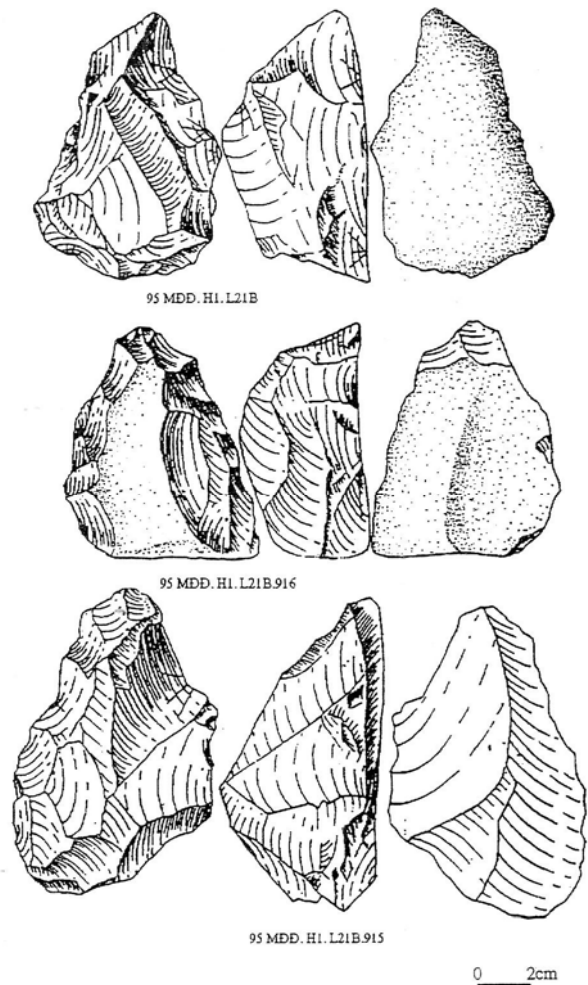


Figure 3. High domed tools from Mai Da Dieu.

THE LITHIC ASSEMBLAGE

The lithic assemblage from Dieu Rockshelter is one of the largest found thus far in Vietnam. It is comprised of almost 2000 pebble tools and thousands of flakes. The tools were made from a number of different materials, including quartz and quartzite which were common in layer 1, and diabase and basalt which were common in layer 2.

Three main types of tools are represented in the assemblages: choppers, high-domed massive forms, re-touched flakes, and pitted pebble mortars. Altogether, 30.8% of the tools were choppers, including end-choppers, side-choppers, points, double-edge chipped tools and horse-hoof shaped choppers. Choppers were most abundant in layers 1 and 2, where 12 % of the total were massive high-domed types. The flaking process was concentrated on both side edges and at a point at the distal end. These tools are generally described by Vietnamese archaeologists as iron-shaped, turtle-shaped, triangular or boat-shaped (Figure 3). The greatest number of this type was found in layer 2. This type also occurs at Quynh Van sites and post-Hoabinhian sites in the coastal region of

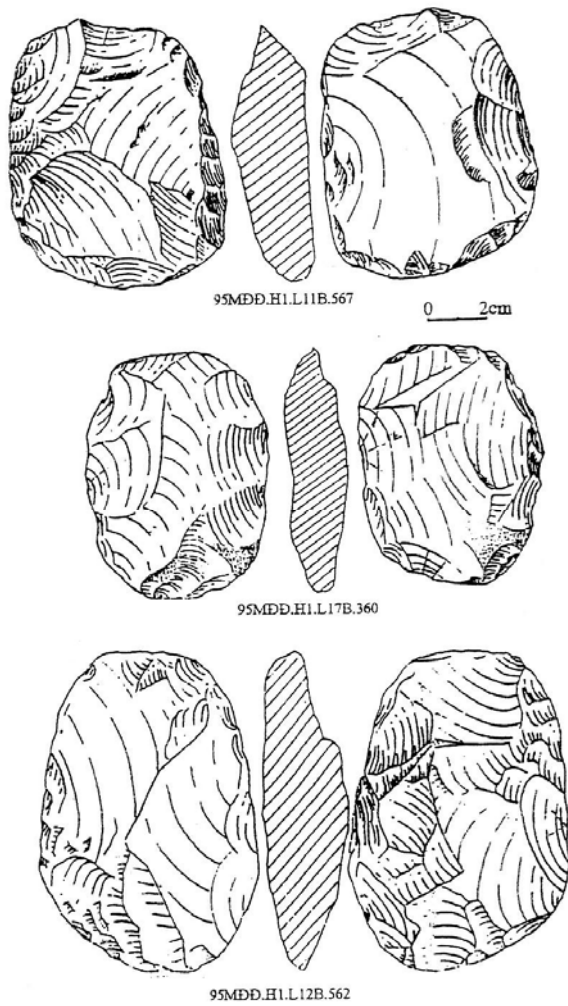


Figure 4. Bifaces from Mai Da Dieu.

Vietnam. Unflaked pebbles with naturally occurring flat faces were also represented.

The shelter also produced the sumatralith form, or unifacial discoid, that characterizes Hoabinhian sites. Altogether, 24.3% of the tools in the assemblage were scrapers, either oval, discoid, almond-shaped or rectangular, along with short axes and edge-ground axes (Figs 4, 5).

Flakes were the most predominant tools in the assemblage. They were worked from large pebble cores averaging 20 to 40 cm in diameter. The largest pebble cores bore flaking scars on both sides. Of these, 83.5% were bifacial and 16.5% unifacial. In general, the Hoabinhian-like tools of Dieu are smaller in size than those in other contemporary Hoabinhian sites, and are more completely finished. The site also produced more than 200 natural pebbles used as grinding stones, mortars, pestles, hammer stones, and stones with small holes on their faces.

SUMMARY

The main finding of the research is that several different lithic forms existed concurrently during the period span-

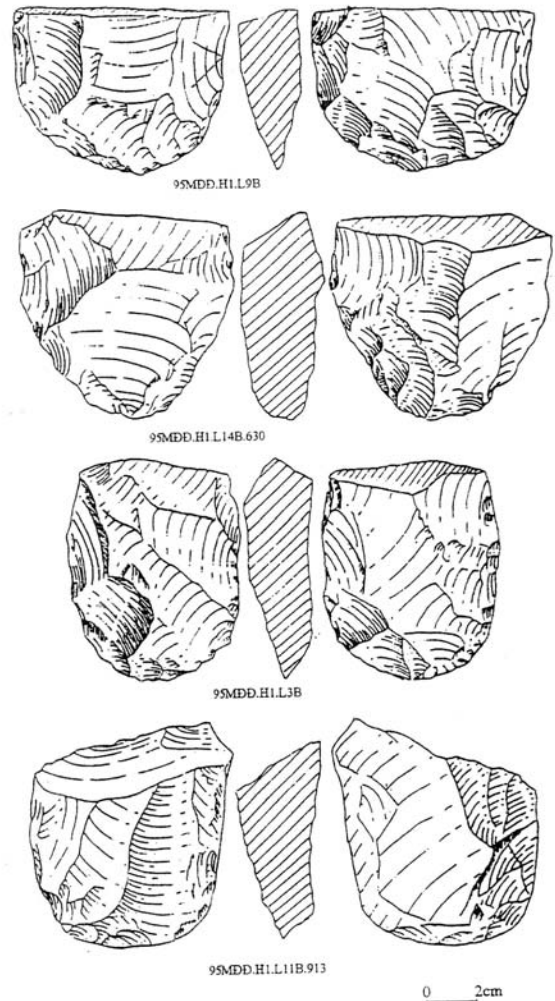


Figure 5. Bifacial 'short axes' from Mai Da Dieu.

ning the late Pleistocene to the early Holocene in northern Vietnam (Nguyen Gia Doi 1999).

REFERENCES

Nguyen Gia Doi 1998. Results and new perceptions on the 3rd excavation at Dieu Rockshelter. *Khao Co Hoc (Archaeology)* 3:72-89 (in Vietnamese).

Nguyen Gia Doi 1999. Dieu industry and regional context. *Khao Co Hoc* 3:5-24 (in Vietnamese).

Nguyen Khac Su, Dang Huu Luu & Nguyen Lan Cuong 1986. Excavation at Dieu Rockshelter (Thanh Hoa). In *Nhung phat hien moi ve khao co hoc (New Discoveries in Archaeology)* 1986, pp.70-72. (in Vietnamese).

Nguyen Van Binh 1994. Preliminary report on the 2nd excavation at Dieu Rockshelter. *Khao Co Hoc* 3:24-34 (in Vietnamese).

Vu The Long and Popov.V 1991. The faunal remains from the excavation at Dieu rockshelter in 1991. In *Nhung phat hien moi ve khao co hoc* 1991, pp. 39-40 (in Vietnamese).