THE HOABINHIAN AND BEFORE[1]

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ABSTRACT

This paper discusses the Hoabinhian pebble tool industries of Viet Nam, together with a number of antecedent industries focused on flake tool production in Viet Nam, Thailand and southern China. It is suggested that Pleistocene to Holocene climatic change in the tropics might have correlated with some of the observed changes in stone tool morphology.

Following the excavation of Spirit Cave in Thailand, Dr Chester Gorman published a series of articles on the Hoabinhian. One which interested me especially was entitled "The Hoabinhian and after" (Gorman 1971). In November 1979, I had a chance to meet Gorman and discuss with him the subject of the Hoabinhian during his visit to Viet Nam. At that time the Sonvian, a Pleistocene pebble industry, was newly discovered and I considered it to be the very origin of the Hoabinhian (Ha Van Tan 1976). I then requested Gorman to write an article about the pre-Hoabinhian industry, but his passing away in 1981 precluded this. In the same year, however, Vietnamese archaeologists discovered in Nguom Rockshelter a flake industry older than the Sonvian (Ha Van Tan 1985a).

Fifteen years have gone by since I met Chet Gorman. In the same period of time, our knowledge about the Hoabinhian has widened considerably. So, I want here to return to the problems that were posed by Gorman about the Hoabinhian, especially questions concerning its antecedents.

THE HOABINHIAN

Many scholars have considered the Hoabinhian to be post-Pleistocene and therefore "Mesolithic" (e.g. Mathews 1968: 94). But Dunn (1970), Golson (1971) and Solheim (1969) all suggested a late Pleistocene date for its beginning. In an article published later, Gorman suggested

> the wide distribution of Hoabinhian traits reflects an early Southeast Asian technocomplex, widely diffused, and reflecting common ecological adaptations to the Southeast Asian humid tropics. This Hoabinhian technocomplex first appeared during the late Pleistocene and continued as a recognizable complex until *ca.* 5000 to 6500 BC. (Gorman 1970: 82)

But at that time, Gorman had access to only a small number of radiocarbon dates from Spirit Cave. Relying on the oldest date 11,690±560 BP, Gorman suggested a date of about 13,000 to 14,000 BP for initial occupation in this cave.

In Viet Nam at present we have collected firm evidence to show that the Hoabinhian extended back much earlier than the date expounded by Gorman. For instance, Lang Vanh cave, excavated by Colani and reexcavated by our archaeologists, has a radiocarbon date of 16,470±80 BP. Xom Trai cave contains classic Hoabinhian artifacts, including sumatraliths, short axes and edge-ground tools, with twenty radiocarbon dates ranging from 17,000 to 18,000 BP. Tham Khuong cave also contains typical Hoabinhian artifacts with radiocarbon dates between 33,000 and 27,000 BP. However, some Vietnamese archaeologists have taken these dates from Tham Khuong to refer to the Sonvian (Nguyen Van Binh 1991: 179). I remain quite doubtful the accuracy of this dating. More recently, a shellfish sample from Tham Khuong has given a date of 15,800±150 BP (HCMV-03/93). This date, in my view, is more appropriate for the Hoabinhian.

Thus, with the large number of radiocarbon determinations now available from sites in Viet Nam, it is clear that the early stage of the Hoabinhian belongs to the late Pleistocene. But what is the terminal date of the Ho-

Figure 1: Map to show sites discussed in text.

abinhian? When Gorman's article "The Hoabinhian and after" was published in 1971, coastal sites of the Hoabinhian were still lacking in Viet Nam. The Bau Tro site mentioned by Gorman in this article was not a true Hoabinhian site (Gorman 1971: 306,310). Up to now, only one Hoabinhian coastal site has been discovered and excavated in Viet Nam: the Bau Du site.

Situated in Quang Nam Da Nang province, about 4 km from the sea, the site of Bau Du is a sand mound which was investigated in 1981, 1982, 1983 and excavated in 1984 (Vu Quoc Hien and Trinh Can 1986). In the site were discrete shell middens containing mainly *Placuna placenta*, *Andara granosa* and *Meretrix meretrix* shells. These were mixed with mammal bones of recent species such as deer (*Rusa unicolor*, *Cervus* sp.), serow (*Capricornis* sp.), monkey (*Macaca* sp.), and rhinoceros (*Rhinoceros* sp.). There were also remains of crab, tortoise and fish bones. Five burials were discovered in the site, inhumed in seated and flexed positions. More interesting is the presence of a Hoabinhian pebble industry with sumatraliths, short axes, pointed tools, end choppers, bifacially flaked tools and pestles and mortars.

The stone tool-kit found at Bau Du resembles that of the Malaysian Hoabinhian sites, where bifacial tools appear to have been more important (Tweedie 1953). However, pottery and edge-ground tools were absent in the cultural deposit at Bau Du. The site has two radiocarbon dates: a charcoal sample found 1.40m below the surface is dated to 5030±60 BP (Bln-3040), and another charcoal sample, at 1.00m, to 4510±50 BP (Bln-3260).

In the period between about 6000 and 4500 BP in Viet Nam, post-Hoabinhian cultures emerged that were restricted to areas of lesser extent than the Hoabinhian. These include the Quynh Van culture and the Da But culture, both more developed than Bau Du. I consider Bau Du to be an "Epi-Hoabinhian" site (Ha Van Tan 1985b, 1988).

The term "technocomplex", which Gorman used to identify the Hoabinhian, is in my view somewhat unsuitable. According to Clarke's definition (1968: 357), a technocomplex is a "response to common factors in environment, economy and technology". The Hoabinhian population, however, lived in different environments, from caves in high mountains to the sea coast. We, therefore, should look for a concept more suitable to describe the Hoabinhian.

In Viet Nam, we consider the presence of sumatraliths, and the technique of stone working only on one face, to be the fundamental characteristic of the Hoabinhian. Wherever sumatraliths are non-existent we cannot call an assemblage "Hoabinhian". I think we can agree with Reynolds (1990: 15) that Hoabinhian in the "strict sense" should be limited to industries in Viet Nam, Thailand, Laos, Cambodia, Malaysia and parts of Sumatra. But there are also Hoabinhian-like industries in some areas such as South China, Nepal (Corvinus 1987, 1996), and Australia (Mathews 1968; McBryde 1976). I propose to call all these industries, Hoabinhian and Hoabinhian-like, *the Hoabinhoid Industry* (Figures 2-4).

THE SONVIAN

I cannot agree with Reynolds that the distinction in terms of artifact typology and assemblage variability between the Sonvian and Hoabinhian in Viet Nam is not clear (Reynolds 1990: 11). The Sonvian is an industry characterised by pebble tools flaked only on the edges with the natural cortex preserved on both faces. I have described the Sonvian tool classes elsewhere (Ha Van Tan 1976). The Sonvian differs from the Hoabinhian in the fact that only choppers and no sumatraliths occur in Sonvian sites, except for the late Sonvian phase. I consequently consider that Sonvian to be the origin of the Hoabinhian, and that there was a continuous development from the Sonvian to the Hoabinhian.

Up to now, more than 140 Sonvian open air and cave sites have been discovered. None date to the Holocene, all falling between 23,000 and 13,000 BP. The Sonvian cave sites may be younger than the open air ones. But here we can see also uneven regional development, with the Hoabinhian beginning earlier in some areas than in others. Therefore, in some periods of the late Pleistocene, the Hoabinhian and Sonvian coexisted.

THE NGUOMIAN AND FLAKE INDUSTRIES IN MAINLAND SOUTHEAST ASIA

I intend to name the flake industry found in the lower layers of Nguom rockshelter and in other caves in Bac Thai province as the *Nguomian*. Nguom rockshelter is situated on the northern side of a limestone mountain in Vo Nhai district, Bac Thai province. It was excavated in 1981 and 1982. The archaeological stratification of the shelter can be divided into 5 layers, described elsewhere (Ha Van Tan 1985a). A flake industry was found in the two lowest layers (Layers 4 and 5), mainly made from quartzite and rhyolite. The most common flake tools are scrapers and points (Quang Van Cay *et al.* 1981), but the assemblage shows a lack of uniformity. Most of the flakes are amorphous, 2-3 cm long, with marginal retouch along the sharp edges (Figures 5-6). But I should remark that even in the lowest layer of Nguom rockshelter, besides flake tools, there occurred a small number of pebble core tools (Figure 7). In the upper layers, flake

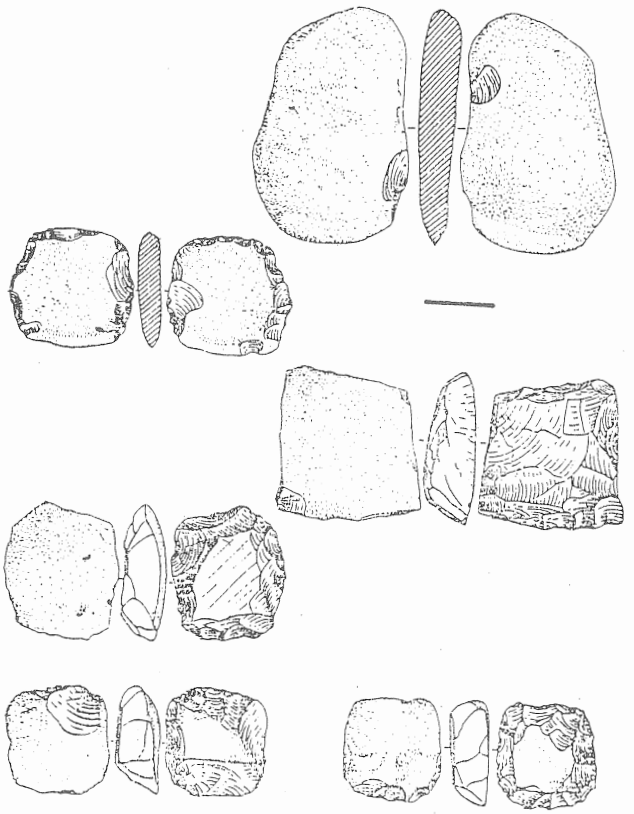

Figure 2: Sumatraliths and edge-ground tools from Xom Trai Cave (scale bar = 5 cm)

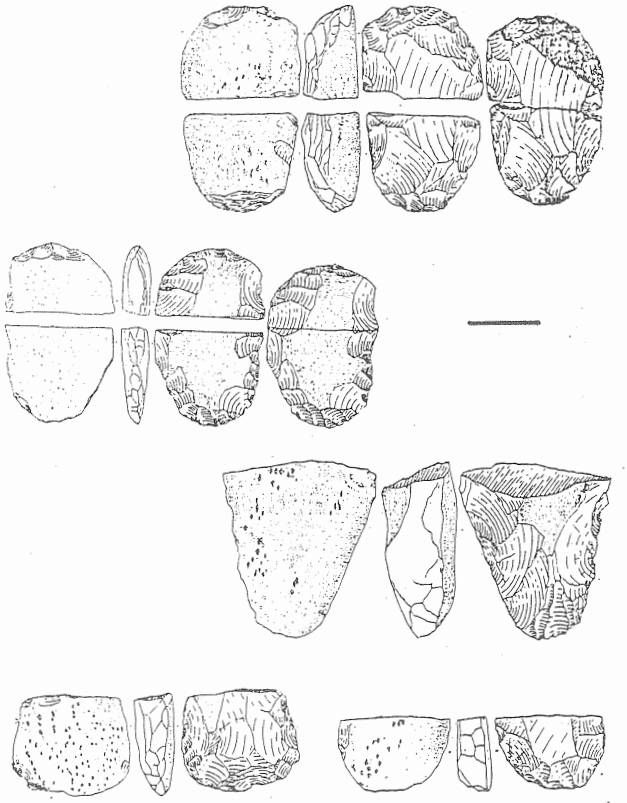

Figure 3: Short axes from Xom Trai Cave (scale bar = 5cm)

tools were reduced greatly in number while pebble core tools increased. I have already viewed the transition from a flake industry into a pebble core industry at Nguom as a reflection of change in climatic and ecological conditions (Ha Van Tan 1985a).

We are now aware of more early flake industries in mainland Southeast Asia, including the flake industry discovered in Lang Rongrien rockshelter in Krabi province, south Thailand, located about 12 km inland. Anderson conducted excavations there in 1983, 1984 and 1990, and a detailed report on these has been published (Anderson 1990). Nearly half of the implements found in the Pleistocene layers (Units 8 to 10) are flake tools, made on small pieces of chert, with cutting edges shaped by retouch. Radiocarbon dates for these layers range between 27,000 and 37,000 BP.

Another important site is Bailian Cave in Guangxi province, southern China. A large-scale excavation in this site was conducted in 1981-1982 and a report published in 1987 (The Science Museum of Bailian Cave 1987). The excavators have described two cross-sections in the eastern and western sides of the cave respectively. There are eight layers in the eastern portion. Layer 1 has given a radiocarbon date of 7080±125 BP (BK 82092); Layer 3 has given an uranium-series date of 8000±800 BP (BKY 82239); and Layer 7 has a radiocarbon date of 11,670±150 BP (BK 82096). There are ten layers in the western portion. Layer 2 has given a C14 date of 19,910±180 BP (BK 82097); Layer 4 a C14 date of 26,680±625 BP (BK 82098); and Layer 6 has a uranium-series date of 28,000±2000 BP (BKY 82141). A radiocarbon sample from Layer 10 yielded a date of 37,000±2000 BP (BK 82101). So, the western layers are dated older than the eastern ones. The second layer in the western portion and the seventh layer in the eastern portion separate the Holocene sediments above from the Pleistocene sediments below.

In Bailian Cave the artifacts can be classified into five groups, ranging from the bottom to the surface, as follows:

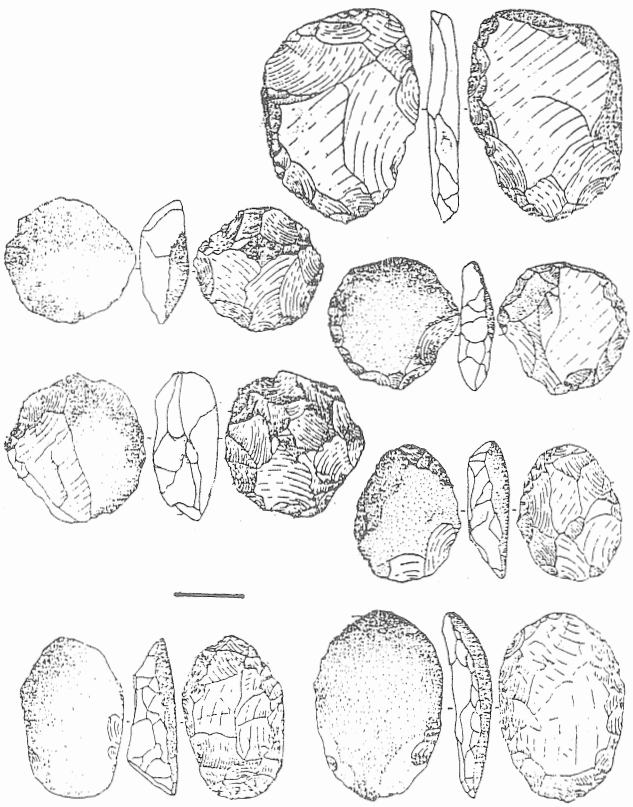

Figure 4 Sumatraliths and a biface from Xom Trai Cave

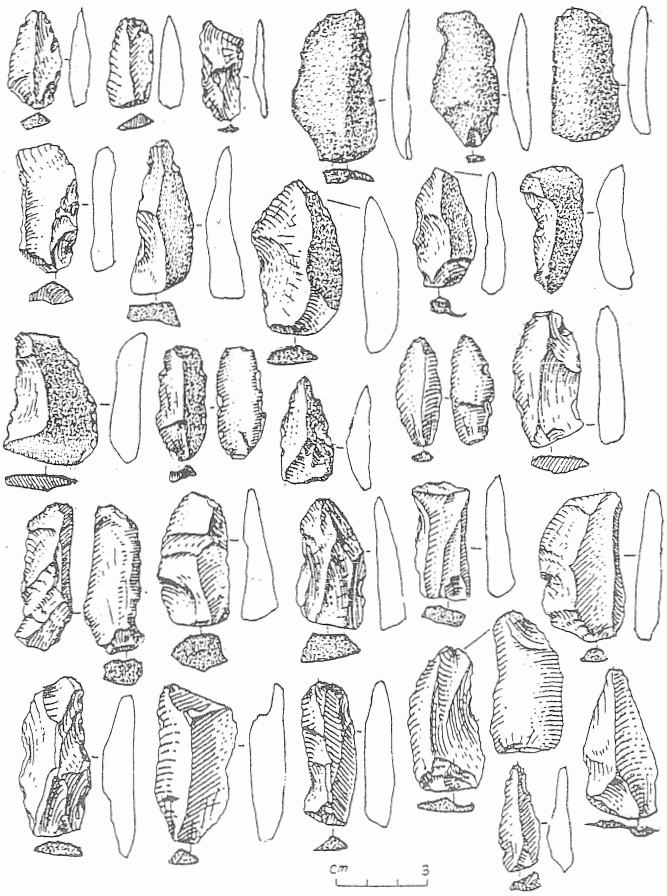

Figure 5: Flake tools from Nguom Rockshelter

Group I: Layers 5 to 7 in the western portion have an abundance of small flake tools made of flint.
Group II: Layers 2 and 3 in the western portion contain much shell, together with pebble borers and many flake tools similar to microliths.
Group III: Layer 6 in the eastern portion is a yellow shell layer which contains mainly pebble tools and a number of pebble borers.
Group IV: A greyish yellow shell layer containing pebble tools and a number of polished adzes.
Group V: The upper layer in the eastern portion, which contains pottery sherds.

Accordingly, we can see that the late Pleistocene layers in Bailian Cave contain mostly flake tools of flint, although a number of pebble tools are also found. In the Holocene layers, large pebble tools are dominant but flake tools still occur in some layers. This situation relates Bailian Cave more closely to Nguom than to Lang Rongrien. In short, we can see that the Nguomian is not an isolated flake industry. Together with Lang Rongrien and Bailian it shows that small flake tool industries existed before pebble tool industries such as the Sonvian and Hoabinhian. Furthermore, they were widely distributed in mainland Southeast Asia.

In my opinion, this change from flake to pebble tools might have resulted from a change of climate away from cold and to more hot and humid. However, this change in lithic technology acquires complications in the cave of Moh Khiew, situated near Lang Rongrien. Here, Pookajorn (1991) found that beneath a flake tool layer (Second Cultural Level) there existed an older pebble tool layer (First Cultural Level). Perhaps this relates to an even earlier period of hot and humid climate.

It can be concluded that the fluctuations of climate in the Southeast Asian Pleistocene and Holocene, together with related changes in ecology and culture, were much more complicated than previously realised.

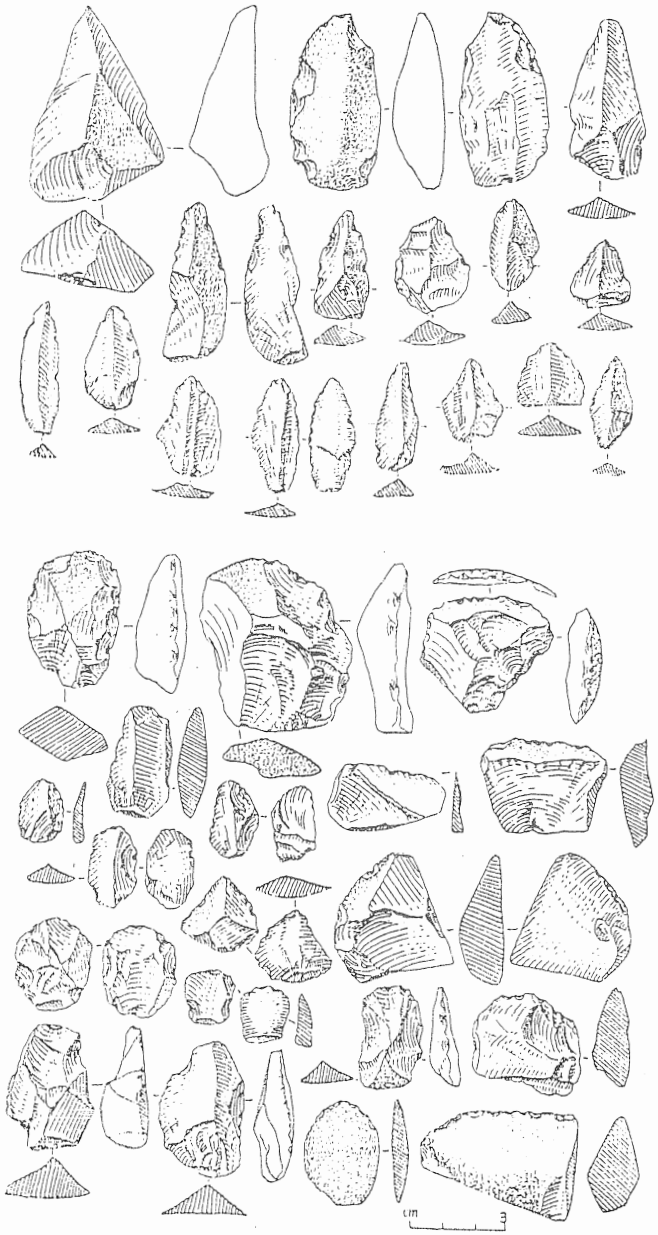

Figure 6: Flake tools from Nguom Rockshelter

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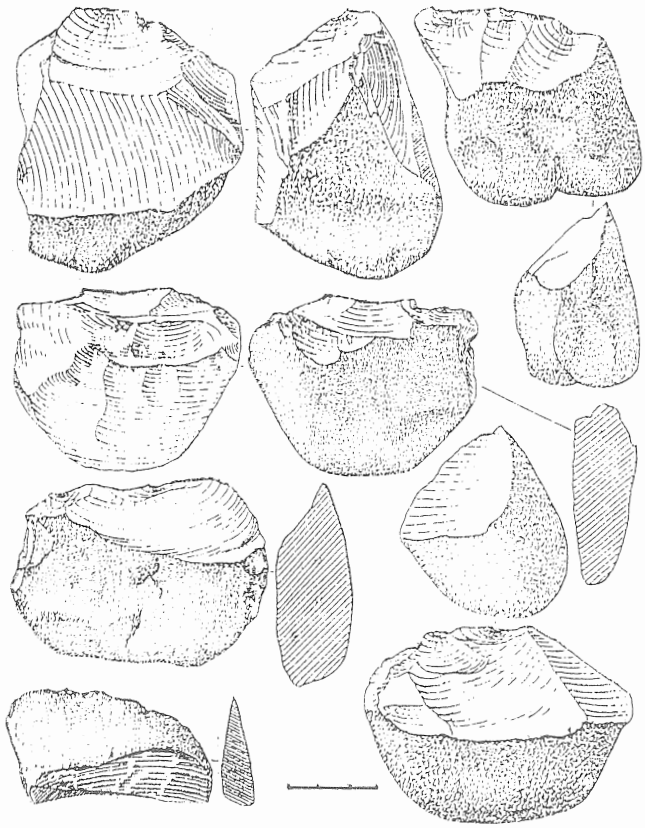

Figure 7: Pebble tools from Nguom Rockshelter

NOTE

1 This paper is in memory of Chet Gorman.

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