More on Acheulian beads

By ROBERT G. BEDNARIK

> *'[The archaeologists] employed against me a weapon more potent than objections, than criticism, than satire or even persecution — the weapon of disdain. They did not discuss my facts, they did not even take the trouble to deny them. They disregarded them.'*
>
> Jacques Boucher de Crèvecœur de Perthes (1788–1868)

The first reports of Lower Palaeolithic beads, as I have pointed out without having examined the specimens (Bednarik 1998, 2001, 2003: 99), coincide with the first reports of Palaeolithic stone tools (e.g. Boucher de Perthes 1847–64), which already made mention of the occurrence of centrally perforated fossils together with Lower Palaeolithic 'handaxes' near Abbeville in France. Prestwich, in his famous validation of Boucher de Perthes' and Rigollot's stone tools, notes:

> Dr. Rigollot also mentions the occurrence in the gravel of round pieces of hard chalk, pierced through with a hole, which he considers were used as beads. The author found several, and recognized in them a small fossil sponge, the *Coscinopora globularis*, D'Orb., from the chalk, but does not feel quite satisfied about their artificial dressing. Some specimens do certainly appear as though the hole had been enlarged and completed (Prestwich 1859: 52).

Boucher de Perthes' 'randomly picked up collection of worthless pebbles' was accepted by a hostile discipline after geologist Prestwich demonstrated the inability of archaeologists to cope with a new idea, but his and Rigollot's Acheulian beads were subsequently forgotten and remained almost totally ignored for the following one and a half centuries. Late in the 19th century, Smith (1894: 272–6) excavated about 200 identical items from an Acheulian site at Bedford, England. He described these as being of the same species and showing identical artificial enlargement of the natural orifice. Smith was certain that his specimens were used as beads, but as he made no mention of the French finds it seems that by that time they had been forgotten. Keeley (1980: 164) examined some of the English sample briefly and confirmed that there is no doubt that their perforations were modified.

Intrigued by these vague and unconnected reports I traced the existence of 325 museum specimens, labelled as *Coscinopora globularis*, all collected before the early 20th century, and in October 2003 travelled to Europe to subject them to detailed microscopic study. Recently I submitted my findings to a Cambridge archaeology journal, which rejected them. The reason was that I had not conducted adequate replication work to justify my findings. It appears that the pain of a new idea remains as unbearable as it was in the 1840s and 1850s, and Boucher de Perthes' above-cited concern remains as valid today: the Cambridge school still prefers to disregard evidence contradicting its archaeological dogma.

Fortunately other schools of archaeology around the world are more interested in finding out about the human past, so I submitted my report to one of them (Bednarik 2005). Having presented detailed work with Pleistocene beads in this journal before, it seems appropriate to briefly present the main findings of this project as an appendix or belated footnote to my 1997 paper in *RAR*.

In studying the Acheulian bead-like fossils from several sites in England and France it soon became apparent to me that they had been incorrectly identified until now, and that this has significant consequences concerning the cognition of the hominids that collected these objects. The genus *Coscinopora* is a lychnisc hexactinellid sponge, for instance *Coscinopora infundibuliformis* Goldfuss 1833 is funnel or cup shaped, with a distinctive stem. It belongs to the order Lychniskida of the class Hyalospongea, whereas I found that all of the beads are of the species *Porosphaera globularis* Phillips 1829, a Cretaceous sponge. *Porosphaera* is of the Pharetronida, one of the two orders of the Calcispongea, therefore the species are not even closely related. However, even *Porosphaera globularis* is only rarely of truly globular shape, its specimens are of considerable morphological diversity. They range from a more or less spherical shape to that of a flat, polygonal pad. Notably globular specimens are uncommon, accounting for only about a quarter of all such fossils. They occur in sizes from much less than 1 mm to about 50 mm, but in collections the spherical forms and specimens above 5 mm diameter are greatly over-represented, evidently because they were easier to find.

An outstanding feature of *Porosphaera globularis* is that some specimens possess cylindrical tunnels that enter to various depths, ranging from mere slight indentations to complete penetration. These tunnels are usually fairly central, and there are occasional specimens with more than one such tunnel. However, only about 14% of collected specimens have these features, whose origin remains unknown. It is most probable that they were bored by parasites, Serpulidae or gastropods capable of tunnelling into the sponges' hard structure. Only in about a fifth of those specimens that have this feature does the tunnel penetrate fully, or to within 3 mm of the other side. Yet all of the Acheulian specimens, from both England and northern France, were of a narrow range of sizes (mostly 10–18 mm), they were all of sub-spherical shape, and their tunnels were all fully through. These characteristics would be found in only about 0.1% or 0.2% of a random natural sample, which in itself demands that the sample was deliberately collected by an intelligent organism. I cannot think of any factor of natural selection that could account for such accumulations as those from Acheulian deposits.

The other factors demonstrating their use as beads are the evidence of flaking and percussion or pressure damage that occurs at the partially or fully closed end of the fossil's tunnel; the indication of reaming out of this opening in some cases; and most particularly the wear facets frequently found on these chert fossils. The opening up of the closed end of the tunnel, evidenced by impact and reaming, is a form of damage entirely limited to the small tunnel ends, the ends where the tunnel has not quite broken through

Figure 1. *Close-up view of artificial and reamed out orifice on one of the Bedford Acheulian beads.*

(Fig. 1). The form in which this damage occurs cannot reasonably be attributed to any natural process, it is distinctly anthropic and intentional. In some cases as many as six or seven impact flake scars can be discerned, indicating the difficulties in removing the remaining wall at tunnels that stopped 1–3 mm from the surface opposite the tunnel entry.

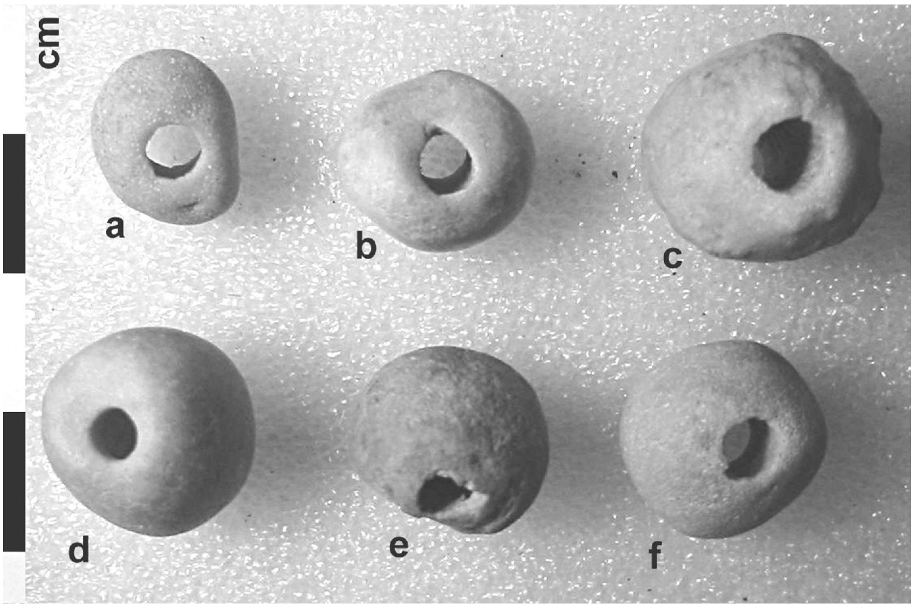

Figure 2. *Some of the 325 Acheulian beads examined, with wear facets visible.*

Even more important are the distinctive wear facets around the openings of the tunnels (Fig. 2). They range from minor to very extensive, in some cases covering much of the entire side surface of a specimen. They are non-uniform, their morphology dependent upon not only the specimen's own shape, but also that of the neighbouring bead rubbing against it, and the area of contact as well as preferential pressure as occurs in beads arranged as a necklace. The wear facets range from flat-angled to quite steep recesses of conical shape, and their extent is always distinctly delineated. Unless discoloured by the sediment, the *P. glob.* specimens are of the same buff colour as the weathering rind or cortex on sedimentary silica (which is indeed what they consist of). The wear facets, however, are always of a notably lighter colour, and significantly they never bear any taphonomic markings as found on the rest of the surfaces of these fossil casts. It is evident that all worn specimens were worn only in two areas: next to, and surrounding the two tunnel openings. Only one type of abrasive wear can account for such consistently typical wear patterning: the stones must have been arranged with their tunnels permanently aligned to be worn in this way. Such consistent wear patterns cannot be explained as natural phenomena, the beads can only have been subjected to this wear through hominid intervention. These specimens were worn like stone beads because that is how they were used.

The enlargement of the orifice on one side of each bead was rendered necessary by the fact that the *P. glob.* fossils' central tunnel, roughly cylindrical for most of its length, tends to be closed or almost sealed off at one end. To open or enlarge it would be easy with a metal pin, but would have been very difficult with Lower Palaeolithic stone tools. Therefore many specimens bear distinc-

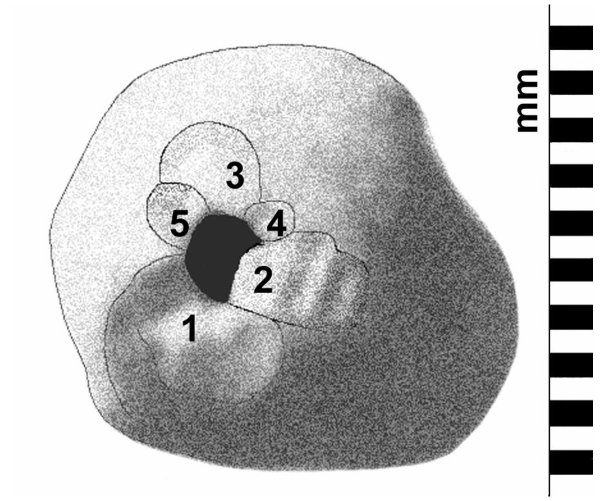

Figure 3. *Artificially broken through tunnel on* Coscinopora globularis *bead, showing five flake scars. Biddenham quarry, Bedford, England.*

tive flaking and impact damage around the enlarged opening (Fig. 3). In beads subsequently subjected to heavy wear the resulting wear facet would have erased all traces of this flaking around the orifice. Therefore this feature is only present in unworn or slightly worn specimens.

There is only one rational explanation for the presence of *P. glob.* specimens of only one shape, one size range and one stage of tunnel development in Acheulian deposits in France and England: deliberate collection by humans. There is only one rational explanation for the form of flaking many specimens show, and there is only one rational explanation for the extensive wear facets many possess. Each of these three factors suffices by itself to justify the identification of these specimens as beads. These factors have been presented as testable, falsifiable propositions, i.e. in a scientific format. I ask archaeologists who wish to question my findings to use the same approach, not dogmatic denouncements as they have characterised this discipline since the time of Boucher de Perthes.

Taphonomic logic shows conclusively that most archaeological pronouncements about the Lower Palaeolithic period (and I use this term only to conform with established practice, without endorsing it) must be expected to be false. I regard 'received archaeological knowledge' as so corrupted and problem-riddled that the onus is on the discipline to falsify any scientific proposition about this early period. The above evidence (for comprehensive details see Bednarik 2005) suggests that Boucher de Perthes was, once again, right, and I request once again, with due respect, that Pleistocene archaeologists address two issues in their discipline: the lack of knowledge about available published evidence, and the practice of censuring the dissemination of data when it conflicts with the dominant dogma of orthodox archaeological beliefs.

Robert G. Bednarik
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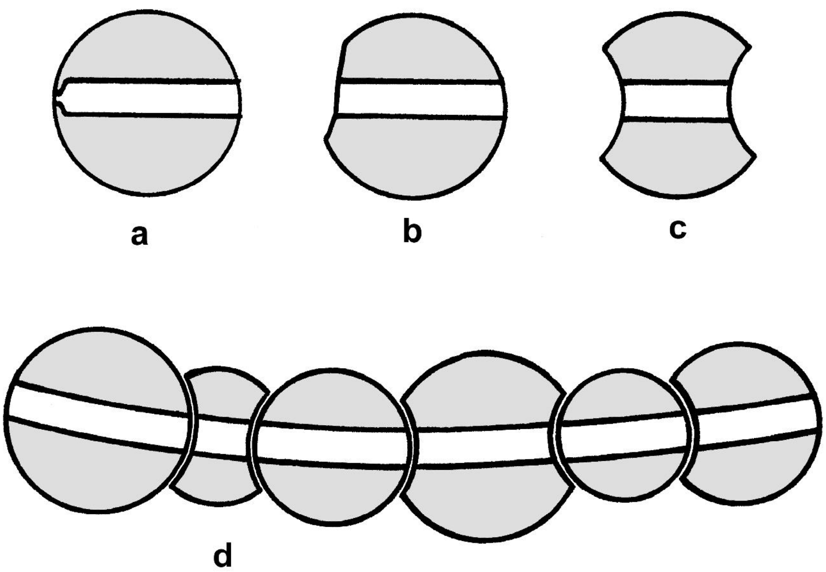

Figure 4.
Schematic depiction of the wear found on Porosphaera globularis *specimens, all shown in section: (a) is the natural, unmodified object with the tunnel closed or almost closed at one end; (b) shows the flaking on the left to remove the obstruction; (c) is the effect of very long-term use wear as a bead, probably over many years and after rubbing against various other, fresher beads; and (d) illustrates the effects of wear on beads used for varying durations assembled on the string of a necklace. Note how older beads are deeply worn, their semi-conical wear facets accommodating the adjacent bead in each case.*