

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 (Figs. 4b, 6a). 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 distinctive flaking and impact damage around the enlarged opening (Figs. 6b, 7). It must be remembered that in all those instances where the bead was subsequently subjected to heavy wear, the resulting wear facet would have erased all traces of this flaking around the orifice (Fig. 6c). Therefore this feature is only present in unworn or slightly worn specimens. If we assume that this enlargement damage was limited to what was required to be able to thread the string through

the bead, the smallest openings would provide an indication of the diameter of the string. Most are 3.2 mm or greater, only one has been found of 2.9 mm diameter (Fig. 5). Therefore the strings, possibly of sinew, were probably close to 3 mm thickness. However, I failed to detect any evidence of organic material within the bead orifices that I would consider to be attributable to their use.

I have argued above that 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: 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 many possess. Each of these three factors *suffices by itself* to justify the identification of these specimens as beads. These factors have been presented here as testable, falsifiable propositions, i.e., in a scientific format. I ask archaeologists who wish to challenge my findings to use the same approach, not dogmatic denouncements as they have characterized this discipline since the times of Boucher de Perthes.

### The Symbolism of Beads

In exploring the symbolic significance of beads, archaeologists are likely to mention their occurrence in burials, or write about "decoration." But what does it mean that a particular condition is perceived as "decorative"? Does a nonhuman animal perceive beads, or cicatrices, body painting, or tattoos on a human body as "decorative"? Probably not, so this is very likely an anthropocentric perception. It is perhaps not shared by other animals or hypothetical intelligent beings elsewhere in the universe, should they exist.

Beads, whether sewn on apparel (as presumably on the Sungir' burials in Russia; White 1989, 1992) or worn on strings, have symbolic meanings that are never fully accessible to the anthropologist. They, or pendants, may for instance be protective, warding off evil spirits or spells, or they can be good luck charms. They can signify status and convey complex social, economic, emblematic, ethnic, or ideological meanings, or any subtle combinations of them. Their emic meanings can be public or private, but they may be difficult to convey to an alien researcher, and they could never be analyzed archaeologically.

Nevertheless, of the Palaeolithic forms of possible symbolic products, beads seem to tell us the

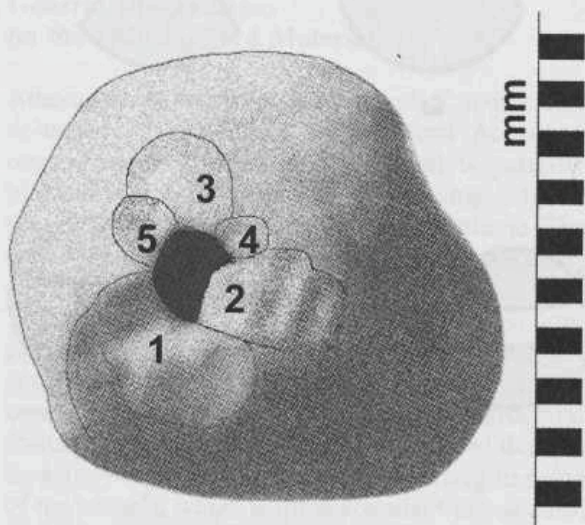


Fig. 7: Distinctive flaking on one of the Bedford Acheulian beads, to open up the closed end of the tunnel; five separate flake scars can be clearly discerned, No. 2 even showing "rippling" typical of impact fractures on silica stone.