

## An unusual human first metacarpal bone from Aston Mill, Kemerton, Worcestershire

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### Introduction

Whilst studying under permit at the archaeologically outstanding Carrant valley site of Aston Mill, Kemerton, Worcestershire (Dinn & Evans, 1990; Lang & Buteux, 2007; Reynolds, 1971; Russell & Daffern, 2014; Shaw, Daffern & Russell, 2015; Whitehead, 1977, 1988, 1989a, 1989b, 1992) a human first metacarpal or thumb bone (PFW catalogue no. 164) was encountered in singular circumstances at SO94303491 in Watsonian VC33 East Gloucestershire. The bone was located near the top of the aggradation of sand and fine gravel that defines the Carrant Main Terrace, in this case not far distant from the back of the modern floodplain of the Carrant Brook.

Gravel extraction at this remarkable bio-cultural site provided evidence of virtually all named major archaeological episodes of human activity. The exact find site was marked by a Roman settlement with evidence of earlier Iron Age drove roads all contained in or at the base of deep loams or at the diffuse contact between those loams and the underlying gravels (01). We here discuss the bone in some detail and make reference to its unusual features.



01. Vertical section through Carrant Main Terrace sediments at Aston Mill SO94513487 on 8 April 1973.

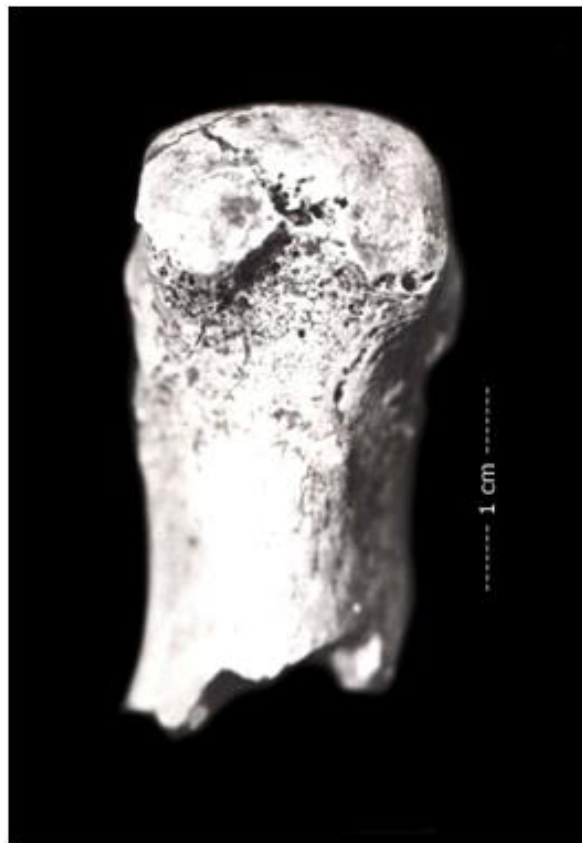
X indicates the stratigraphic position of the human thumb bone found 213 metres distant from this spot and at exactly the same distance from the modern Carrant Brook. The loams here are intensively modified by Romano-British settlement and activity; a ditch and charcoal band can be seen clearly. Aldwick Wood and the Overbury woodlands can be seen in the background

### Discussion

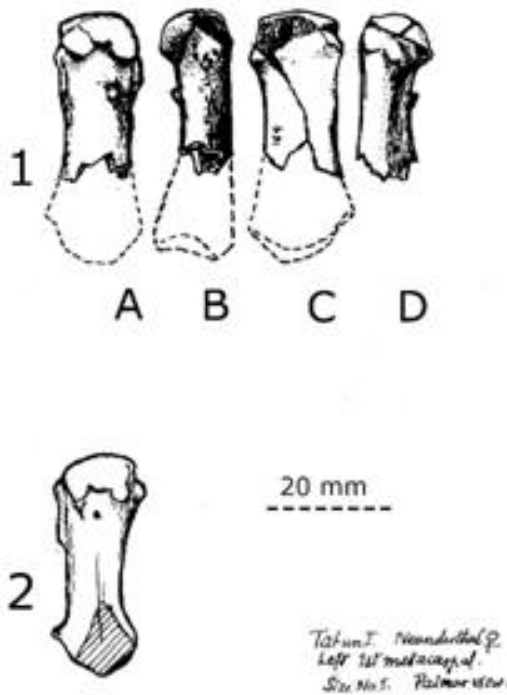
For some decades beginning in 1970 PFW studied the paleoecology of the fossil biota of the Carrant Main Terrace and documented a significant assemblage of large vertebrate remains extending backwards in time to the mid-Devensian (i.e. last ice-age) and also latterly somewhat earlier. He acquired a developed understanding of the relationships of such items to a range of time periods and could frequently assign vertebrate remains to specific time-periods even if they were not recovered *in situ*.

On 28 November 1971 PFW observed a small bone (02) that had been disturbed from the top 40 cms of sand and fine gravel in which it was located without any evidence of associated anthropofeatures. Hitherto vertebrate remains had occurred almost exclusively associated with historic or later prehistoric human activity in the loams (01) or else in Devensian sediments near the gravel-Charmouth Mudstone bedrock contact. The stratigraphic position of the thumb bone was therefore unusual as was the colour of the bone which was essentially grey, a colour sometimes associated with extensively weathered Devensian mammal bones such as wild horse or bison, at the site. If the bone was that of a Devensian hominid it would have further amplified the significance of the site.

In view of this the specimen was submitted to Miss Rosemary Powers (RP), an experienced professional anthropologist at BMNH sub-department of anthropology. There it was also examined by Dr A. J Sutcliffe, then curator of fossil mammals. It was decided that the bone represented the distal end and shaft or diaphysis of the first left metacarpal of a human, or simply that it was a thumb bone.



02. Distal epiphysis and diaphysis of left thumb bone on *Homo sapiens*, Aston Mill. 28 November 1971.



03. 1, Left metacarpal or thumb-bone of metacarpal 1 of *Homo sapiens*, Aston Mill 28 November 1971. A palmar aspect, B & D lateral aspects, C dorsal aspect.  
2, thumb bone of *Homo neanderthalensis*, palmar aspect, Tabun 1, Israel. Delineavit Rosemary Powers.

**Report on the Aston Mill thumb bone by Rosemary Powers**

**The ‘Neanderthal’ thumb** (Figs 02, 03 1A-D, 04 1 & 1A). Specimen 164 is a human left metacarpal 1 lacking its proximal end. Being very symmetrical it was a little difficult to assign as to side. Dr Sutcliffe eliminated the possibility of it being a carnivore or bear bone (some of whose metacarpals can resemble human ones). It was human but not quite normal. In comparison with our articulated skeleton (modern, probably north Indian) it is rather robust and as if compressed antero-posteriorly, with an unusual tubercle on the palmar aspect below the head (Figs 02, 031A). There is a slight roughening (probably osteoarthritic) laterally to this (adjacent to the forefinger). Its squatness and breadth, its parallel sides, the unfamiliar nodule, ‘ancient’ patination and probably ancient stratum of origin merited comparison with Neanderthal specimens.

The colour is curiously greyish and the possibility has been considered that it was part of a cremation, but the lack of distortion (Fig. 02) is against this. It may have been

discoloured by fire without actually being burned (perhaps when dried out already).

By a fortunate instance the original Tabun 1 (Neanderthal) skeleton has exactly the same area preserved, so direct comparison was undertaken between the two (Fig. 03, 1 & 2). Casts of both La Ferrassie (Neanderthal) bones were also available (the area also exists in La Chapelle, Kiik Koba, Amud 1 and Skuhl 4) but the bones were quite unlike, the Neanderthal joints being much wider than the shaft which was strongly asymmetrical in all three cases (Fig. 04, 4A). Neanderthal and most sapiens bones had a distinct waste (Fig. 04, 2-6). The end of the bone looked at end on is in all cases much the same shape. The bone shaft in the Neanderthals is asymmetrical with a concavity on the outer side of the bone and a noticeable overhang of the articular head. The whole bone is ‘waisted’ whereas this bone is rather symmetrical in section (Fig. 04, 1A), has proportionately less overhang of the head and its shaft has parallel sides – an extreme of the *sapiens* form, as it were.

So the store room was searched for Bronze Age skeletons (always in short supply because of the rite of cremation then popular) in which the appropriate area was preserved, and a general similarity was immediately apparent. Their thumb metacarpals were parallel-sided and stocky, and in one case even the head was curiously flattened so no longer a hinge joint but without arthritic change (two cases from Litton Cheyney (Fig. 04, 3) and one from the Scilly Isles were the best comparisons).

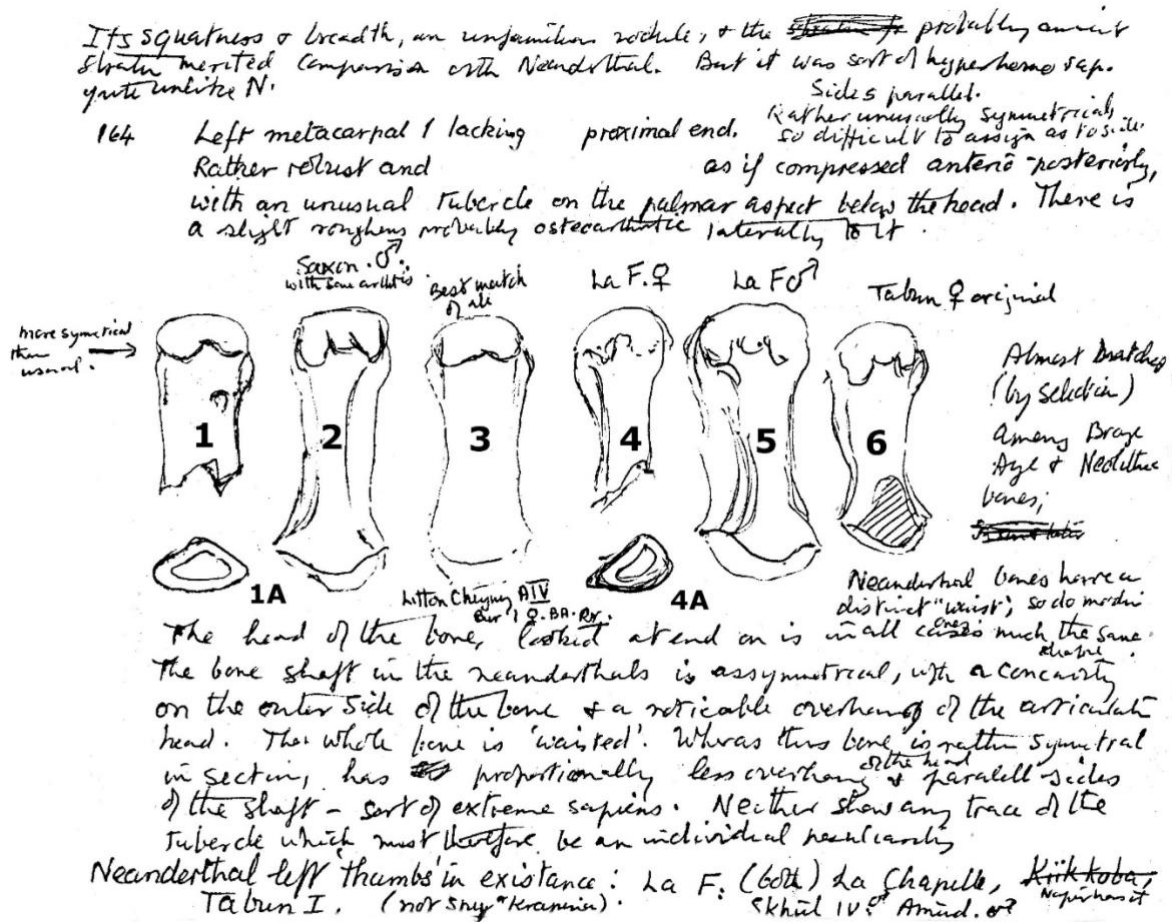
I suspect these are ‘potter’s thumbs’ (so-called by craftsmen in art school, they were useful to a potter as less likely to perforate the pot bottom while hollowing it out): the thumb being often used with pressure on the tip so it adapts to being slightly more like a great toe (it may be partly genetically-based as I remember a case – not x-rayed). Perhaps archers as well as potters needed them. The Neolithic series from Earlswood long barrow produced some half dozen thumb bones among which two tended strongly in the same direction.

The little exostosis (Figs 02, 04 1) is still completely unexplained, there is no trace of such a structure on the other thumbs [studied]. The diaphyseal region is the usual form of cartilage-tipped exostosis (as seen in the syndrome diaphyseal aclasis) caused by a small clump of bone-forming cells splitting off the edge of the epiphyseal plate during growth and forming a diverging knob or horn, which is not uncommon as an isolated effect.

**Précis**

In comparison the specimen was completely unlike Neanderthal specimens, being as it were hypo-*Homo sapiens*, but it was eventually matched among ancient British material, both Neolithic and Bronze Age (except for the exostosis which is probably an odd diaphyseal one of the usual sort).

R. Powers  
January 1st 1973



04. Working notes and sketches of Rosemary Powers comparing in plantar aspect 1: first metacarpal bone of *Homo sapiens* Carrant Main Terrace, Aston Mill, 28 November 1971, with the same bones or bone casts from 2: *Homo sapiens* Saxon male with some arthritis, unprovenanced 3: *Homo sapiens* Bronze Age female, Litton Cheyney, England, 4: *Homo neanderthalensis* female, La Ferassie, France 5: *Homo neanderthalensis* male, La Ferassie, 6: *Homo neanderthalensis* female, Tabun 1, Israel. 1A and 4A contrast their respective diaphyseal transverse sections.

**Conclusion**

The stratigraphic context of the human thumb bone described here from the Carrant Main Terrace at Aston Mill would imply that it is prehistoric deposited at a time when cryofluvial processes were still sorting sand and gravel. The weathered appearance, ancient fragmentation and colouration of the bone is completely unlike inhumated Roman, Iron Age, Bronze Age, and Neolithic bone from the same site. On this stratigraphic and chronologic evidence, i.e. in which the terrace is known to have been still aggrading after 26000BP (Shotton, Williams & Johnson, 1974), the possibility of a Neanderthal hominid thumb bone was investigated. Even if evidence of activity of Neanderthal man *Homo neanderthalensis* King, 1864 does exist in the Carrant Brook catchment (Whitehead, unpublished) detailed osteological comparisons made at BMNH by RP dismiss the possibility of this thumb bone a Neanderthal hominid fossil.

Good osteological matches for the Aston Mill thumb bone were found by RP amongst British Bronze Age specimens at BMNH, especially with one from Litton Cheyney in Dorset (Fig. 04,3). It is thought that the unusual morphology of the bone detailed by us may result from repetitive use of the thumb.

The Aston Mill thumb bone is therefore ascribed to modern man *Homo sapiens* (L., 1758) but its exact age remains unresolved. Issues that require to be considered might include major early Flandrian flood events that transgressed the front of the Carrant Main Terrace. As the bone is presently preserved at BMNH (London) some form of future dating of it is not beyond possibility.

**Acknowledgements**

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