

# Texts and Documents

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## DR. WILLIAM HUNTER'S OBSERVATIONS ON LEAD-FILLED BONES

by

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A HITHERTO unnoticed paper by Dr. William Hunter (1718–83) has come to light. It appeared in *Archaeologia* three years after his death and more than two years after the publication of Simmons' biography<sup>8</sup> from which all subsequent writers have been content to draw their information. It consisted of observations on a human femur filled with lead, which had been sent to him by Mr. Worth of Diss in Norfolk.

*Archaeologia*, 1786, 4, p. 69

An Account of Human Bones filled with Lead.  
In a Letter from Mr. Worth, late of Diss, F.A.S.  
to Edward King, Esq. With Observations thereon  
by Dr. Hunter.

Read at the SOCIETY OF ANTIQUARIES, June 9, 1774.

SIR,

Diss, Norfolk, June 6, 1774

I have taken the liberty of transmitting to you a bone, which seems to be extremely singular. It was found in making a grave in the chancel of Badwell Ash, near Walsham le Willows in Suffolk (in Blackbourn hundred), about the middle of last April. The sexton of this parish, after removing the pavement and about two feet of the earth, came upon a vaulted arch, which was so very strongly cemented together, that it was with great difficulty he broke through it. After he had removed the upper part of this arch, he proceeded to throw out the contents of the vault, which was made to contain only one coffin, and in which were a number of bones that appeared to have been deposited there a long time, and some of the mould which he let fall in, in breaking through the arch; but no appearance either of wood, or lead coffin. Upon his casting the bones out, he thought some of them seemed to weigh very heavy; on which he took several of them into his hands, and found to his surprise that they appeared to be filled with lead; or (to use his expression) to have had lead run into them: this strange circumstance soon invited the neighbouring people to pick them up; and a friend of mine acquainting me with it, I went to the church, and got this specimen of the sexton, being the only one then left. This is the lower part of the Os Femoris, and is ten inches long. It weighs four pounds, six ounces, two drachms, avoirdupois; and every part of the bone is filled, almost equally alike, and even the solid as well as the cellular parts are quite incorporated with pure lead, which evidently shews itself, on cutting into any part of it; but a great deal of the former is broken off. I believe, Sir, I may venture to assert, that this very extraordinary effect cannot be imitated by any means we know of; and that lead, in its most perfect state of fusion, cannot be injected similar to this, and I can only guess how this could have

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happened. I conjecture it to have taken place from one of these two causes; viz. either from lightning; or else from some subterraneous vapours taking fire in the vault. The affinity of lightning to metals, and its wonderful effects, leave some room to imagine it might possibly have been from that. But then, on the other hand, no accident having ever happened in the memory of man to the church or pavement, and the solidity of the arch, leaves us room to attribute it rather to a subterraneous fire, and the situation of the church rather strengthens this surmise, it not being more than four or five hundred yards from a tract of low meadows; and I should think the bottom of the vault to be nearly on a level with the surface of the meadows; and in these situations the inflammable vapours are mostly seen: but I leave you, Sir, to judge of it with more propriety than I am able to do, these being only my own crude thoughts.

I am, SIR, with much respect,  
Your most obedient servant,  
J. WORTH

Observations on the above Bone. By Dr. HUNTER

THIS specimen is the lower half of an adult thigh-bone. The metal contained appears to be genuine unmixed lead; that is, not reduced to an amalgam, or mixed with any thing that would make it melt with a small degree of heat: and it appears to be but little corroded on its surface.

LITTLE more of the bone itself remains than the spongy internal part which had contained the marrow; the solid, cortical or external part of the bone being every where removed, except at the lower part forwards, and a little of the surface which had made the joint, and especially at the cavity between the two condyles.

THE lead is all granulated, corresponding to the medullary cavities and pores; and the interstices contain the bony remains, which are of the common brown colour of church-yard bones, and do not appear burnt.

AT the enlarged extremity of the bone the cells are more partially filled; some containing lead, some being quite empty, and many of them containing a hard, brittle, whitish stony substance, which effervesces with a spirit of sea-salt.

AT the lower extremity, the lead had run upon the surface of the bone, in some parts forming thin plates, and in one place making an irregular mass, closely covered with earth and gravel.

FROM the appearance, the natural supposition would be that the lead had been poured into the medullary canal after the marrow had been consumed by time.

THE specimen of a bone upon which I have made the experiment is exactly similar except that it is more imperfectly filled, and has a little more of the burnt appearance.

MR. King shewed this bone to Dr. Fothergill, who also thought it possible to fill the cellular part of human bones with lead, when, after many years, they are become quite dry; and suggested, that this might perhaps be a method sometimes used to preserve relicks. And it is certain, that bones so filled have been met with in other places. A skeleton was discovered, a few years ago, in the church at Newport Pagnell, which had all the bones thus fully saturated with lead: and there are some bones, in the same state, in the library of St. John's college in Cambridge.

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### THE SKELETON FROM NEWPORT PAGNELL

Before discussing the significance of the findings quoted above, it will be useful to consider the other bones mentioned in Hunter's final sentence, and other examples from the literature.

The librarian of St. John's College, Cambridge (Mr. A. G. Lee, M.A.) tells me that the lead from one of the bones to which Hunter referred is extant.\* He has also furnished me with much information about its history which makes it clear that this bone, a skull, came from the skeleton discovered at Newport Pagnell.

This skeleton was described by John Weever<sup>9</sup> in 1631:

In the north isle of the parish church of Newport Pagnel in Buckinghamshire, in the year 1619, was found the body of a man whole and perfect; laid downe, or rather leaning downe, north and south: all the concavous parts of his body, and the hollowness of every bone, as well ribbs as other, were filled up with solid lead. The skull with lead in it doth weigh thirty pounds and six ounces, which, with the neck bone, and some other bones (in like manner full of lead), are reserved, and kept in a little chest in the said church, near to the place where the corps were found, there to be shewn to strangers as reliques of admiration. The rest of all the parts of his body are taken away by gentlemen near livers, or such as take delight in antiquities. This I saw.

The subsequent history of the skeleton was described by George Ashby<sup>1</sup> in 1781, of which the gist is as follows:

The skull and the upper part of the *os humeri* came into the possession of Dr. Edmund Waller, a graduate of Cambridge in 1712 and Senior Fellow of St. John's College, who was described as 'a man of a pleasant and facetious turn of wit, who loved his bottle and was no enemy to a well-spread table'.

Waller sent the humerus to Dr. Cromwell Mortimer,<sup>4</sup> a Fellow of the College of Physicians in London who was associated with Sir Hans Sloane. In his letter dated 10 September 1728, Waller establishes the authenticity of the specimen, 'this [bone] I have sent you to be the same [as that described by Weever], knowing from a child all the hands it has passed through, and do remember an ancient relation of mine, who was a young school-boy, when they were digged up. An apothecary of the said town, who first took them out of church to secure them from being all taken away, had the greatest part of the skull in his custody, and in my remembrance disposed of many of the small bones; and some of the larger were sold to a plumber, who only preserved what I have, and of whom I purchased them'.

It had been intended that Mortimer should present a report on the bone to the Royal Society but his apologetic letter to Waller dated 28 July 1729 indicated that he had not yet done so. However, he may have been the author of the report, containing a detailed description of the bone and some experiments related to it, of which a copy by an amanuensis was transcribed 'literally with the inaccuracies and omissions' by George Ashby in 1777 and published in 1781.

'This bone has retained its natural shape, having had all the proturbances and furrows for the insertions of the muscles, and the cartilage pretty entire on the head of the bone, which if cut through discovers the bony partition of the . . . substances the . . . is; so that the lead does not cut like one solid piece of fluxed metal but seems to have filled each cell separately, and thus all the spongy cellular part of the bone is

\* It is a roughly hemispherical mass, one side flat, the other rounded and conforming to the inner aspect of the vault of a skull. No trace of bone remains.

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filled, but as the bone becomes more solid, and towards the middle as it is compact, the lead has not penetrated, having only filled the cavity where the marrow was lodged. . . '.

The skull was presented by Dr. Waller to the library of St. John's College, Cambridge, in 1745. According to Ashby it was sawn through traversely, 'I don't know with what view or by whose orders' in the winter of 1761-62. Of the half which remains, the lead filling is intact but the bony substance has now disintegrated.

#### OTHER EXAMPLES OF LEAD-FILLED BONES

Records of two other lead-filled skeletons were published during William Hunter's lifetime:<sup>3</sup>

*(Gentleman's Magazine, 1748, 18, p. 214)*

Mr. Urban,

In digging a vault, very lately, in the parish church of Axminster in the county of Devon, were found several bones of a human body, very ponderous, which, when opened, appeared to be full of lead, particularly the thigh bone. This, so surprising a thing, has puzzled the most curious in these parts. You are, therefore, desired to give this a place in your Magazine, in order to have the sentiments of your learned readers hereon.

Yours etc. J.J.

*(Gentleman's Magazine, 1748, Supplement, p. 577)*

Gravesend Dec. 15, 1748

Mr. Urban,

Waiving all encomiums on the usefulness of your canal to the learned, as well as to the curious and inquisitive, I observe in your Mag. for May last, a letter from Axminster . . .

In the year 1727 the greatest part of this town (Gravesend) with the parish church, were consumed by fire. The roof of the church was covered with lead which, being melted, ran in all parts among the ruins; and being afterwards digged for among the rubbish in order to be new-cast, was tracked into several graves in the body of the church; out of which were taken many human bones filled with it, and particularly a thigh bone full of that melted metal, which I both saw and handled . . .

Yours sincerely  
A.I.

#### THE BONE DESCRIBED BY HUNTER

We may now consider the origin of the lead-filled bones which Mr. Worth obtained from the church at Badwell Ash. Were they of medieval origin or more ancient? Was the lead introduced by accidental fire, as Mr. Worth suggested, and as would seem to be supported by the example from Gravesend quoted above; or introduced intentionally, as Hunter seems to have believed? If the latter, was it the intention to preserve the bones as holy relics or for some other ritual purpose? Is there any circumstance relating to the local situation at Badwell Ash which might throw light on the matter?

#### MEDIEVAL OR MORE ANCIENT?

The church at Badwell Ash is a medieval building.<sup>6</sup> The chancel is Decorated and there are Perpendicular windows. The tower is fifteenth century. The oldest part dates from A.D. 1300 or earlier. The church lies in a part of the country where Roman remains are not uncommon. A pot, probably from a burial, was found 300 yards to the north of the church and a glass unguent jar less than a mile away. There were

large Roman settlements at Pakenham, Wattisfield and Stanton, all within a radius of three miles.\*

It is not unknown for medieval churches to have been built over Roman sites. This seems to have been the case at Stowlangtoft, two miles to the south-west of Badwell Ash; and a solidly built vaulted tomb of fourth-century Roman origin which was subsequently covered by the chancel of a small parish church has recently been explored at Stone near Faversham in Kent.

The north-south alignment of the skeleton at Newport Pagnell indicates that it was almost certainly a pre-Christian interment. It is unfortunate that the alignment of the skeleton at Badwell Ash was not recorded. Since no part of the bone is extant there is no material for fluoride or nitrogen-carbon assay so the date of burial must remain obscure.

#### ANCIENT BURIAL PRACTICES

In Roman times cremation was sometimes practised, and excavations at York have revealed cremation containers in the form of leaden jars several inches in diameter. However, the length of the portion of femur described by Mr. Worth (10 inches) argues against a cremation; and obviously such an explanation could not apply to the skeletons from Newport Pagnell, Axminster and Gravesend.

The Romans used lead coffins for important inhumations. One such, found at Little Wenham in Suffolk, is probably of the third century A.D. Sometimes the coffin was of massive dimensions; one found at York<sup>7</sup> was one inch in thickness and weighed 542 lb.

In medieval times, ordinarily the right of burial belonged to the dead man's parish priest.<sup>2</sup> It became the custom for the dying man to bequeath to the priest a *corpse present* and later under Statute Law the priest could claim the man's best animal or his best garment.

But the monks encouraged rich persons to be buried in the monastery, depriving the priest of his reward, and later when friars came upon the scene the competition increased enormously. On one reported occasion 'a knight's body was so pertinaciously disputed between the cathedral and the Dominican Friars that "the said corpse lay so longe unburied that it stanke".'

In view of the difficulty and danger of transporting corpses long distances in medieval England the custom arose of sending only a part of the body.

This practice became common during the Crusades. Sometimes the heart was selected; sometimes the bones. Then, according to Pope Boniface VIII,<sup>5</sup> 'Certain Christians at the death of any one among their kinsfolk who may be illustrious for nobility of race or dignity of rank (especially if he have paid the debt to nature beyond the limits of his own country) when he has chosen to be buried in his own parts, or in some distant land—these men, I say, moved by a certain impulse of impious piety, truculently dismember him, divide him limb by limb or gobbet by gobbet, and seethe him down in a caldron. Then at last, when they have parted his bones from the flesh which had clad them, they send him or carry him to be buried in the aforesaid place'. The bag of bones would be then deposited in some convenient

\* I am indebted to Miss Elizabeth Owles of the Ipswich Museum for this information.

corner of a grave vault (or even in the hollow of a wall) with no particular orientation.

Such a fate may have met some local dignitary from Badwell Ash, dying at a distance, perhaps even on a Crusade, and desirous of burial in his native place. The bones would be encased in a leaden casket, and an accidental fire en route would complete the story.

The nature of the grave at Badwell Ash gives some support to such a speculation. The bones described by Mr. Worth were discovered in 1774. Under the conditions of rural England at that time the recollection of a burial in a vault under the chancel would have been handed down for several generations. This would seem to date the burial at not later than, say, A.D. 1700. But prior to that time stone vaults such as that described by Mr. Worth were unusual, and in such a remote place would have been constructed only for a wealthy or important person.

#### ACCIDENTAL OR INTENTIONAL?

We may discount Mr. Worth's theory of a fire within the tomb, whether from lightning or 'subterraneous vapours'; we may suppose that a conflagration such as occurred at Gravesend is unlikely to have happened at Badwell Ash, at any rate in medieval times, for such an event would surely have been recorded in the annals of the place; and the idea of any other type of accident is purely speculative. The question remains whether the lead could have been introduced intentionally. The place of burial would seem to exclude the possibility that the bones were in any sense holy relics. Nevertheless there are some features which suggest that only an intentional act could have been responsible for the condition described.

The writer of the essay on the Newport Pagnell skeleton (whom I have identified with Dr. Mortimer) remarks on the absence of lumps of melted lead in the vicinity of the corpse, such as would have resulted from an accident. He goes on to observe '... the cavity of the skull is full of lead and none seems to have run out by the great hole thro' which the Medulla Spinalis passes, but seems to have been filled when the skull stood on the vertex... I imagine the bones were first separated... then carefully dried so that no moisture or oil remained; then they must have been kept immersed in lead oar, or liquified by some cold menstruum which could carry the particles of lead along with it into the uttermost recesses of the bones...'

Finally we return to the observations of Dr. Hunter, a critical observer of great experience. He seems to have been clearly of the view that the lead had been introduced by intention: 'From the appearance, the natural supposition would be that the lead had been poured into the medullary canal after the marrow had been consumed by time. The specimen of a bone which I have made the experiment is exactly similar except that it is more imperfectly filled and has a little more of the burnt appearance.'

So we must leave it, in the words of Mr. Worth, late of Diss, 'a bone which seems to be extremely singular'.



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