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The Crucified Man from Giv'at ha-Mivtar: A Reappraisal*

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THE accidental discovery in 1968 of a burial cave at Giv'at ha-Mivtar, in which the remains of a male crucified during the Roman period were found,[1] has over the years generated considerable scholarly interest. Despite ample literary evidence attesting to the frequency of crucifixion in the Mediterranean region, this was the first direct anthropological evidence of the practice. The original report on the skeletal remains[2] therefore aroused wide public interest and prompted a number of articles by scholars in Israel and abroad.[3] In the light of criticism contained in these publications, it was decided to conduct a reappraisal. The original report contained several inconsistencies due, in part, to the haste in which the remains were reburied in accordance with the request of the religious authorities. However, prior to reburial the present authors were permitted to study the material after its reconstruction by Professor Haas, which together with the original photographs, casts and radiographs constituted the basis of the following reevaluation.

I. The right calcaneum (heel bone), seen from above and below in our Pl. 5:A-B, lacked all the proximal structures of the bone including the sustentaculum tali and the posterior articular surface for the talus; the anterior portion of the bone with the articular surface for the cuboid was also missing. A fragment of compact bony material adhered to the nail medial to the calcaneum (Pl. 5:A). This fragment was interpreted by Haas, after

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1 V. Tzaferis: Jewish Tombs at and near Giv'at ha-Mivtar, Jerusalem, *IEJ* 20 (1970), pp. 18–32.

2 N. Haas: Anthropological Observations on the Skeletal Remains from Giv'at ha-Mivtar, *IEJ* 20 (1970), pp. 38–59 (hereafter Haas). Prof. Haas was prevented by ill-health from carrying out further research on the remains.

3 E.g. Y. Yadin: Epigraphy and Crucifixion, *IEJ* 23 (1973), pp. 18–22 (hereafter Yadin); V. Møller-Christensen: Skeletal Remains from Giv'at ha-Mivtar, *IEJ* 26 (1976), pp. 35–38; J.F. Strange: *Interpreter's Dictionary of the Bible*, Suppl. Vol. 1976, Nashville, pp. 199–200; H.W. Kuhn: Zum Gekreuzigten von Giv'at ha-Mivtar. Korrektur eines Versehens in der Erstveröffentlichung, *Zeitschrift für die Neutestamentliche Wissenschaft* 69 (1978), pp. 118–122; idem, Der Gekreuzigte von Giv'at ha-Mivtar. Bilanz einer Entdeckung, *Theologia Crucis-Signum Crucis: Festschrift für Erich Dinkler*, Tübingen, 1979, pp. 303–334 (hereafter Kuhn); idem, Die Kreuzesstrafe während der frühen Kaiserzeit, ihre Wirklichkeit und Wertung in der Umwelt des Urchristentums, in *Aufstieg und Niedergang der römischen Welt*, II 25.1, Berlin-New York, 1982, pp. 648–793; V. Tzaferis: Crucifixion — The Archaeological Evidence, *Biblical Archaeology Review* 11 (1985), pp. 44–53.

much deliberation, as the sustentaculum tali of the left calcaneum.[4] However, the shape and structure of this bony fragment is of a long bone; it cannot therefore be the left sustentaculum tali or any other tarsal bone.

The calcaneum was pierced by a rusty iron nail which passed from the right side to the left side of the bone (lateral to medial). The nail penetrated the lateral surface of the bone about 2 cm. below the original site of the posterior articular surface for the talus, possibly through the trochlear process. The nail emerged from the medial surface of the bone about 0.5 cm. lower than the level of entry, 2 cm. postero-inferior to where the sustentaculum tali should have been.

In the reconstructed calcaneum, seen from above and below in our Pl. 6:A-B, three bony fragments were attached to the calcaneum. Fragment 1 was placed so as to replace the missing anterior portion of the calcaneum with the articular surface for the cuboid. However, the articular facet did not have the right shape and concavity and faced wrongly in an antero-supero-medial direction. Fragments II and III were believed to have formed the missing sustentaculum tali. Fragment II stood for the anterior and III for the middle articular surfaces that were both part of the support of the talar bone. A fourth fragment was placed as a space-filling mass of bone on the upper surface of the calcaneum (Pl. 6:A). A fifth fragment adhered to the nail medial to the calcaneum, by the rusty crust. This fragment was the same as that shown in Pl. 5:A before reconstruction.

A rusty dark brown colour impregnated both medial and lateral sides of the calcaneum. A piece of rusty material also adhered to the nail 1.5 cm. from its head. The nail was bent near its head and also at its pointed end.

The radiograph of the reconstructed nailed calcaneum (our Pl. 7:A, above) confirmed the above observations. It showed clearly that the fragments of bone do not belong with the nailed calcaneum. They differed in density and in the direction of the trabeculae of spongy bone, as compared with the control specimens of normal right calcanea (Pl. 7:A, below). Two areas of radiolucency along the passage of the nail in the bone indicated the damage caused by the nailing. Three plates of dense material were confluent with the radio-opacity of the nail. These were situated 1.5 cm., 2.5 cm. and 5 cm. from the head of the nail, and were probably organic remnants impregnated by iron oxides.

Thus, Haas's assertion that a wooden plaque and the right and left heel bones were penetrated by a single nail was in our opinion anatomically incorrect and based on the misidentification of a left calcaneum. Furthermore, since the total length of the nail from head to tip was 11.5 cm. and not 17–18 cm. as Haas assumed,[5] there simply was not enough room for both heel bones and a 2 cm. wooden plaque to have been pierced by the nail and affixed to the vertical shaft of the cross.

II. The right cuboid bone of an additional adult was discovered in the same ossuary (I/4) together with the complete remains of one adult (the crucified man) and one child.

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[4] Haas, p. 55.

[5] Kuhn already pointed out this error (p. 309).

These incomplete remains of an additional adult were omitted from the original report.[6] This confusion, in which partial skeletal remains are found in ossuaries, was a common occurrence, due to the fact that the relatives or friends of the deceased who placed the remains in the ossuaries had no anatomical knowledge.

III. Haas's interpretation of the indentation on the interosseous border of the right radius as proof of the nail being driven through the forearm between the distal ends of the radius and ulna[7] was not convincing; many non-traumatic scratches and indentations similar to these are found on ancient skeletal material. In fact, two similar non-traumatic indentations were observed on the right fibula; neither are connected with the crucifixion.

IV. Yadin challenged several of Haas's conclusions,[8] as well as his contention that the vertical shaft of the cross was of olive wood and the plaque found beneath the head of the nail was of pistacia or acacia.[9] Since pistacia and acacia wood are so structurally different that they cannot be confused, we submitted the fragments to the Department of Botany of the Hebrew University of Jerusalem for study under a scanning electron microscope. The wood fragments beneath the head of the nail were identified as olive wood, while those at the end of the nail were identified as wood but were too minute to be further specified.[10] Yadin's contention that olive wood is the least desirable wood for the vertical shaft of a cross because the trunk and branches are bent and crooked[11] is botanically speaking correct; however, this species cannot be totally ruled out, as olive trees occasionally attain a trunk height of 2–3 m.[12]

V. The right talus, which Haas claimed had been cut by a sharp instrument body was removed from the cross,[13] displays in our estimation no evidence of cutting or amputation because of the irregularity of the broken surface where the cut was supposed to have occurred. Furthermore, when we attempted to articulate the right talus with the right calcaneum the fit was poor, indicating the possibility that it may have belonged to the third individual whose partial remains were found in the same ossuary.

VI. Haas's contention that a final 'coup de grâce' was administered to the individual which broke the lower limb bones[14] was in our estimation based on inconclusive evidence. This was due, firstly, to the poor state of preservation of the material, which

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[6] Haas, pp. 42–43.

[7] *Ibid.*, pp. 57–58.

[8] Yadin, p. 20.

[9] Haas, p. 56.

[10] The authors wish to thank Dr. Ella Werker of the Department of Botany, Hebrew University of Jerusalem, for identification of the wood.

[11] Yadin, p. 20.

[12] E. Dalman: *Arbeit und Sitte in Palästina*, IV, Gütersloh, 1935, Photograph 39.

[13] Haas, pp. 58–59.

[14] *Ibid.*, p. 58.

led to numerous breaks which were obviously post-mortem. Secondly, there were some errors regarding the siding of the bones which Haas used as evidence of the 'coup de grâce'. For example, Pl. 23:A in the original report is captioned, 'Broken bones of the left shin', which is anatomically correct. However, Pl. 23:B exhibited the same fragment of the left tibia from a different angle but now identified it as the right tibia. Haas also illustrated a small fragment adjacent to the left tibia in Pl. 23:A, which he considered to be part of the left shin; however, if one carefully examines the fragment in Pl. 23:C, captioned right tibia, it is clear that it is an enlargement of a fragment in Pl. 23:A. This small fragment was most probably neither left nor right tibia, but rather a portion of the left fibula. Furthermore, if one aligns the left fibula with the left tibia (our Pl. 7:B), it is evident that the breaks are situated at different angles; therefore, our interpretation is that these breaks must have occurred after the death of the individual and were not related to the time of crucifixion.

VII. The caption of both photographs on Pl. 20 of the original report referred to the left calcaneum, whereas in fact this was the right bone. This error was carried over to Pl. 21:A, which again misidentified the right calcaneum as the left.[15]

VIII. Both the initial and final reconstruction of the crucifixion (Pl. 24 of the original report) are technically and anatomically impossible when one considers the new evidence. The nail was driven through the lateral side of the right calcaneum. Therefore, the open position of crucifixion initially reconstructed by Haas was technically impossible, since it involved the nail being driven through the medial side of the foot, which Haas himself rejected. The positioning of the legs in the final reconstruction was also incorrect in that it showed the nail first entering the left foot; in fact, the opposite is true.[16] Furthermore, as noted above, we found no evidence of the left heel bone and calculated that the nail was sufficient for affixing only one heel bone to the cross.

IX. Haas's description and interpretation of the palatal cleft[17] was in our estimation problematical. The radiographs were therefore sent to The Johns Hopkins University School of Medicine for further evaluation. The radiographs were independently reviewed by six dental specialists, who were unanimous in that there is no evidence for cleft palate deformation, nor is the upper right canine missing as Haas reported. The upper right canine which Haas describes as congenitally absent is in fact visible on both radiographs. Furthermore, the radiograph showing the impacted central incisor (Pl. 19:A) was erroneously reversed in the original report.[18]

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[15] Kuhn, p. 310.

[16] *Ibid.*

[17] Haas, p. 54, Pl. 19:A, B.

[18] The authors wish to thank Dr. Giraud Foster, Prof. L.S. Levin and their staff at the Johns Hopkins University, School of Medicine, Baltimore, Maryland, for evaluation of the radiographs.

CONCLUSIONS

In the anthropological interpretation of past historical processes, one is usually hampered to a large extent by the limited information available. Therefore one must rely on both the literary sources and the facts at hand. The literary sources for the Roman period contain numerous descriptions of crucifixion but few exact details as to how the condemned were affixed to the cross. Unfortunately, the direct physical evidence here is also limited to one right calcaneum (heel bone) pierced by an 11.5 cm. iron nail with traces of wood at both ends.

In reconstructing the crucifixion we have used the skeletal evidence which was available in conjunction with observations by Haas, Barbet[19] and the ancient historical sources. According to these sources, the condemned man never carried the complete cross, as is commonly believed; instead the crossbar was carried, while the upright was set in a permanent place where it was used for subsequent executions. Furthermore, we know from Josephus that during the first century C.E., wood was so scarce in Jerusalem that the Romans were forced to travel ten miles from Jerusalem to secure timber for their siege machinery.[20] Therefore, one can reasonably assume that the scarcity of wood may have been expressed in the economics of crucifixion in that the crossbar as well as the upright would be used repeatedly. Thus, the lack of traumatic injury to the forearm and metacarpals of the hand seems to suggest that the arms of the condemned were tied rather than nailed to the cross. There is ample literary and artistic evidence for the use of ropes rather than nails to secure the condemned to the cross.[21] Moreover, in Egypt, where according to one source crucifixion originated, the victim was not nailed but tied.[22] It is important to remember that death by crucifixion was the result of the manner in which the condemned man hung from the cross and not the traumatic injury caused by nailing. Hanging from the cross resulted in a painful process of asphyxiation, in which the two sets of muscles used for breathing, the intercostal muscles and the diaphragm, became progressively weakened. In time, the condemned man expired, due to the inability to continue breathing properly.

Regarding the positioning of the lower limbs and their relation to the upright, the evidence suggests that the most logical reconstruction would have the condemned straddling the upright with each foot nailed laterally to the cross (our Fig. 1).[23] The calcaneum is the largest bone in the foot, which is presumably the reason why the executioners chose to place the nail here. The olivewood plaque, the remains of which were found beneath the nail head, may have been intended to prevent the condemned

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[19] P. Barbet: *A Doctor at Calvary: The Passion of our Lord Jesus Christ as Described by a Surgeon*, Garden City, New York, 1953.

[20] *War*, V, 522–523 (Loeb edition, p. 363).

[21] J. Hewitt: The Use of Nails in the Crucifixion, *Harvard Theological Review* (1932), pp. 29–45.

[22] *Ibid.*, p. 40.

[23] This open position with the knees apart conforms with Yadin's interpretation of the obscure inscription that Yehohanan was posthumously nicknamed 'the one hanged with knees apart'; Yadin, p. 22. See also J. Naveh: The Ossuary Inscriptions from Giv'at ha-Mivtar, *IEJ* 20 (1970), p. 35.

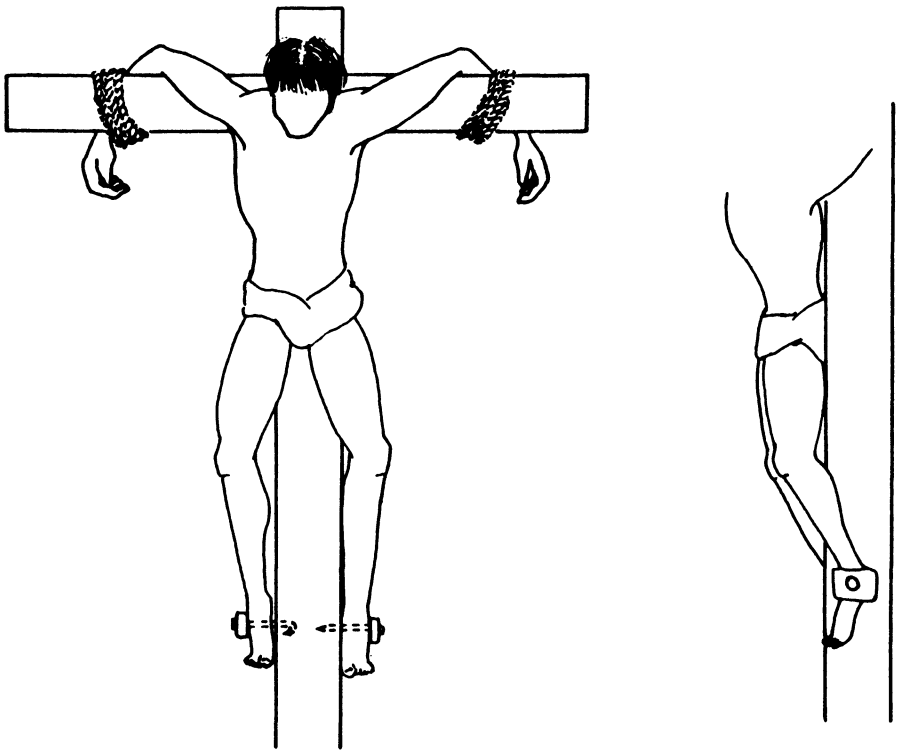
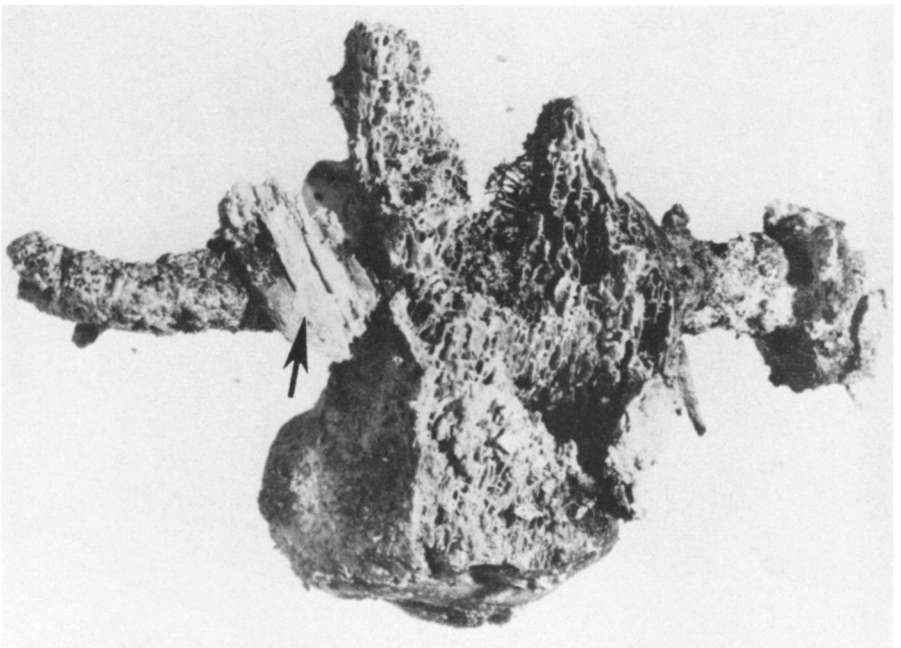


Fig. 1. Proposed new reconstruction of the position of crucifixion.

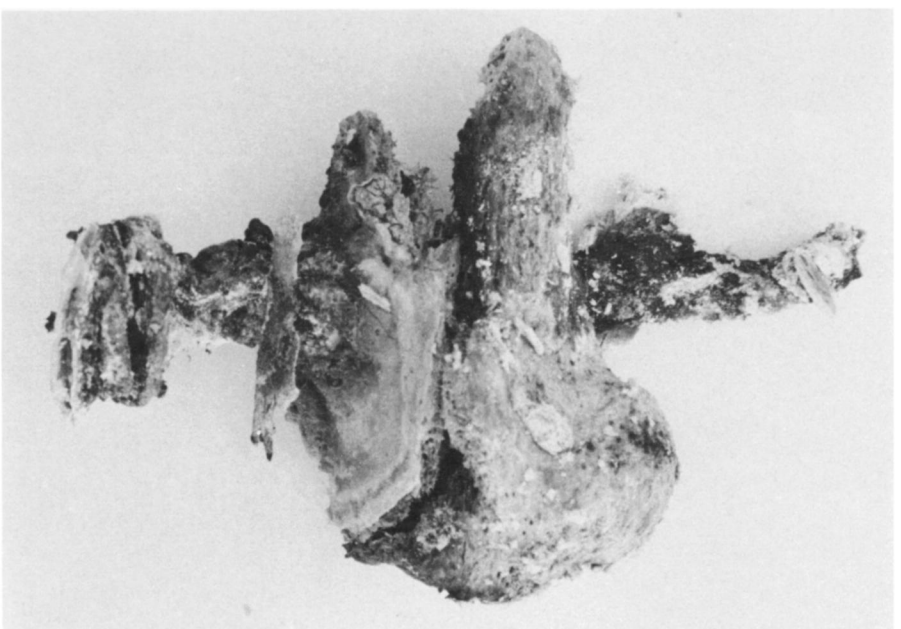
man from pulling his feet free from the nail. The plaque in effect enlarged the diameter of the head of the nail, thus increasing the efficacy of the process.

This theoretical reconstruction may also provide an answer as to why the distal end of the nail was bent downwards, that is, after affixing the right foot to the upright in the suggested manner, the nail, as Haas and Kuhn[24] suggested, may have accidentally struck a knot in the upright, thus bending the nail downwards. Once the body was removed from the cross, albeit with some difficulty in removing the right leg, the condemned man's family would now find it impossible to remove the bent nail without completely destroying the heel bone. This reluctance to inflict further damage to the heel led to the eventual discovery of the crucifixion.

[24] Haas, p. 58; Kuhn, pp. 325–326.

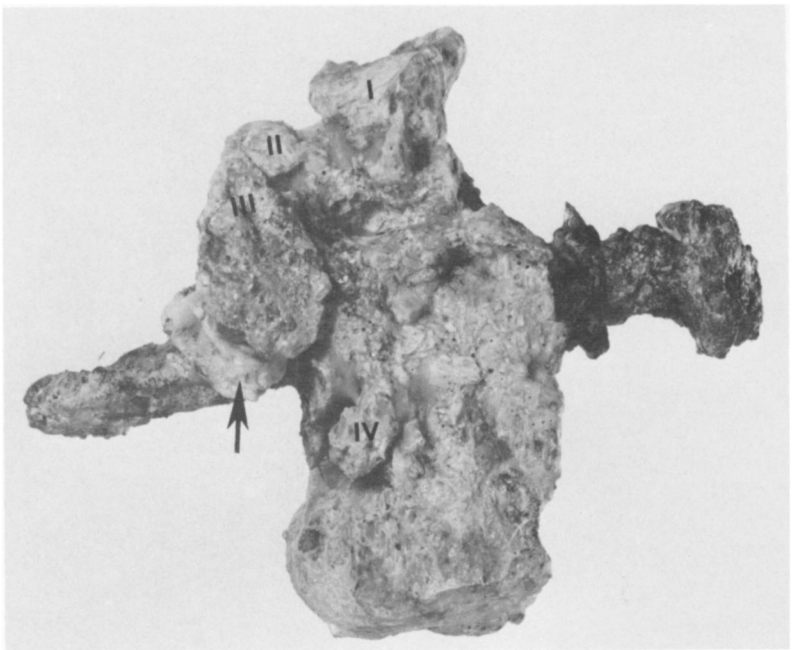


A: Right calcaneum before reconstruction, proximal view (from above). The arrow points to a fragment of compact bone adhering to the nail.

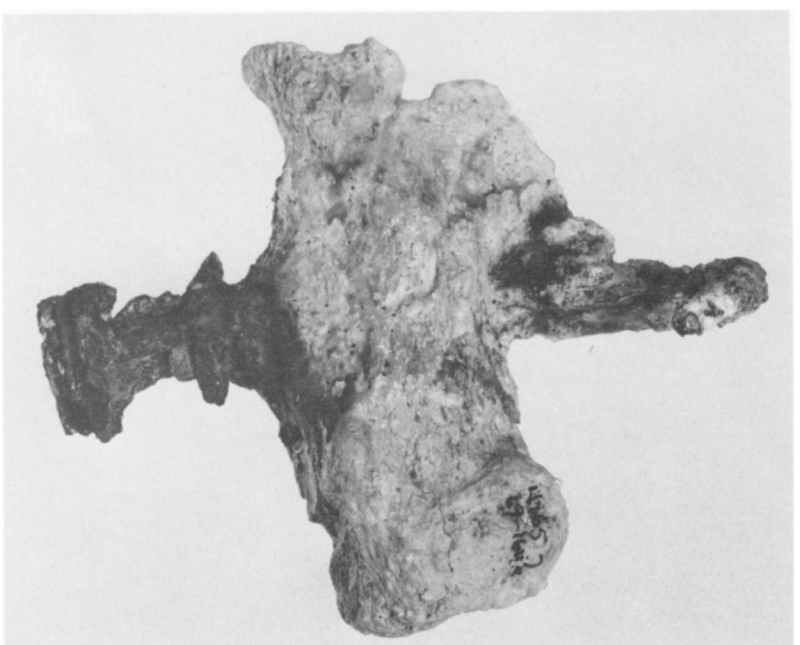


B: Right calcaneum before reconstruction, distal view (from below).

PLATE 6

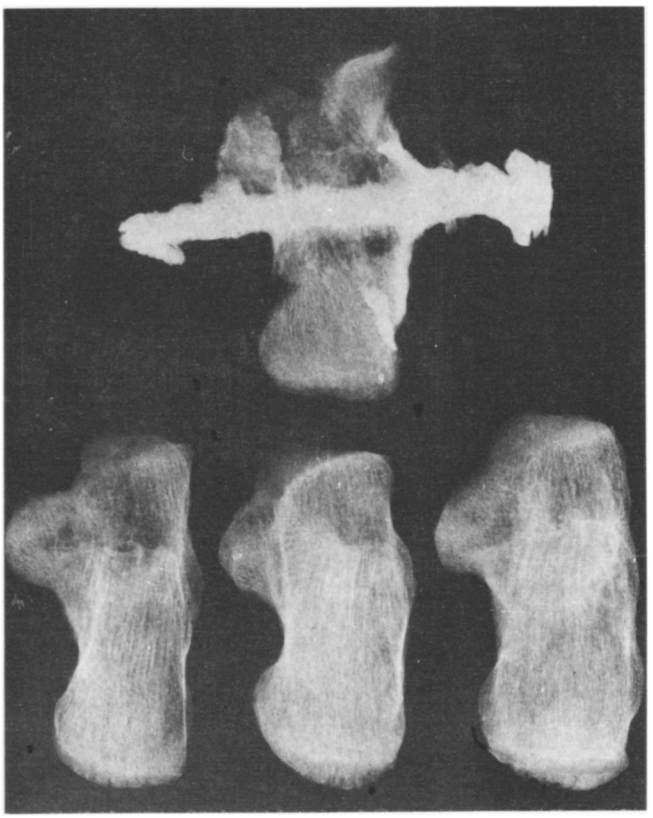


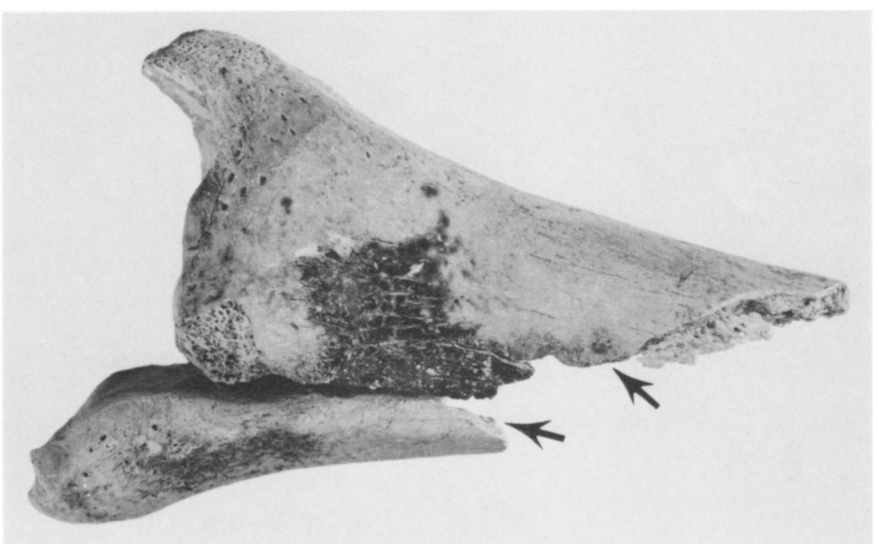
A: Right calcaneum after reconstruction, proximal view (from above). Note fragments attached to the bone during reconstruction. The fragment indicated by an arrow is identical to that in Pl. 5:A.



B: Right calcaneum after reconstruction, distal view (from below).

A: Supero-inferior radiograph of reconstructed calcaneum (above) and three normal right calcanea (below).





B: Distal bones of left tibia and fibula. Arrows show breaks in the bones which occurred some time after death.