AHL Report 2704

SOME MEDIAEVAL AND EARLIER BURIALS FROM BACK GLADSTONE STREET, HARTLEPOOL.

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A REPORT ON THE BONES FROM BACK GLADSTONE STREET

Dr. Calvin Wells

INTRODUCTION

Back Gladstone Street (NZ 5282 3499) is a narrow cobbled street between Gladstone and Beaconsfield Streets, an area of terraced housing, west of the Town Moor of Hartlepool, some 350 yards (0.32km) northwest of St. Hilda's Church, at about 25' (7.5m) O.D., (fig. 1). The early history of the Back Gladstone Street area and its relationship to the development of Hartlepool is not known.

Workmen in 1964, laying a G.P.O. cable, uncovered some human remains, which were reported to the police and then came to the notice of Mr. Robert Wood, of Hartlepool and District Archaeological Society, who took charge of the bones, which he later passed to the writer. In addition, residents of Gladstone Street stated (May 1964) that human bones were found in their gardens from time to time, but no such remains were seen by the writer. Nor were the particular houses identified. Later, (1973) a resident of Gladstone Street showed Dr David Austin human bones found when an extension was built onto his house.[1]

Mr Wood approached the writer, on behalf of the then recently formed Hartlepool and District Archaeological Society, with a request to direct an excavation in Back Gladstone Street. It was agreed to carry out a small exploratory excavation, partly as a training exercise, and

[1] Information in a letter from Dr Austin. These remains are not discussed in this paper.

this took place from the 16th to the 24th May, 1964, with members of the Society. Thanks should be expressed to Mr Robert Wood, who found out about the site and made all the initial arrangements for the excavation. In addition thanks are due to the Hartlepool Town Council of the day for permission to excavate and for the supply of tools and other equipment. Thanks are due to the residents of the street for their tolerance of and interest in the work. Finally thanks are due to the members of the Society, who worked in very difficult conditions.[2]

The objectives of the excavation were to attempt to locate further remains in situ and to establish a context for them, if possible. It was hoped that such a trial excavation would be of value in the planning of future excavations in this part of Hartlepool, since much urban renewal was to be undertaken, and it seemed probable that further archaeological work would be carried out. In fact there has been no further excavation in this part of the town and so the results noted here have not been supplemented.[3]

THE EXCAVATION (fig. 2A)

A narrow trench was excavated, west of the centre of Back Gladstone Street, (fig. 2A). This trench, labelled X-Z on the plan, 38' (11.6m) long, 2' (61cm) wide from X-Y and 4' (1.22m) wide from Y-Z, was restricted to that width by the G.P.O. cable on the south and a water-main uncovered on the north. Undisturbed natural was found at a depth of about 2' (61cm) at the west end of the trench but at the east it was

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[2]In particular Miss V. Smith (now Mrs P. Johnson), Mr A. Woodhead, Mr Mr and Mrs F. Yeoman and Mr L. Giles

[3]The delay in writing this note has been due in part to the writer having lived abroad for some years.

bright orange sand, reached at a maximum depth of 3' (91.5cm).

The whole of the upper filling of the trench proved to have been disturbed. The top 1' (30.5cm) consisted of cobbles and road metting below which was a layer of dirty orange sand about 1' (30.5cm) thick. At the east end of the trench, between X and Y, this layer rested on weathered magnesian limestone, in which no archaeological features were noted, though scattered finds of bone and pottery in the dirty orange sand layer indicated the possible presence of archaeological features in the vicinity.

The wider, eastern end of the trench, between Y and Z, resembled X-Y in the upper layers, but below 2' (61cm) the limestone dipped and was covered by a layer of clean orange sand, in which were the bases of several disturbed graves. These were all incomplete because of the disturbed nature of the site and because of the angle at which the trench cut them. Trench Y-Z is shown in figures 2B and C, where an attempt has been made to indicate the major deposits of bones, from above and below 2'3" (0.69m), an arbitrary separation.

The placing of the watermain on the north side of the trench had disturbed some bones, but others remained in situ below the pipe (fig. 2C, A and plate). The G.P.O. workmen removed the bones they encountered in their trench on the south, but some of them were recovered and are included in Dr Calvin Wells' report, (Appendix 1). Between these two modern disturbances was the remains of a series of burials, some in remnant graves, some pushed aside, all incomplete. It was not possible to identify contemporary or intrusive burials, and therefore the remains are discussed together. Only one individual, A, was almost complete, (fig. 2C and plate), while other individuals were represented by only two or three bones, for example S or O. In other cases, such as K it was not possible to tell whether the bones belonged together or not.

it was not possible to tell whether the bones belonged together or not. The majority of individuals were represented by long bones and other bones, while only four skulls plus one skull fragment were found. Most of the remains were too fragmentary and disturbed for the mode of burial to be ascertained with certainty, but in one case, A, the individual was placed on his back, head to the west and without grave goods.

One grave resembled a stone cist, with limestone blocks placed along the north side and a piece of sandstone at the west, (plate). Most of the other graves were dug into the sand or limestone, and in some cases blocks seem to have been placed along the edge, (eg fig. 2C, A and plate). All graves examined had sandy bases. It is not feasible to generalise further, because of the small sample of graves, and the fact that none was complete and undisturbed.

THE SKELETAL REMAINS (Appendix 1)

Dr Calvin Wells has examined all the skeletal remains from the excavation as well as those from the G.P.O. trench. Discussion of this material has been restricted to general observations because the burials had been so disturbed that there were no archaeological factors which could be used to isolate contemporary burials or groups of related burials. Nor was there any evidence which could be used to support any groupings which emerged via the anatomical study. From one to four individuals were identified within each group of bones, but these must be treated as accidental associations.

At least twenty nine individuals are represented, twenty six from the excavation and three from the G.P.O. trench. Fifteen males, or possible males, nine females, or possible females, two unsexable adults

and three children were identified. The male to female and adult to child ratios are not statistically normal but this is presumably due to the nature of the sample, and unlikely to be typical of the cemetery as a whole. For this reason no demographic comments are made.

From the anatomical evidence the remains appear to belong to at least two groups, one pre-Conquest and the other later mediaeval in date. The low rate of caries among the teeth examined and the squatting facets, as in H and Q, can be cited as evidence for the presence of an earlier group, while the possible case of rickets, in bone group E, and the crescentic wear, possibly caused by clay pipe smoking on two teeth of Da would be expected among people of later rather than earlier mediaeval date. Osteoarthritis was extensively observed, and one of the individuals in bone group E had a severe, healed fracture of the left elbow joint. The condition of the bones indicates a population subjected to considerable physical stresses and strains.

That the diet inssome cases may have been inadequate can be assumed from the possible case of rickets as well as from the child, bone group Ec, who suffered from cribra orbitalia, probably due to iron deficiency anaemia. The latter can be caused by a lack of meat and green vegetables, possibly aggravated by an infestation of intestinal worms.

SMALL FINDS

A. POTTERY (Appendix 2)

Eighty sherds of pottery, all unstratified, and mainly of thirteenth and fourteenth century date, conforming to the range of wares recognisable as Hartlepool wares,[4] were found during the excavation. No sherds were

[4] I am grateful to Miss L. Thoms who confirmed the general nature of the pottery.

associated with the remnant graves and they cannot be shown to have any connexion with the period before, during or after the use of the area as a cemetery. Many of the sherds have freshly broken edges, presumably as a result of the modern disturbances.

No pot count has been attempted, since there are so many small, apparently unrelated sherds, though general observations of the range of fabrics, glaze and other characteristics may indicate the presence of a large number of different pots.

Of the eighty sherds, thirty are unglazed or from unglazed parts of glazed pots, and forty eight are glazed or have glaze spots on them. The other two sherds are not mediaeval. Most are undistinguished body sherds, though there are some rim, base and handle sherds. The ware is fine and hard, normally buff or orange in colour, with sand, mica and quartz grits as well as some iron ore inclusions. Shell tempering is not obvious, though its former presence may be indicated by voids in the fabric, which sometimes result in a corky surface appearance. Little difference between glazed and unglazed fabrics can be seen. A wide range of glaze colours is represented, and some sherds show crazing of the glaze. Individual vessel shapes cannot be reconstructed, as most of the sherds are small, though the majority are probably from jars, jugs or bowls. Some sherds certainly represent Hartlepool 'jugs', some with vertical striped decoration, and some with scale applique.[5] A partial

[5]The majority of the fabrics, glazes and diagnostic characteristics can be paralleled in the published pottery from the area. See Jarret, M.A. and Edwards, B.J.N., Mediaeval and other pottery from Hartlepool, County Durham. Arch Aeliana, 4th series, XL, p.241-251 and
Addis, E.L., The Pottery. Arch Aeliana, 5th series, IV, p.100-124.

catalogue, unillustrated, is given in Appendix 2.

B. NON-POTTERY FINDS

There were very few non-pottery finds, and these were unstratified. Several iron nails were found. One is 3.3" (8.2cm) in length, probably square in section, but the shape of the head is unclear. A fragment of iron, a piece of slag and two flakes of struck flint were also found, as were one tusk, one animal tooth and a quantity of marine and land shells.

Half a melon-shaped bead of turquoise vitreous paste was located in the section at the top of the filling of the G.P.O. trench. The bead was a horizontal diameter of 1.15 ins (2.9cm), vertical diameter of 0.85 ins (2.2cm) and the perforation diameter is 0.5 ins (1.2cm). Large melon-shaped beads of this kind are regularly found on sites of Roman date and sites with post-Roman occupation, but they rarely are stratified and are difficult to date closely.[6]

No cultural context can be adduced from any of the above finds in connexion with the burials on the site, and their presence can merely be routinely noted.[7]

[6]A similar bead is illustrated in Curle, J., Newstead, A Roman Frontier post and its people, 1911, p.336, pl.XCl. no.7 and Gillam, J., Arch Ael[illegible]

[7]All the finds have been deposited in the Gray Art Gallery and Museum, Hartlepool.

CONCLUSION

Neither the limits of the cemetery nor its cultural and chronological associations were known previously, and this small test excavation has not provided such information, though it has raised several questions about the history of the area.

The earliest burials are probably of pre-Conquest date, as suggested in the anatomical report, and perhaps an Anglo-Saxon or Early Christian date might be considered appropriate. It has not proved possible to associate a particular group of burials with this phase of the use of the cemetery, since the bones are so mixed, and early and later bone groups were found together. However, Hartlepool was an important ecclesiastical site from a very early date, and Bede[8] mentions the monastery of St. Hilda in the 7thc A.D. It would be feasible for the earliest burials in Back Gladstone Street to be of a comparable date.

From such a small sample of burials and in such a small area it is not possible to work out the continuity of the site. The cemetery could have been in continuous use or it could have been reused at a later date, when all knowledge of its previous use had been forgotten. The presence of thirteenth and fourteenth century pottery indicates activity at that date in the area, but not necessarily in connexion with the cemetery.

Several aspects of the anatomical study lead to the conclusion that the cemetery was in use in the later mediaeval period, perhaps the 17thc. A.D. when earlier burials seem to have been forgotten as they were indiscriminately disturbed, and so the 17thc. burials seem to have been dug into the earlier deposits. Subsequent road

[8]Bede, A History of the English Church and People, Book IV, chapter 23.

building, pipe laying and cable laying further disturbed the area, so that a sequence of burials could not be observed in the mass of bones.

Further interpretation will only be possible if work is undertaken on a larger scale in the surrounding area, particularly to the south.

Appendix 1

NOTES ON HUMAN SKELETONS FROM BACK GLADSTONE STREET, HARTLEPOOL

Calvin Wells, Castle Museum, Norwich

G.P.O. Trench. Unprovenanced bones.

These remains consist of fragments from at least three skeletons which can be established from the presence of three R. scapulae. They appear to have come from:

(a)	Male	40-50 years
(b)	Male	Adult
(c)	Unsexable	Adult

Other anatomical elements which are duplicated are: two L. innominates, and parts of two L. and two R. humeri. However, there seems to be no possibility of apportioning most of the surviving fragments between the three persons represented here (there might, of course, be more than three) and the material can only be described on a pooled basis. The following remains are present.

A male calva which is a long ovoid in norma verticalis. It is much damaged but its maximum length is 188.2 mm and its minimum frontal breadth 93.9 mm. The frontal bone rises moderately steeply from weakly developed brow ridges. The mid-sagittal curve passes back through a rather high vertex and descends to an occiput with a low tuber occipitale. Markings for nuchal and other muscles are not strongly developed. A few fragments of cranial base are present.

Damaged L. and R. maxillae (a pair) show the following dental state:

									c	c					
8	7	6	5	4	3	2	0	1	2	0	4	5	6	0	8

Attrition is moderately heavy. There are contact caries cavities on $\underline{|5}$ and $\underline{|6}$. Most of these teeth have become loose in the jaw from postmortem effects and it can be seen that several of them, e.g. $\underline{8|}$, $\underline{4|}$, $\underline{2|}$, and $\underline{|8}$ have slight radiculitis.

A damaged mandible, which does not pair with these maxillae, shows

$$\underline{8\ 0\ 0\ 0\ 0\ 3\ 2\ 1}\ |\ \underline{1\ 2\ 3\ 4\ 5\ 6\ 7\ 8}$$

Attrition is very extensive on all teeth. No caries is present. Small bilateral tori are present opposite the premolar and first molar teeth of this jaw.

Post-cranial remains include: An axis. Two adjacent mid-thoracic vertebrae. Two damaged L. ribs. A damaged L. and R. innominate. A damaged L. iliac, including most of the acetabulum. A L. and R. scapula, very powerfully developed and probably a pair. Fragments of two other R. scapulae, one considerably sturdier than the other. A damaged L. and R. humerus, with powerful muscle markings. These, too, are probably a pair and may belong with the paired scapulae. A fragment of R. humeral shaft with a very strongly developed deltoid tuberosity. The shaft of a L. humerus which is a much lighter bone. A strongly built R. radius and a damaged L. radius, probably a pair. The R. radius is 263.8 mm in maximum length which, for a male, would roughly correspond to a stature of 1794 mm. Part of the proximal end of a powerfully built L. femur, lacking the head and most of the neck. It gives the following measurements:

Fe D_1	(Minimum sub-trochanteric antero-posterior diameter)	25.4
Fe D_2	(Transverse diameter at the same level)	36.2
Meric Index	(From the above diameters)	70.2

The proximal two-thirds of a L. and a R. tibia. A R. talus.

Anomalies and Pathology

The mandibular tori are noted above.

In three distal humeral fragments no septal aperture is present, i.e. the bones are of normal pattern for this feature.

The heavily built L. femoral fragment has a small third trochanter.

The two thoracic vertebrae have well marked osteophytotic lipping of the superior and inferior borders of their bodies.

Of the paired radii, the R. one has early osteoarthrosis at its carpal articulation; the L. one has moderately developed osteoarthrosis of its distal ulnar facet.

The unpaired L. innominate has well marked osteoarthrosis, with lipping, of the acetabulum.

Summary

It seems likely, but should not be dogmatically asserted, that these remains comprise parts of not more than three persons:

(a) A powerfully built, middle aged, man whose energetic and strenuous life had left him with creaking, arthritic wrists and hips;

(b) a second man, also strongly built;

(c) a slender, more gracile individual of whom it would be incautious to guess the sex.

REMAINS FROM THE EXCAVATED TRENCH (fig. 2, B and C)

The following account of the human remains from the excavation deals with most of the identifiable bones by groups, as excavated.

GROUP A

Female 30 - 40 years

This consists of an uncleaned and damaged calvaria, with a mandible which is separate but probably belongs to it. The rest of the skeleton became separated from the skull during storage and is, unfortunately, not included in the study.

The skull is ovoid in norma verticalis. The frontal bone

rises very steeply from negligible brow ridges. The mid-sagittal contour passes in a flattish curve through the vertex to descend smoothly to an occiput with no tuber occipitale. Markings for nuchal and other muscles are very light. The mastoid processes are small. The mandible is lightly built. It shows the following dental state:

0	7	6	5	4	3	0	1	1	2	3	4	5	0	7	8

Attrition is moderate. Light deposits of tartar are present. Caries is absent.

The following cranial measurements and indices were obtained.

L	(Maximum cranial length)	179.2
B	(Maximum bi-parietal breadth)	138.1
B'	(Minimum frontal breadth)	89.4
B''	(Maximum frontal breadth)	113.2
H'	(Basion-bregma height)	131.6
S	(Nasion-opisthion arc)	360.1
S_1	(Nasion-bregma arc)	126.8
S_2	(Bregma-lambda arc)	120.7
S_3	(Lambda-opisthion arc)	112.6
S_1'	(Nasion-bregma chord)	108.8
S_2'	(Bregma-lambda chord)	110.0
S_3'	(Lambda-opisthion chord)	94.5
LB	(Length of cranial base)	97.6
EOW	(External orbital width)	91.9
100 B/L	("Cranial Index")	77.1
100 H'/L	(Height-Length Index)	73.4
100 B'/B''	(Frontal Index)	78.9

No anomalies or pathology were detected in this skull

GROUP B

These remains consist of at least two persons.

a) Male 35 - 50

b) ? Male A

Skeleton Ba, a powerfully built middle aged man; and Skeleton Bb, a lightly built person, probably male, adult but of very uncertain age.

a) Identifiable from the R. humerus, ulna and radius (all dd); L. & R. femora; R. patella. The femora, measuring 469.5 (L.) & 468.7 (R.) in maximum length indicate a stature of about 1745 mm.

b) Identifiable from a L. femur, 434.6 mm long = stature about 1665 mm.

Several pieces of bone cannot be confidently allotted between (a) and b). These include unattributable pieces of vertebrae, ribs, pelvis and a few hand and foot bones.

Pathology

The only pathology found here is well marked osteoarthrosis of the R. patella of skeleton B a .

It is possible but cannot be proved, that a few bones from skeleton Q are mixed with these remains.

GROUP C

These remains consist of at least two persons

a) Male Adult

b) ? Male Adult

Skeleton Ca is identifiable from a L. ulna; L. patella; L. & R. tibiae and fibulae; L. & R. calcaneus, cuboid and 1st cuneiform; L. talus and navicular; a few metatarsals and phalanges.

Skeleton Cb is identifiable from a fragment of R. ulna and of L. tibia; and a R. patella.

These bones are much smaller than those of Skeleton Ca. The difference between the patellae is especially marked.

There are a number of fragments which cannot be attributed between the two skeletons but there is no reason to suppose that they represent parts of a third person.

Pathology

Extensive osteoarthritic lipping is present all round the R. patella of Skeleton Cb.

An unattributed hallucial proximal phalange has a small osteochondritic pit in its base.

GROUP D

These remains represent fragments from at least four persons:

a) Male ? 35+

b) Unsexable 8-11

c) Female Adult

d) ? Male Adult

Skeleton Da is identifiable from a fragment of R. ilium; a L. radius (c. 268 mm long) and a R. tibia (c. 395 mm long). This indicates a stature close to 1775 mm. The tibia has a small squatting facet at its distal articular surface.

A fragment of mandible is also attributable to this person. It shows

$$\frac{07\cdot 54321 \mid 10??????}{\text{PP}}$$

Attrition 3. No caries. The periodontal cavities are small. The occlusal surfaces of $\overline{43}$ have been worn down in a crescentic shape

as though by the habit of holding some circular, rough object in the mouth. This appearance in post-medieval burials is often due to the erosion caused by the stems of clay pipes.

Skeleton Db is unequivocally identifiable by the diaphysis of a L. ulna.

Skeleton Dc can be identified from fragments of mandible, R. ilium and L. humerus. The mandible shows

87600021	00005670

Attrition 2. No caries. Slight tartar.

Skeleton Dd is determined from a mandible showing

0	00005670

Attrition 2. No caries.

A few other small fragments from this burial cannot be apportioned to any specific person here although there is no reason to suppose that any other skeleton is represented.

Pathology

A fragment of R. ilium from one of the males has osteoarthrosis of its sacral articular surface.

GROUP E

These remains consist of parts of not less than four persons.

a) Female Adolescent or Young Adult

b) Male Adult

c) Unsexable ? 7-10 years

d) ? Male Adult

Many unattributable fragments were present among these remains.

Skeleton Ea consists of fragments of skull. Part of a mandible shows

	77045678
	c
	p

Attrition 3. The caries is occlusal.

Skel. E (b) must have been a very powerfully built man and is recognizable from fragments of long bones, scapula and pelvis; and a R. clavicle.

Skel. E (c) is identified from a few scraps of long bone including the distal of a humerus with unfused epithyses.

Skel E (d) was a lightly built person who can be identified from pelvic and a few long bone fragments.

There remain a large number of bones and fragments which are not safely attributable to any specific one of these skeletons. At least 30 pieces of humeri and femora are included here and there is some slight indication that some of these may have come from a fifth skeleton.

A number of vertebrae are present including: C1 (♀); L 1-4 (♂) L 4-5 (♂); L1 or 2; and ? T 7-9. A few uncertain scraps of vertebrae were found. Other post-cranial remains include a L. talus, L. clavicle and a few hand and foot elements.

Pathology

A fragment of what is probably a T 10 vertebrae has severe osteoarthrosis of an inferior R. articular facet.

In the T 7-10 group of vertebrae a Schmorl's node is present on the inferior surface of T 9, and on both surfaces of T 10.

In the L 1-4 group, the superior border of the body of L2 and L3 has a small rim of osteophytosis; and the inferior surface of L1, the superior surface of L4, and both surfaces of L2-3 have Schmorl's nodes.

There is a somewhat unusual fracture-dislocation at the L. elbow joint. The lateral epicondyle of the humerus has been knocked about 20 mm proximally where it is firmly united. There must have been a remodelled joint surface between the head of the (now missing) L. radius

and the area between the capitulum and the lateral epicondyle. The whole distal articulation of this humerus is grossly arthrotic and deformed; so is the proximal end of the L. ulna. This lesion was probably caused by a heavy fall on the outstretched arm when the elbow was in full extension.

A R. humerus (which does not pair with the one just described) is markedly bowed in its proximal half. This is not due to powerful deltoid action because the deltoid tuberosity shows very weak development. There is also some distal bowing of a R. ulna. It is possible that these bones have been deformed by rickets.

A fragment of frontal bone, from a child about 7-10 years old, has well marked cribra orbitalia of both sockets.

GROUP H

? Female Adult

This consists of a few long bones and small scraps of vertebrae and ribs. The femora, tibiae and L. fibula are present but damaged. The L. tibia must have been about 355 mm long, which would correspond to a stature of 1645 mm - assuming this is a female. A large squatting facet is present distally.

GROUP J or K

The bones in the area of J and K were so scattered it was difficult to be sure whether bones belonged to one or the other. The skull J has been omitted.

a) Male Adult

This is identifiable from a few fragments of ribs, femora, tarsals and other scraps.

b) Female Adult

Identifiable from fragments of lightly built humerus, femur and probably some vertebrae and a few other scraps.

Nothing of note was found in these remains.

Skeleton K

? Male Adult

This consists of five vertebrae, some fragments of pelvis and ribs, a L. scapula (damaged) and a metacarpal.

Pathology

One vertebra has well marked osteoarthrosis on its L. lateral costal facet.

Skeleton M

Female Adult

A L. femoral shaft; L. talus; a few other small splinters from a lightly built skeleton.

Skeleton O

Unsexable Adult

A few fragments of rib; parts of the shafts of a humerus and ulna; a damaged metacarpal.

Skeleton Q

Female 35-45

This consists of the body of a mandible; a T 11 vertebra; a much damaged L. innominate; fragments of L. humerus and radius, L. and R. femora, and L. tibia; also one metacarpal.

The dental state is:

$$\frac{87654320}{02345677}$$

Attrition 3. No caries.

The L. femur must have been close to 403 mm long, which is equivalent to a stature of about 1535 mm.

The distal extremity of a L. tibia has a large squatting facet.

Pathology

The T 11 vertebra has a Schmorl's node on its inferior surface.

GROUP R

Male Adult

This consists of a sacrum; a fragment of femoral shaft; the proximal two-thirds of a L. tibia; a few other crumbs.

Nothing of note was found here.

GROUP S

At least two persons were represented by these remains.

a) Male Adult

b) Female Adult

Skeleton Sa is identifiable from the very powerfully built shafts of two femora and a L. tibia.

Skeleton Sb from a fragment of R. ilium; and the distal third of a L. femur.

Nothing of note was found in these bones.

GROUP T

Three persons were represented among these remains.

a) Male Adult

b) ? Female Adult

c) Unsexable 6 - 10

The diagnosis of these three persons was made from a small mass of severely broken bone which, however, included splinters from most parts of the skeleton. The male is identifiable from some sturdy rib fragments, a metacarpal, part of a R. calcaneus; the female seems best diagnosed from a damaged R. scapula and one metacarpal; the child from splinters of long-bone diaphyses.

The distal end of a L. tibia shows that there was no squatting facet. A damaged maxillary premolar and molar are present but neither seems to have been carious.

Summary

The condition of these remains is extremely bad as a result of soil erosion and much early disturbance of the graves. This greatly limits

the information which can be derived from them.

Number of burials

Fourteen groups of excavated remains were examined, seven of which contained parts of two or more skeletons. In all, fragments of twenty-six persons were identified.

Sex and age

Of these twenty-six persons, 13 (50%) were diagnosed as males or ? males, 9 (36.6%) as females or ? females, and 4 (15.4%) were unsexable. Only three (11.4%) were children, aged respectively about 8-11, 7-10 and 6-11 years. One other skeleton, E (a), though probably a young adult might have been an adolescent. In view of the small numbers and the uncertainty of some of the diagnoses no significance need be attached to the demographically abnormal sex ratio or the proportion of juveniles to adults.

In addition to the above burials it will be noted that a group of unprovenanced bones from the "G.P.O. Trench" contained parts of two adult males and one unsexable adult.

Physical type

Almost nothing can be said about the physical type of these persons but it seems probable that they were a moderately heterogeneous group who drew on a fairly wide gene pool. There is no doubt that striking differences in individual robustness and muscular development are found amongst them.

Their stature can be estimated in five instances, as follows:

	Males		Females
Skel.	Stature	Skel.	Stature
B (a)	1745 mm	H	1645 mm
B (b)	1665 mm	Q	1535 mm
D (a)	1775 mm		

This shows that they were people of medium stature with a moderately wide range of heights.

Anatomical variants and anomalies

Few characters of note were found among features which are commonly believed to be of genetic origin. In the "G.P.O. Trench" assemblage a septal aperture was absent in the three humeri where it was possible to record its presence or absence. One femur had a small third trochanter. Also in this group was a mandible with low bilateral tori.

Four tibiae can be examined for the functional variant of squatting facets. These features were absent in Skel. T (a) (♂), small in D (a) (♂) and large in H (♀) and Q (♀). In general it may be said that, at least in European material, squatting facets are almost always larger and more common in females than in males, and they are decidedly more common in pre- than in post- Conquest burials.

Teeth

In the surviving jaws and jaw fragments 103 dental positions can be identified, all of which had contained erupted teeth. One tooth, a $\overline{6}$, had been shed antemortem. Twenty-nine have been lost postmortem leaving seventy-three teeth still present in the alveoli. Of these, three (4.1%) are carious which, even by Anglo-Saxon standards, is a

moderately low rate. The average degree of attrition is extensive in all dentitions. Tartar is present on some teeth but is not obtrusive. These features combine to indicate heavy functional use of their jaws on tough or abrasive diets. In the mandible from the "G.P.O. Trench" several teeth have radiculitis.

Pathology

Not enough material survives to give a clear picture of the pathologies which afflicted these people.

Osteoarthrosis is the commonest disease found amongst them and, in one or another, it affects vertebrae, the sacroiliac, hip, knee and wrist joints. These lesions indicate response to chronic trauma and reflect the "wear and tear" sustained by the joints as a result of a lifetime of hard work and heavy strains.

This evidence is reinforced by the presence of spinal osteophytosis, by Schmorl's nodes on at least six vertebrae in three skeletons, and perhaps by an osteochondritic pit in a hallucial phalange.

The presence of bilateral cribra orbitalia in the child E (c) is almost certainly due to an iron deficiency anaemia. It probably reflects an inadequate diet, lacking in meat and green vegetables, but the anaemia may also have been aggravated as a result of heavy intestinal infestation by parasites such as tape and round worms.

The presence of a humerus and an ulna in the Skeleton E complex, both of which suggest the possibility of rickets is an interesting find. Rickets is hardly identifiable in Anglo-Saxon material and if this suggested diagnosis is correct it would rather strongly support a later medieval date for the affected skeleton.

Appendix 2

Pottery catalogue

Fifteen sherds are listed in the catalogue, because they show the general range of wares and glazes, and also have definitive characteristics. Measurements refer to the single greatest dimension simply as an indication of size. The average thickness of the sherds varied from 0.15 ins (0.4 cm) to 0.3 ins (0.6 cm) and is only stated where it differs significantly from this range. Most of the glazes, fabrics, colours and definitive features can be paralleled in the published material from the area (see note 5).

1. BGS64/65A/78. Fragment of thumbed base; finger and fingernail impressions on inside. Hard, fine buff ware; orange core. Some blackening around thumbed area. (2.7 ins : 6.9 cms)

2. BGS64/15/44. Wall sherd, basal angle. Finger tip decoration. Hard, fine ware, brick red on outer surface, orange inside and orange core. Three probably accidental glaze spots on outside. Slight blackening of outer surface. (1.8 ins : 4.6 cms)

3. BGS64/1A/6. Base, plain. Three small indentations on base, filled with and surrounded by light olive glaze. Buff outer surface, grey inside and core. (2.7 ins : 7 cm)

4. BGS64/26/58. Strap handle, central groove, slightly asymmetrical. Olive green glaze overall, apart from a lengthwise strip on underside, where surface is exposed. Orange/yellow faded edging to glaze. Grey core, orange surface where exposed, buff below glaze. (1.9 ins : 4.9 cm long; 1.65 ins : 4.2 cm wide)

5. BGS64/1/21. Handle, circular. Vertical strip of bright green glaze. Abraded orange surface. Grey core. (3.35 ins : 8.5 cm long;

Diameter 1.05 ins : 2.6 cm)

6. BGS64/1/11. Straphandle. Olive green glaze, yellow on under-side. Glaze not continuous over edge. Pitting below glaze. Buff/orange under surface, almost grey below glaze. Some large grits (1.65 ins : 4.2 cm)

7. BGS63/6/34. Rim, internal bevel, sharply everted neck. Fine hard ware, orange core, almost buff surfaces. Some grits visible (1.5 ins : 3.75 cm)

8. BGS64/85/80. Rim, fine hardware. Buff throughout; yellow and bright green glaze. (2.1 ins : 5.4 cm)

9. BGS64/39/71. Body sherd. Bright orange glaze, crazed, green and brown vertical stripes. Fine, hard fabric, orange throughout. (1.7 ins : 4.4 cm)

10. BGS64/1A/4. Body sherd. Green and yellow-green glaze. Scale appliqué. Fine, hard fabric, orange, some grits visible below glaze (1.65 ins : 4.2 cm)

11. BGS64/6/28. Body sherd, similar to no. 10. Possibly from same vessel. (1.4 ins : 3.6 cm)

12. BGS64/1/14. Body sherd. Bright green glaze, some pitting below glaze. Scale appliqué. Very fine, hardware, buff throughout. (1.6 ins : 4.1 cm).

13. BGS64/1/18. Body sherd. Pitted. Hard, slightly gritty fabric, buff throughout. (1.6 ins : 4.1 cm)

14. BGS64/1A/2. Base, plain. Fine, hardware, many large grits, including angular white quartz and some red iron ore. Several large voids give a corky outer surface appearance. Core orange, surfaces buff to orange. (2.2 ins : 5.5 cm)

15. BGS64/3/22. Body sherd. Sandy coarse ware, very thick (6.5 ins : 1.2 cm) Grey/brown core, grey surface. Sooty adhesion on inner surface. (3.25 ins : 8.3 cm) Possibly of later date than most of other sherds.

FIGURES.

1. Map of Hartlepool, showing the location of Back Gladsone Street. Based on O.S. 6 inch map.

2.A. Back Gladsbone Street, showing the location of the excavation, Trench X-Y-Z.

2.B. Groups of bones thought to belong together, above 2ft 3ins (0.69 cm)

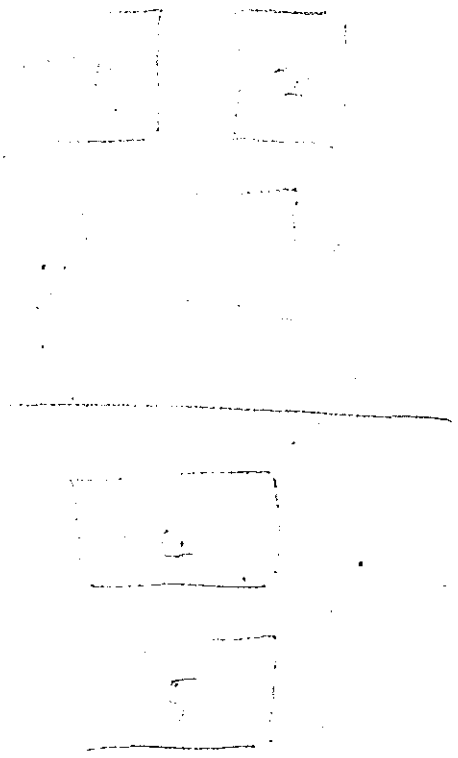
2.C. Groups of bones thought to belong together, below 2ft 3ins (0.69 cm)

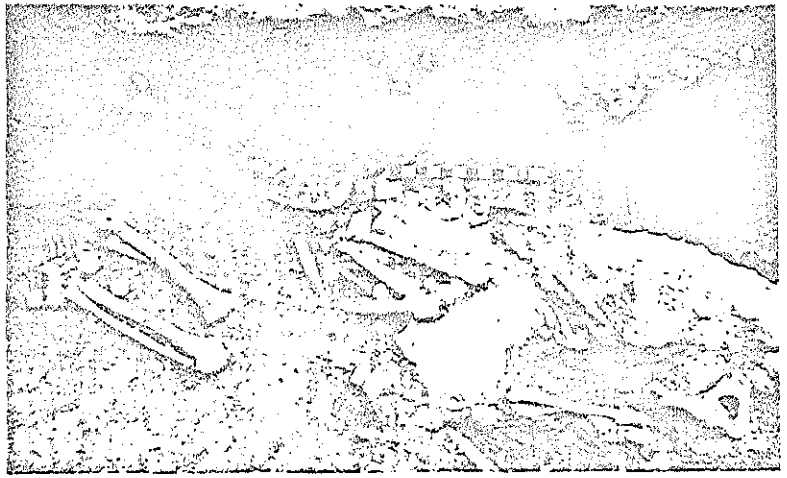
The division was arbitrary and had no cultural or chronological significance. Some bones have been omitted for clarity.

PLATES

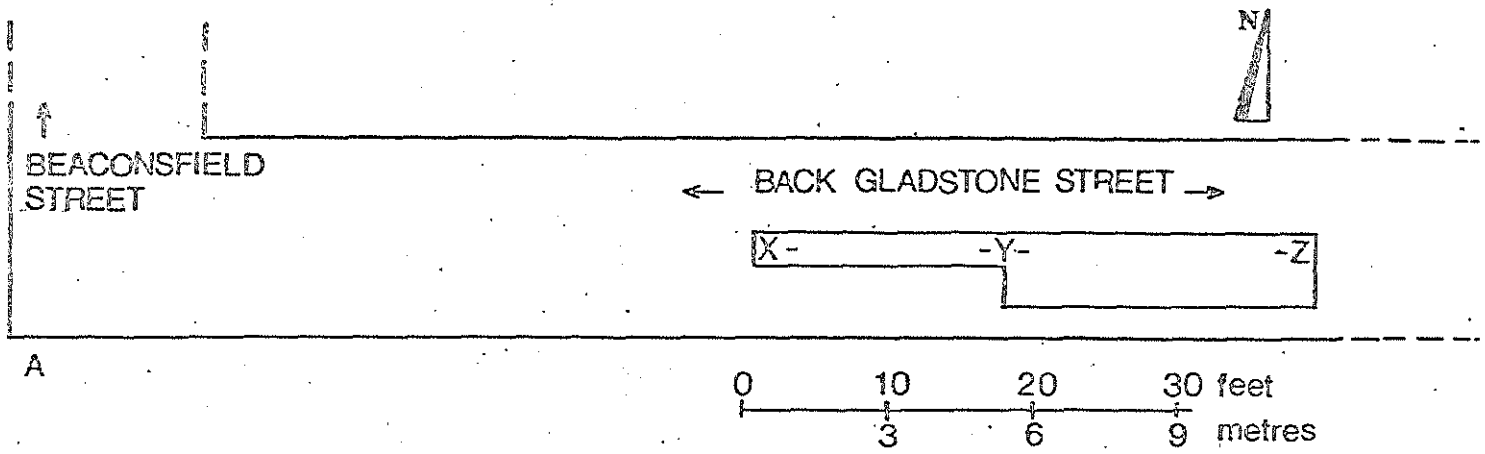
1. Back Gladstone Street, showing the east end of the trench, Y-Z.
2. The only articulated skeleton, A, with the upper part of the remains in situ below the water main.
3. Detail of one grave which ressembled a cist, with a sandstone block at the west end.

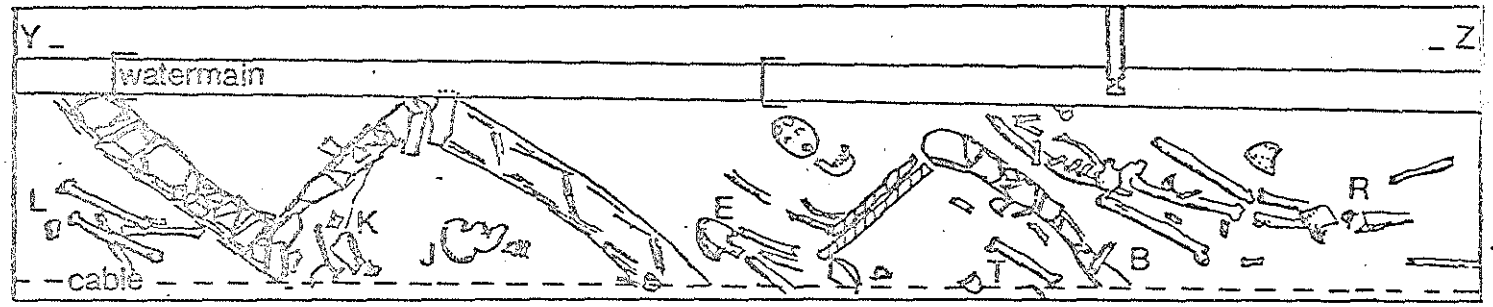
4. The east end of the trench, with Bone groups B and R (above) and
5. Bone groups Q and C (below), illustating the level of disturbance generally encountered.

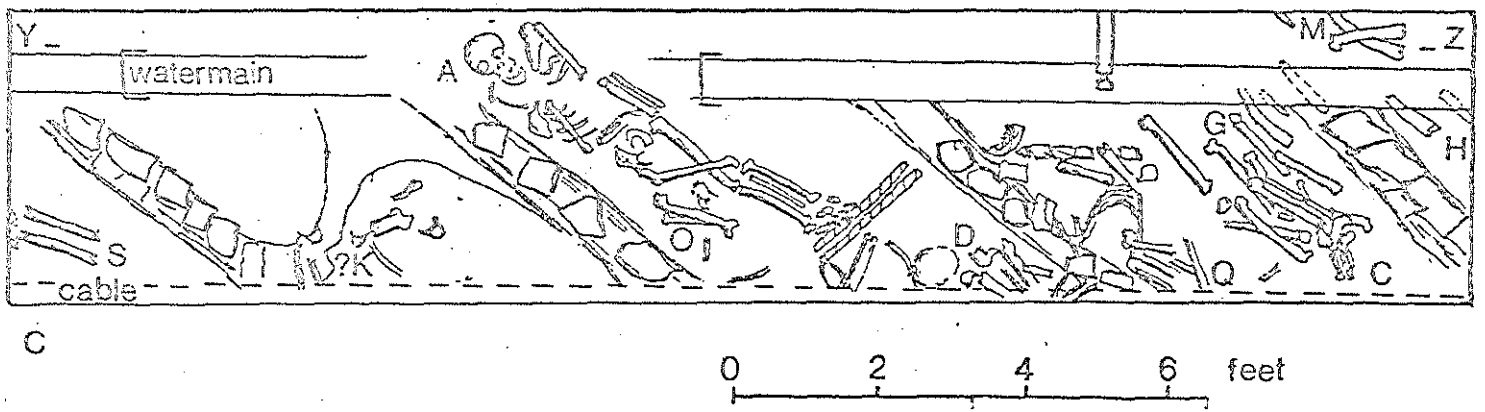




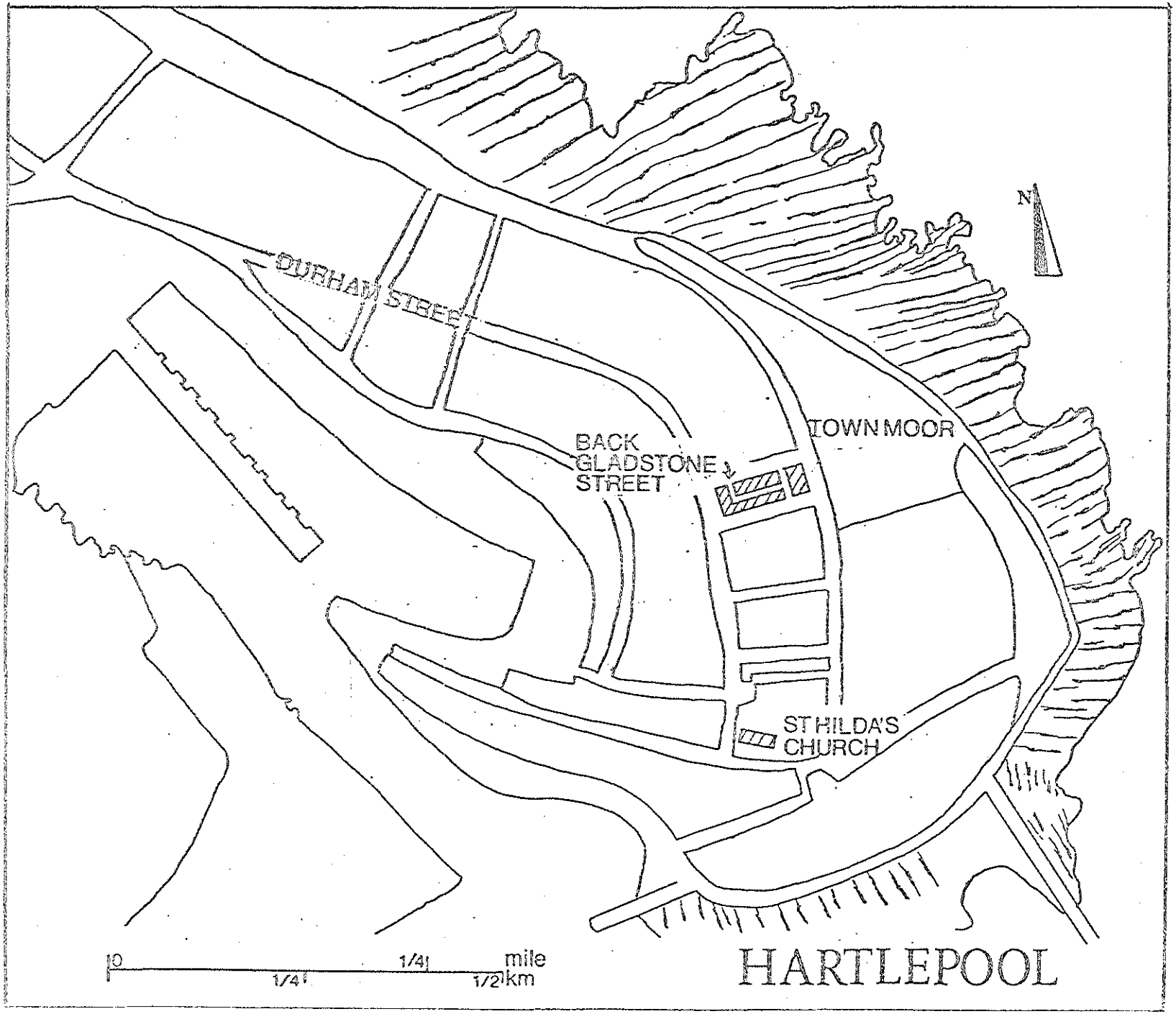
HARTLEPOOL, BACK GLADSTONE STREET, 1964







2'3" (0.69m


DURHAM STREET
BACK GLADSTONE STREET
TOWN MOOR
ST HILDA'S CHURCH
N
0
1/4
1/4
1/2
mile
km
HARTLEPOOL