

THE ROMAN SIGNAL STATION AT GOLDSBOROUGH, NEAR WHITBY¹

By WILLIAM HORNSBY and JOHN D. LAVERICK

As long ago as 1817, Dr. Young, the historian of Whitby, made the happy conjecture that in Roman times there was very probably a fort on the Whitby east cliff to defend the harbour, another at Scarborough Castle, one near Filey Brigg, and one on Flamborough Head.² When these words were written, only a single fortlet was actually known—that at Ravenscar, where a building-inscription (now in Whitby Museum) had been found, in 1774, in digging the foundations of Captain Child's hall.³

Since Young's day discoveries have multiplied. About the middle of last century, chance revealed a fortlet at Huntcliff, which was fully excavated in 1911-12.⁴ Another came to light at Filey in 1857,⁵ to be examined more thoroughly in 1923;⁶ a third at Goldsborough in 1918; and a fourth on Castle Hill at Scarborough in 1919.⁷ To-day the station at Ravenscar probably lies buried beneath the hotel. Those at Huntcliff, Scarborough and Filey, especially the first, have suffered through coast-erosion. At Goldsborough, on the other hand, the site is so far from the sea that it has remained intact, while at the same time it is free from those

¹ The writers beg to offer their best thanks to the owner of the land, The Rev. The Marquis of Normanby, for permission to dig, to Sir Arthur Keith and Dr. H. H. E. Craster for the two appendices, to Mr. M. R. Hull for his description of the pottery incorporated in his article on p. 220 of this volume, to Mr. R. A. Smith, of the British Museum, for identifying various objects, to Mr. P. K. Kipps for the plan, and, above all, to Mr. F. Gerald Simpson for the survey, for the valuable series of photographs, and for his constant supervision. But for

Mr. Simpson's ungrudging help, the work would never have been completed. Finally, Sir George Macdonald was good enough to read our report in draft and to make most valuable suggestions.

² Young's *History of Whitby*, vol. ii, p. 709.

³ It is described and illustrated in *Journal of Roman Studies*, ii, 209 ff.

⁴ *J.R.S.*, ii, p. 215 ff.

⁵ *Ibid.*, pp. 211 f.

⁶ By Mr. F. G. Simpson.

⁷ *History of Scarborough*, edited by Arthur Rowntree, 1931, pp. 40-50.

complications in the shape of later buildings which proved such an embarrassment at Scarborough.

The finding of Goldsborough was the outcome of a systematic search. After the excavation at Huntcliff had been completed, a move was made down the coast to what seemed to be the next likely site, Rockcliff-by-Boulby, where the cliffs, reputed to be the most lofty in England, rise to a height of 660 feet. It was disappointing to find there neither trace nor tradition of anything Roman. Possibly the explanation lies in the fact that at Boulby the cliffs have been cut back for some hundreds of yards in alum-working, an industry, which, in Cleveland, dates from the reign of Elizabeth. Much time was spent in investigation here, and subsequently at and near Hinderwell. Ultimately, however, Kettleness was reached and there, in the Goldsborough Pasture, on a lofty eminence of 425 feet and at a distance of half a mile from the sea, we were fortunate enough to light upon what we believe to be the next surviving link in the chain of signal-stations which guarded the Yorkshire coast in late Roman times.¹ The impression left from the outset by the loveliness of the situation is unforgettable. In front extends the ever-changing sea. To the left lies Runswick, with its glorious bay. To the right is Whitby, with Abbey and harbour, while behind stretches the moorland, black and lonesome, still reputed the abode of evil spirits.

In excavation, as in other occupations, a good beginning is not infrequently a favourable omen. At Goldsborough we obtained definite proof of date within half an hour of locating the site. Digging down to the original level of occupation, we encountered a black layer, which contained the usual litter of bones

¹ It is right to say that, when the work at Goldsborough was half completed, Mr. F. Elgee, Curator of the Dorman Museum, Middlesbrough, drew our attention to a notice of the site in a letter written by the late Canon Atkinson as long ago as 1891. The relevant extract is as follows: 'It is noteworthy that the Roman road (on which the Camp on Lease Rigg was placed and which

camp originated the High Burrows and Low Burrows farms' names), when last seen, is aiming directly for Goldsborough, and that there is a traditional mention of a large earthwork there. I look upon that as the site of the terminal *Castra Speculatoria*, to which the Roman road led.' (*Proc. of the Cleveland Naturalists' Field Club*, vol. i, pt. 3, p. 68.)

and potsherds. The sherds proved to be mainly of coarse pitted ware of the cooking-pot type, such as is found at the other signal-stations. Further excavation showed that, in its general features, the fortlet closely resembled that at Huntcliff.

The Ditch.

The outer line of defence was a single V-shaped ditch, 12 feet wide and 4 feet deep, which ran continuously round, even on the precipitous north where it hardly seemed to be necessary. At the north-east angle and for some distance along the east side, the ditch was cut through rock. That it had always been dry was sufficiently proved by the difference in the levels on the north and south sides. At Huntcliff, the mode of crossing the ditch was merely conjectured. At Goldsborough, however, a careful examination was made of the section lying immediately in front of the gateway, where it turned out that no solid causeway had ever existed. Here, as elsewhere, the ditch had in later times been filled in at random with earth and stones, showing that the road must have been carried over it by a bridge. Near the bottom was a brass shoe-buckle of late seventeenth- or early eighteenth-century date. Objects of a similarly intrusive character were met with, within the enclosure, on the floor both of the courtyard and of the internal building. Thus many medieval potsherds and several pieces of quite modern ware were mixed with the Roman debris—left behind by later disturbers, in all probability stone-robbers.

The Berm.

The berm, or space between the inner lip of the ditch and the outer face of the wall, was 32 feet wide. An interval so unusually wide might at first sight seem to constitute a weakness. But it must be remembered that its appropriateness would depend upon the height at which the defenders were posted—the essential thing being that they should have a clear view of the bottom of the ditch—and of this nothing whatever is known.

The Outer Wall.

The wall itself was 4 feet thick above a 5-inch external offset at the footing course, and seems to have been of less rough workmanship than at Huntcliff. It had been built of rudely dressed sandstone,

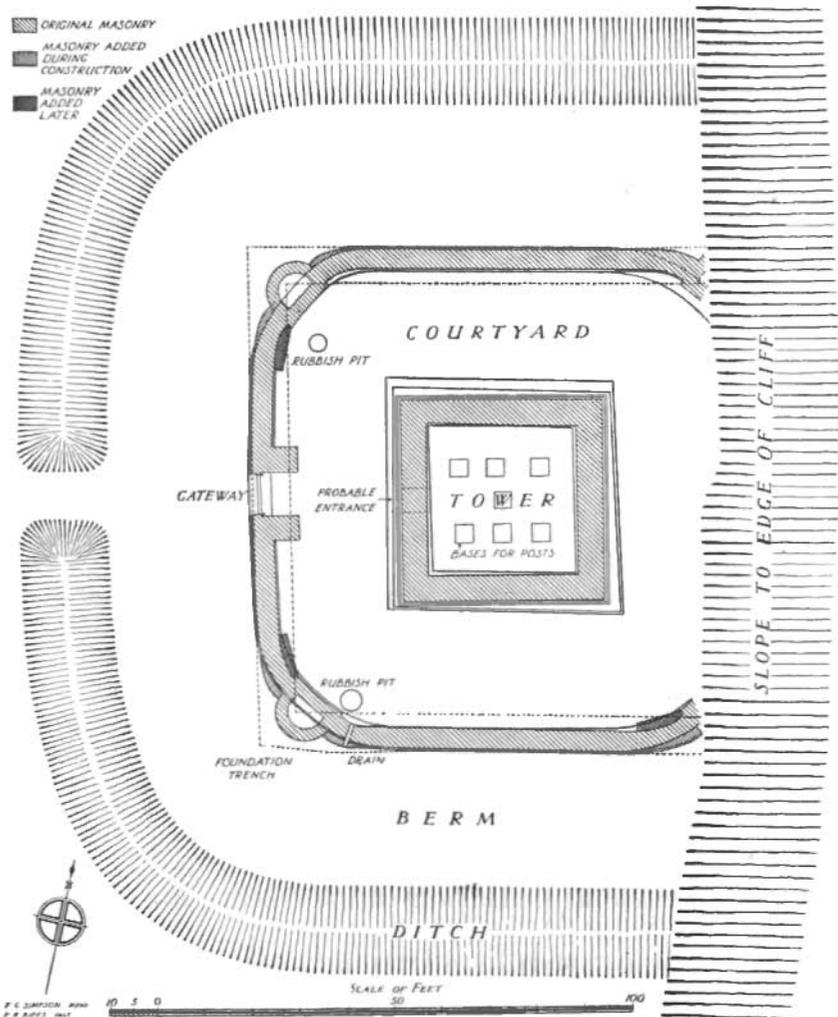


FIG. I. PLAN OF THE ROMAN SIGNAL-STATION ON CASTLE HILL, SCARBOROUGH

(Reproduced by kind permission from A. Rowntree, *History of Scarborough*, p. 45.)

doubtless from quarries in the adjoining cliff, and had been cemented with mortar composed of lime, sand and gravel. The wall stood on a foundation of stone-pitching set in clay, except from the north-east angle along the northern half of the east side where it was founded upon the rock. On the east and west sides the foundation alone remained. Here and there on the north, however, the footing course survived with an occasional upper course, while on the south, as will be readily seen from Pl. i, A, the footing course was regularly and clearly defined.

Within the wall the enclosure measured about 104 feet from north to south and about 103 feet from east to west (to the middle of each side). The east and west sides were of nearly equal length : the irregularity of the plan was due to a difference in length of over 7 feet between the north and south sides. As usual the angles were boldly rounded. At Huntcliff and Scarborough (Fig. 1) the rounded angles were strengthened with external semi-circular bastions. There were bastions at Goldsborough, too, but their outer bulge was very slight, the projection of the turrets, which had a diameter of 10 feet, being mainly internal. The turret at the north-west angle had been entirely removed, but that at the north-east was still standing three courses high, while those at the south-east and south-west were also clearly defined (Pls. i, B, and ii).

The Entrance.

In the middle of the south wall was a gateway 9 feet 11 inches wide, with three courses of masonry still remaining (Pl. iii). The entrance had been strengthened by making the wall return inwards for a distance of 6 feet 3 inches, with a thickness of 3 feet 10 inches, thus forming a passage 10 feet 3 inches long. Access to the summit of the 'returns' had been given by stairways, 3 feet wide, which ran parallel to the inner face of the outer wall. The first step of the west stairway was still in position (Pl. iv, A), and lay 9 feet from the inner face of the 'return.' Within the gateway, 1 foot 10 inches from the outer face of the wall, was a

stone threshold, 6 feet 4 inches long, in line with which, and close to the passage walls, were stones with pivot-holes for the two leaves of the door.

Two points connected with the gateway were obscure. (1) In the stone threshold itself there was a cavity, the purpose of which was not apparent. Its position is marked in Pl. ix. It may possibly have been a socket-hole, connected in some way with the barring of the door. (2) At the east side of the entrance there were two dressed slots in the face of the jamb, the larger originally about 5 inches square and the other much smaller.

The Courtyard.

The gateway led into an open, unpaved courtyard, the sandy floor of which, in marked contrast with our experience at Huntcliff, yielded very few bones and potsherds and only two coins. In the southern portion, along the inner side of the outer wall and also along the outer face of the internal building, rubbish-pits occurred at not infrequent intervals. They had been covered with stones, but unfortunately contained nothing save dark matter. Further away from the south wall of the internal building, but still parallel with it, was a row of eight open hearths, each measuring three feet by three feet, built of clay and fairly large sandstones. Pieces of charred wood, often furze, were still lying on these. In the same area, but near the south-east turret, was an unwallled well, having a diameter of 6 feet and a depth of 8 feet 6 inches (Pl. v, B). It had been filled up with earth and dressed stones, some of the latter being very large. Its contents, though interesting, were scarcely so sensational as those of the well at Huntcliff. At a depth of 4 feet we came upon three human skulls, which are described below (p. 217) by Sir Arthur Keith. There were also many bones of animals, among which Sir Arthur has identified two breeds of oxen and two types of dogs, one about the size of the modern spaniel and the other akin to the sheep-dog. Two stout posts of oak were much blackened, as if by fire. Finally, quite at the

bottom was a small piece of cloth, similar in colour and texture to that from Huntcliff.¹

Internal Building.

Those who have read the account of Huntcliff will remember that, on the edge of the cliff, were the remains of a wall, running east and west, and showing a northward turn at each end. Professor Haverfield at once pointed out that this must have formed part of an internal building, the main portion of which had been destroyed by the sea. The complete site at Goldsborough furnished proof that he was right. Here we found, in the middle of the courtyard, a square building with sides about 47 feet long at the foundation course, reduced by three external offsets to about 43 feet (Pls. iv, B; v, A). Internally the building was about 32 feet 6 inches square. Its wall, which had a similar foundation to that of the outer wall, was from 5 feet to 5 feet 5 inches thick above the offsets. It was almost entirely removed from the west side of the doorway to the south-west corner and for three-fourths of its length on the west. Elsewhere, however, it was fairly well preserved, as many as six courses remaining in position at two points. As is usually the case in Roman work, the wall consisted of an outer and an inner facing of substantial dressed stones with a mortared rubble filling between. The solidity of the construction indicates that it had served as the base of a stone tower, which may have risen to a considerable height, perhaps as much as 80 or 100 feet.

The tower was entered through a doorway which was directly opposite the courtyard gate and had probably been about 5 feet wide (the west side of the doorway was entirely destroyed). On the floor were lying *in situ* six large roughly-dressed stones arranged in two parallel lines running north and south (Pl. vi, A). The distances between the lines was 16 feet 6 inches, while the interval between the stones in line was about 8 feet. About the same interval separated them from the inner face of the wall. Each stone measured about 18 inches by 18 inches by 12 inches deep, and had in

¹ *J.R.S.*, ii, 231.

the upper surface a shallow socket-hole about 10 inches square. The analogy with Filey, where five similar socket-stones were found, was plain (Pl. vi, B). At Goldsborough there was no central socket-stone. At Scarborough, the socket-stones were missing, but their foundations remained. They were seven in number (Fig. 1). As Mr. R. G. Collingwood has pointed out,¹ the socket-stones probably supported stout posts on which had rested the lowest of a series of wooden floors. These would be utilised for living-accommodation and for look-out purposes. At Huntcliff there were signs that, in the final conflagration, the building had toppled southward, littering the courtyard with charred wood.

Three of the inner corners of the building yielded interesting finds. In the north-west corner two walls, only 1 foot 6 inches thick, ran from the socket-stone north and west to the main walls, suggesting perhaps the foot of the staircase that gave access to the floors above. Near the more easterly of these walls we picked up a small granite tablet, such as is usually supposed to have formed part of a druggist's equipment. Here it may rather have been an article of toilet. Close to the socket-stone was a human skull. In the north-east corner we came upon the lower half of a quern bedded in the clay floor. The upper half, was lying near by. In the south-east corner we made discoveries which can only be described as sensational. A short, thick-set man had fallen across the smouldering fire of an open hearth, probably after having been stabbed in the back. His skeleton lay face downwards, the left hand, on which was a bronze ring (Fig. 2, 4), behind the back, the right touching the south wall. Another skeleton, that of a taller man, lay also face downwards, near the feet of the first, his head pointing south-west. Beneath him was the skeleton of a large and powerful dog, its head against the man's throat, its paws across his shoulders—surely a grim record of a thrilling drama, perhaps the dog one of the defenders, the man an intruder. Near the feet of the second skeleton were

¹ Rowntree, *History of Scarborough*, p. 46.



A. OUTER WALL, SOUTH FRONT, FROM THE WEST



B. NORTH-EAST ANGLE-TURRET, LOOKING SEAWARD



A. SOUTH-EAST ANGLE-TURRET AND PART OF WELL, FROM THE NORTH



B. SOUTH-WEST ANGLE-TURRET, FROM THE NORTH



A. SOUTH WALL, GATEWAY AND CENTRAL TOWER, FROM THE SOUTH-WEST



B. GATEWAY. FROM THE NORTH-WEST



A. GATEWAY AND REMAINS OF WEST STAIRWAY



B. TOWER, FROM THE NORTH-EAST



A. SOUTH-EAST CORNER OF TOWER



B. INTERIOR OF TOWER AND EAST SIDE OF DOORWAY ; WELL IN COURTYARD BEYOND ; GOLDSBOROUGH VILLAGE IN THE DISTANCE



A. INTERIOR OF TOWER AND EAST LINE OF SOCKET-STONES, FROM THE NORTH



B. SOCKET-STONES FROM THE TOWER OF THE SIGNAL-STATION AT CARR NAZE, NOW IN THE CRESCENT GARDENS, FILEY



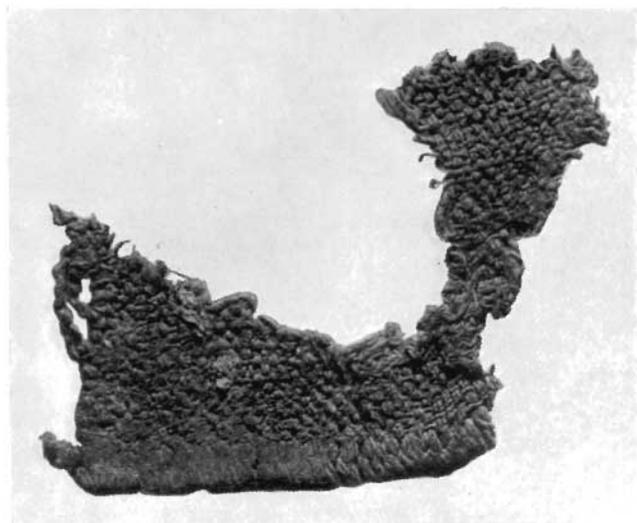
A. EAST OVEN, FROM THE NORTH

To face Plate VI.



B. WEST OVEN, FROM THE NORTH-EAST

PLATE VII.



PIECE OF ROMANO-BRITISH CLOTH FROM THE WELL. (†)

the two silver coins of Eugenius and Honorius, nos. 17 and 18 (below, p. 215).

Ovens.

On the north berm, 30 feet from the north-east turret, was a circular oven, 3 feet in diameter and 2 feet deep, with a projection for the stoke-hole (Pl. vii, A), in which was found a coin of Valentinian I, no. 3. The centre-line of this oven was at right-angles to the outer wall. A second oven, of similar size and type, but with its centre-line parallel to the outer wall, was found 27 feet further west (Pl. vii, B). Both ovens were cut out of the rock. The difference in the lay-out probably means that they were used in different winds. Their position outside the station suggests that the garrison was not in continual fear of attack.

General Conclusions.

At the north-east turret a rubbish pit was found, running under the whole width of the outer wall. Its contents gave no definite indication of date. Clearly, however, it had preceded the wall. The excavation produced no other evidence bearing upon the question of the occupation of the site before the building of the Signal-Station.

The finds in the internal building, combined with the contents of the well, afford a glimpse of the manner of life of the men and women whom the Station sheltered.¹

Besides potsherds, which are described in another paper by Mr. M. R. Hull (below, p. 220), relics found included the following :—

(1) The piece of cloth, already mentioned, from the well (Pl. viii). The cloth is well-worn, coarse but serviceable, and is now of a dark brown colour. It is similar in fabric to, though not identical in texture with, the larger pieces of woollen cloth from the contemporary signal-station at Huntcliff, fully described by Sir George Macdonald in the *Journal of Roman Studies*, ii, 230.

¹ The presence of women is vouched for by one of the skeletons in the well. Cf. also Huntcliff.

(2) Part of a twisted bronze bracelet (Fig. 2, 1), and fragments of plain bronze wire bracelets or rings.

(3) Two jet finger-rings, one with a pointed projection (? formerly a key) ; and a simple bronze finger-ring (Fig. 2, 2-4).

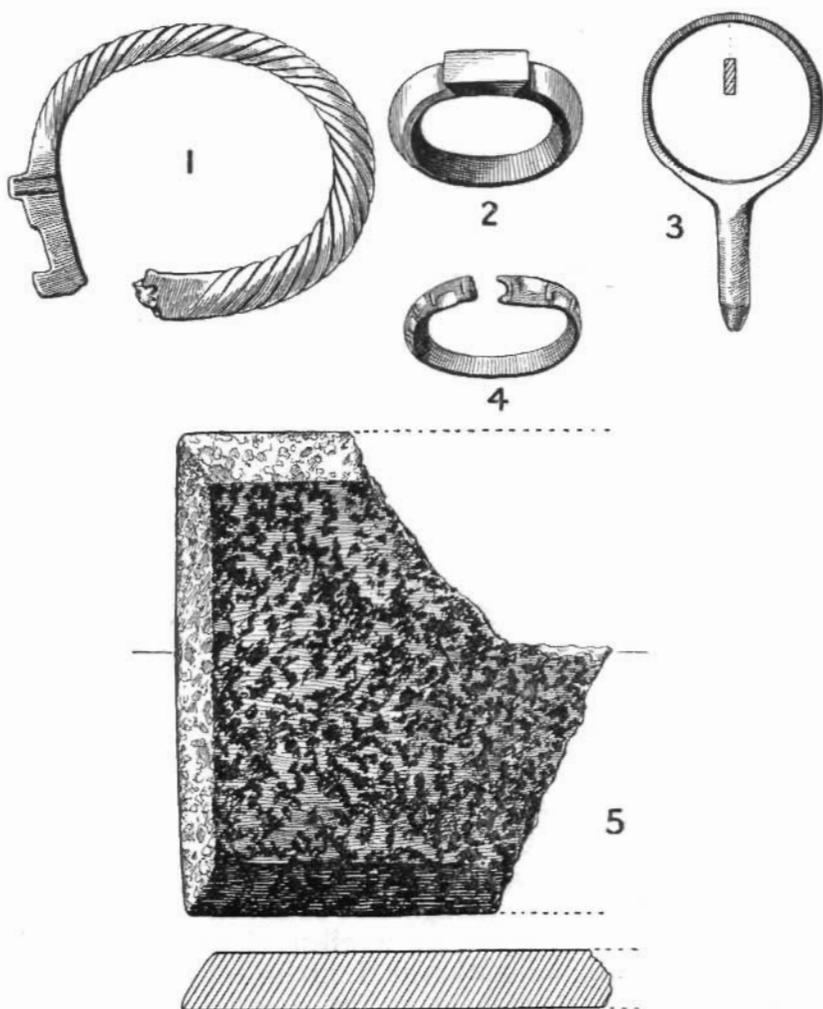


FIG. 2. OBJECTS FROM THE GOLDSBOROUGH SIGNAL-STATION:
 1, bronze bracelet ; 2 and 3, jet rings ; 4, bronze ring ;
 5, stone palette. (1)

(4) Several cores or 'chucks' from the manufacture of jet rings or bracelets.

(5) Three iron knives, and many nails and hooks of the same metal.

(6) Fragments of glass vessels.

(7) Spindle-whorls of pottery, and one (unfinished) of stone.

(8) Deer-horn ferrule.

(9) Stone palette, of normal Roman type, used for grinding and mixing drugs, toilet-preparations, etc. The material, as Dr. H. D. Thomas, of the Geological Survey, kindly reports, is 'of an igneous rock composed of white felspar and dark greenish hornblende, and is a diorite. Similar rocks occur in England and Scotland. From its size, the palette might quite well be made from a drifted block or small boulder from Scotland or Scandinavia. It is not unlike certain diorites that occur near Nuneaton, but a "drift" origin is, I think, most likely, considering its Yorkshire provenance. At any rate, there is no similar mass in Yorkshire, but there are probably many pebbles of such material drifted from Scotland and Scandinavia' (Fig. 2, 5).

(10) Coins—see list by Dr. Craster (below, p. 214).

The litter of the floor showed on what the occupants had fed. Besides bread, they ate the flesh of swine (apparently their most common animal-food), oxen, goats and deer, small birds, hares and rabbits, fish (and often large fish), as well as crabs, mussels, limpets, whelks and periwinkles.

The life of the Station would seem to have been short (approximately 370-395 A.D.), and there were many indications that its end had been sudden and violent. If conjecture be necessary, it would appear likely that the destruction was wrought by intruding Angles, whose numbers and the swiftness of their attack enabled them to overwhelm the garrison. Usually these marauders arrived when they were least expected—often, no doubt, at dead of night, or in the din of storm, or perhaps during a 'fret,' one of those

thick mists from the sea which are so prevalent in the area. The completeness of the destruction, when it did come, seems to us to be shown by the position and the excellent condition of the skeletons found in the south-east corner of the tower. The covering necessary for their preservation would be most simply provided by the early and entire collapse of the structure. If, as is generally agreed, the Great Wall had already been abandoned, the fall of the signal-stations would leave Northern England open on every side—to Pict and Scot, and Jute, Saxon and Angle. The end of Roman Britain was at hand.

APPENDIX I.

LIST OF COINS FOUND AT GOLDSBOROUGH

BY H. H. E. CRASTER

(Note: All the coins are of bronze except Nos. 17 and 18).

1. Hadrian, A.D. 117-138, worn *sestertius*; *obv.* head right; *rev.* female figure standing to left, holding ? in right hand and cornucopiae in left.

2. Helena, minted A.D. 335-7; *Fl. Jul. HELENÆ AVG*, diademed head right; *rev. Pax PUBLICA*, Pax standing to left, holding olive branch in right hand and sceptre in left. Mint-mark TRS. Minted at Trier. Cohen 4.

3. Valentinian I, A.D. 364-375, D N VALENTINIANVS P F AVG, diademed bust right; *rev. GLORIA ROMANORVM*, Emperor standing facing, head turned to left, placing right hand on head of a captive and holding labarum in left. Mint-mark O|FI Lyons mint. Cohen 12.

LVGS

4. Valens, A.D. 364-378, type as no. 3. Mint-mark illegible.

5. Valens, D N VALENS P F AVG, diademed bust right, *rev. SECVRITAS REIPVBLICAE*, Winged Victory advancing left, holding wreath in right hand and palm branch in left. Mint-mark OF|I Lyons mint. Cohen 47.

LVGPD

6. Valens, as no. 5. Mint-mark PCON. Arles mint.

7. Valens, as no. 5. Mint-mark SCON. Arles mint.

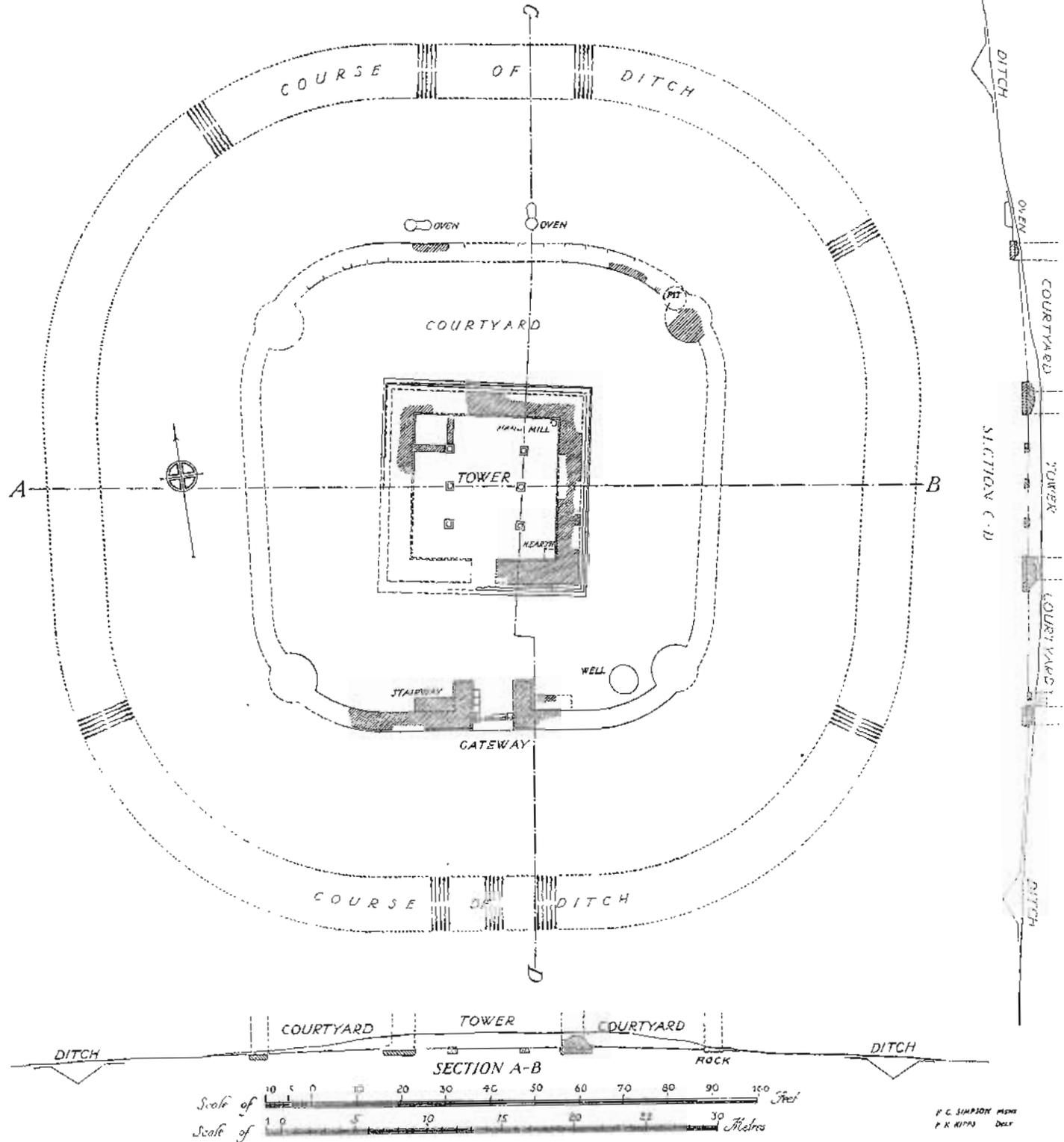
8. Valens, as no. 5. Mint-mark TCON. Arles mint.

9. Valens, as no. 5. Mint-mark TRPV. Trier mint.

10. Valens, as no. 5. Mint-mark illegible.

11. Gratian, A.D. 367-383, D N GRATIANVS P. F. AVG., diademed bust right; *rev. Gloria Romanorum*. Mint-mark illegible.

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12. Gratian, D N GRATIANUS *augg. aug.*, diademed bust right; *rev. Gloria novi saeculi*, Emperor standing, holding labarum in right hand and leaning left on shield. Arles mint. Cohen 13.

13. Gratian, duplicate of no. 11 ?

14. Theodosius, A.D. 379-395, D N THEODOSIVS P F AVG, diademed bust right; *rev. SALVS REIPUBLICAE*, Winged Victory advancing left, holding trophy in right hand and dragging a captive with left; P in field. Cohen 30.

15. Theodosius, as no. 14. Mint-mark RQ. Rome mint.

16. Arcadius, A.D. 383-408, D N ARCADIUS *p. f. aug.*, bust right; *rev.* indecipherable.

17. Eugenius, A.D. 392-394, D N EVGENIVS P F AVG, diademed bust right; *rev. VIRTVS ROMANORVM*, Roma helmeted seated left on cuirass, holding globe surmounted by Victory in right hand and spear in left. Mint-mark TRPS. Trier mint. Cohen 14 (with wrong legend). A silver coin (*siliqua*) in good condition.

18. Honorius, A.D. 392-423, D N HONORIVS P F AVG, diademed bust right; *rev. virtus Romanorum*. Mint-mark MOPS. Cohen 59. A silver coin (*siliqua*), the latest in date of the series found on this site: it cannot be earlier than A.D. 394, but is not likely to be much later.

19, 20, 21. Indecipherable 'third brass.'

The coins suggest that occupation was limited to the last thirty years of the fourth century, since the occurrence of a stray coin of Hadrian cannot in itself be taken as evidence of early occupation. The two copper coins of Theodosius with *Salus Reipublicae* reverse and the silver coins of Eugenius and Honorius all probably fall within the years 392-395 and require an occupation extending to at least A.D. 394. The last two are specially interesting, for I know of no undoubted case of a Eugenius or a Honorius coin being found on the Roman Wall, and they seem, therefore, to indicate that the occupation of this site extended beyond the period when the Wall was garrisoned. The Goldsborough series is very similar to that from Huntcliff, but points more definitely to late occupation. It is interesting to compare the two series.

	Goldsborough.	Huntcliff.
Hadrian	1	—
House of Constantine	1	1
Constantius II	—	1
Valentinian I	1	6
Valens	7	6
Gratian	3	8
Valentinian II	—	1
Theodosius	2	1
Arcadius	1	1
Eugenius	1	—
Honorius	1	—

APPENDIX II

HUMAN REMAINS

BY SIR ARTHUR KEITH

(1) *Found in the south-east corner of the tower.*

The skeletons, which are in a remarkably good state of preservation—no doubt due to the qualities of the soil in which they were embedded—are those of men of short stature.

In no. 1 (no. 4, 1471, Royal College of Surgeons Museum) the oblique or standing height of the thigh bone is 389 mm.—giving a stature of a little over five feet—1545 mm. or 5 ft. 0.8 in. The skeleton is that of a thick-set, remarkably strong fellow, judging from the muscular markings of his bones.

No. 2 (no. 4, 1472) has a corresponding thigh length of 431 mm.—giving an estimated stature of 5 ft. 3.8 ins. (1622 mm.). He is not so short and stumpy as no. 1—and has more slender limb bones—being less sturdily built.

Although the story connected with no. 1 is the more interesting, I find it more convenient to take no. 2 first, because he is representative of the people found in Roman graves during the period of the Roman occupation of England. He has the upright square forehead, the long, low, rather flattened skull-roof, the head being wide in comparison with the height of the vault. The actual dimensions are: maximum length, 193 mm.; maximum width, 147 mm.; cephalic index, 76.6—falling in the intermediate class between long and round headed. The forehead is of good width, its minimum diameter being 97 mm. The face is also strongly built and characteristic. Its total length 121 mm., its maximum (bizygomatic) width 132 mm., the nose is narrow and of medium length and prominence: the width of the nasal aperture is 23 mm.; the nasal height 51 mm. The upper face length 67 mm. The jaws are strong and regularly formed, the width of the palate—measured between the outer borders of the second molar teeth—being 61 mm. The palate is also long, 51 mm., the measurement being taken from a point between the sockets of the two middle upper incisors to a line joining the posterior borders of the last molars. The face had a rather square appearance in life—the jowls or angles of the lower jaw being 99 mm. apart. The teeth were all in a good state of preservation; there were two spots of caries—otherwise the teeth were free from disease and were worn on the chewing surfaces until the enamel was worn away from the surface of the crown of the first molars, showing the effects of the rougher—more gritty—food of the period. From the condition of his teeth and the fact that the sutures of his skull were open or easily traced—only the sagittal was closing—I estimate him to have been a man between 30–40 years of age—probably nearer 40 than 30. There

was no trace of wound or injury in his skeleton. His cranial capacity, or brain size, was 1477 c.c., as near the average for modern Englishmen as can be got.

The skull of no. 1 man, the short, sturdy fellow, was received in a number of fragments. When these were fitted together it was seen that just at or immediately after death—the fresh texture of the cut and broken surfaces make us certain of the time—he received across the top of the head a series of blows with the cutting edge of a weapon such as a sword, several being ineffective, but one which cleft through the whole thickness of the vault. A twist of the swordsman's wrist has wrenched out a considerable fragment from the upper occipital part of the skull behind the line of cleavage. The skull has also been crushed in by a heavy blow—such as might be delivered by a massive stone thrown against the left temple when the man lay prostrate on his right side. This crushing blow was also given at or just after death, for the texture of the fractured surface is that seen only when a fresh skull is broken. There are also three punctured wounds on the left side of the skull produced by pointed weapons—such as the point of a sword or a spear. That the short sturdy man died a violent death there can be no reasonable doubt.

When reconstructed, the skull of this man is clearly asymmetrical—but the distortion is, without doubt, due to the earth pressure. The measurements are not very trustworthy—but the head was certainly long and narrow—its maximum length being 197 mm., its maximum width 138 mm., its cephalic index 70.1—long and narrow headed. In age he was about the same as the other man—probably a little older. His teeth were also worn flat, so that the dentine was exposed on their chewing surface; one tooth—the first upper molar of the left side—had been lost in life, but all the others were present and free from disease. The auricular height of the vault was 114 mm.—a medium amount, and his cranial capacity was 1447 c.c.—slightly under the average for modern Englishmen. His jaws and the conformation of his face were exactly as in the skull just described and there is no doubt he was of the same race—the kind of men usually found in Roman tombs in Britain. His face was rather longer, stronger and more square in form than that of the other man, its total length being 124 mm., width (bizygomatic) 134 mm. He was wide-jawed—the distance between the angles of the lower jaw being 109 mm.

The most reasonable interpretation, so it seems to me, is to regard the skeletons thus found as those of Romano-Britons defending the fort.

(2) *Found in the well.*

No. 1. (no. 4, 1473, R.C.S. Museum). Part of the roof of a skull of an old man.

It shows all the marks of extreme old age, obliteration of sutures, thickening of the bones with new deposit on their inner surface. The sides and base of the skull are missing—absent. But a lower

jaw I believe belongs to this individual. The part of the roof preserved has been broken into fragments and mended. Just in front of the Bregma—where a break has been mended—there is a hole, a perforation which may have been made by a dagger, but there is no smooth-cut edge to denote the use of a sharp metal weapon.

This old man has the characteristic forehead of the people found in Roman stone coffins in England—wide, low, vertical forehead with horizontal constriction or furrow separating the upper forehead from the lower part of the forehead. The minimal width of the forehead is 104 mm.; its supraorbital width only 109 mm.—the maximal frontal width 129 mm. The total length of this skull I estimate to have been 183 mm., its width 143 mm.—cephalic index 78.1. The roof was low, wide and flat. No doubt this is a typical specimen of the Romano-British individual, but from evidence gathered in the South I am now suspicious that this type of man was in England before the Romans came. The jaw (no. 4, 1474) with the old man, shows a strong, wide face—the width at the jowls, from one angle of the jaw to the other, being 106 mm. The chin is narrow and pointed.

No. 2. (no. 4, 1475). There is also the lower jaw of a woman—with narrow, pointed, very prominent chin. It is delicately moulded, indicating a woman with handsome features. The teeth are but slightly worn—the first molar on left side shows a great carious cavity. No teeth had been lost before death. Age probably under 30 years.

No. 3. (no. 4, 1476). Roof of skull and upper jaw of a man—aged over 50.

The sutures on the roof of the skull are closed and obliterated, except at lower parts of lamboidal section. The skull is of great length, 203 mm., and of rather more than average width, 144 mm., the cephalic index is 70.9—a very long head of good width. The height of the vault above the ear holes (in the Frankfort $\frac{1}{4}$ -plane) is 115 mm. The upper jaw is remarkably large and robust. The face must have been massive: the palate is well shaped, 65 mm. wide between the outer surfaces of the second molars. The length of the palate—as I measure it—is 50 mm. The forehead at its narrowest is 104 mm. wide; its supraorbital width much greater—114 mm.—an index of the robust muscular development of the man.

Is this man of the same race as the two soldiers? In spite of the length and narrowness of the head, I think he is—and of the same race as the man described under no. 4, 1473. The skull just described was badly broken, but I could detect no evidence of injury before, at, or just after death. The fragmentation is the result of earth pressure, I think.

(No. 4, 1477). Fragment of skull from the north-west corner of the tower, near the socket-stone. It represents the front part of the skull; the fragment seems to have been broken off long after

burial—when the bone was decayed. The frontal bone is that of the flat-roofed Romano-British type of skull. It is that of a man.

In determining the history of the people who came to be buried in the Signal-Station, we must remember that there are remains of a woman as well as of men. All the men—with perhaps the exception of the very short man (no. 4, 1471)—are distinctly of the flat-topped Romano-British type. The skull of the little man, however, is higher than usual and more of the type we find in the western side of England during Roman times. It will be remembered that it was the little man who had been so battered at or just after death.