



Photo: A. Whitehead.

General view of the kiln along the stokehole; fallen roof partly removed from firing floor.



Photo: S. Buck.

The firing chamber; fallen roof removed revealing end wall of brick and remains of corbelling. A tegula waster in the corner is suspended by tree roots.

ART. I.—*Excavation in Eskdale, the Muncaster Roman kilns.* By R. L. BELLHOUSE, B.Sc.

Read at Kendal, April 21st, 1960.

THE Roman kilns in Eskdale in the shadow of Muncaster Fell (131986) have hitherto been known as the Park House Tilery or kiln-site, but this name is misleading since the once nearby farm of Park House has disappeared and its position is shown only on early "county" maps;¹ I propose therefore to refer to the site simply as the Muncaster Roman kilns. Readers are referred to Professor Birley's paper "The Roman fort at Ravenglass" (CW2 lviii), especially the sketch map facing p. 17 and the Appendix (b), p. 30.

Most of the information we have about this site derives ultimately from the researches of the late Miss Fair, but the original discovery was apparently in 1884 and it is recorded in CW1 viii 67 (Excursion of 25 September): "Shortly after crossing the bridge over the Esk, the conveyances were met by a messenger from Muncaster Castle who brought specimens of Roman tiles taken from the recently discovered Roman tile-kiln, to visit which was the next object of the excursion. Under the guidance of Mr Ross, Lord Muncaster's agent, the party followed the new road which Lord Muncaster is cutting to join the bridge at the Forge: while this was being done, the kiln was discovered. It is between 3 and 4 ft. high, and the semi-circular front has a radius of about 4 ft. The apertures of two flues remain, and the arched entrance to the main flue can be distinctly traced, though a portion

¹ For example, a map in my possession dated 26 March 1805 and published by John Stockdale clearly marks Park House. Mr C. W. Phillips tells me that no trace can be found of Park House on either the 1-inch 1st edition (1865), or the 25-inch 2nd edition (1899) (1st edition not available), or the 6-inch 1st edition (1867).

of it was destroyed when the kiln was uncovered. The tiles found here are roof and floor tiles. They are burnt red, if anything rather soft, and about an inch and a quarter to an inch and a half thick: most of them are broken, but the fragments would indicate that the tiles have been originally about 6 in. square. They all bear on their surface the diamond groove pattern, found on the tiles at Walls Castle."

The exact situation of this kiln is not known; the Ordnance Survey sheet has a symbol near the field wall a little to the south of the positions of other known kilns and presumably it owes its presence on the sheet to a report of the 1884 discovery. Nothing can be made out on the ground.

The following extracts, which I owe to Professor Birley, add something to the picture:

(a) JRS xii 245 (Miss Fair on Hardnott pottery finds, 1923): "coarse pottery of the 2nd century, *some of local manufacture.*"

(b) CW2 xxiv 366 (April 1924, R.G.C. exhibited): "pottery of the Trajanic period found by Miss M. C. Fair at the Roman 'tilery,' Muncaster, which seems by this find to have been also a factory of potter's wares."

(c) CW2 xxv 374 f. (April 1925, Miss Fair on Ravenglass finds): "a number of coarse grey-washed fragments of ware as made at Park House pottery (the Muncaster Roman kiln); a fragment of very hard silver-grey ware, like Wedgwood (similar ware found at Park House pottery); rim of a pie-dish, as made in numbers at Park House. (From north of the fort;) shattered slates, bricks, floor *tesserae*, *tegulae* scored to hold plaster, box-flue tiles and heavy floor-tiles, all as made at Park House."

(d) JRS xxxvii (1946, Miss Fair reports): "three of these kilns forming a plant planned like a shamrock with stokehole and flue in the stalk. They were fully loaded with box-tiles, roof- and floor-tiles, and fire bricks, and had been deserted after being partly fired."

(e) CW2 xlvi 219 (1946, Miss Fair): "At the Park House (131986) kiln site, near Ravenglass, it has been possible to examine what seems to have been a potter's workshed or perhaps the supervisor's house; it had a floor of tiles and walls of timber and wattle and daub, and had finally been destroyed by fire;

the finds² included sherds dried and hardened but not kiln-fired. It is known that at least three kilns have been found and destroyed at this site; their products included floor-tiles and bricks, flue-tiles, *tegulae* and *imbrices*, box-tiles, fire-bricks and pottery."

(f) R. G. Collingwood, "Roman Eskdale." Part of the section dealing with the kiln site is worth quoting for reasons which will appear later:

"Recently Miss Fair has examined the site and partially re-excavated it, and what follows is the result of her investigations.

"There seem to have been at least two kilns, besides a pit which may have been the source from which the Romans got their clay, and a mound which may be the ruins of the house in which they lived. The northernmost kiln is visible as an underground chamber whose roof is at ground level and is pierced by a hole through which the interior of the chamber can be seen. This chamber is built partly of local granite, covered with cement, and partly of good Roman tiles. Its roof is supported by square pillars of Roman tiles, like the pillars supporting the floor of a Roman house heated with hypocausts. These pillars can be seen through the hole in the roof, and so can the end of a flue entering the chamber at one side.

"The second kiln, south-east of the first, has been examined by Miss Fair and found to consist of substantial brickwork made of tiles about half an inch thick. In the middle was a chamber whose roof was supported on brick pillars, and under this a second chamber with brick pillars exactly underneath those of the upper chamber. The lower chamber was no doubt the furnace; the upper must have been the firing-chamber, in this case a permanent structure, not a mere temporary dome of clay."

Apart from the published material we are fortunate in being able to study Miss Fair's papers now stored in Tullie House; they yield supplementary information of the greatest interest, especially her notebooks for 1922-23 which contain diagrams, notes and photographs of two structures at the kiln site. She must have visited the site many times before the excavations of 1922-23, for she records the finding of a tegula with a graffito there in 1917.

² Among Miss Fair's miscellany in Tullie House, received in 1955, there is a tin box labelled "From potters' house Park House Muncaster." Inside are seven conjoined pieces of a pot-base. The fabric is pinkish-buff, very gritty and grey to outside. There is also one piece of reddish gritty ware marked kiln 1.

In another place we find a note: "Park House pottery. Tile with graffito in Tullie House Mr R. G. Collingwood Feb 23rd 1921 suggests possibility AMANDUS HOC FECIT."

Miss Fair brought Amandus to life in a MS. titled "Amandus the Potter" and used him to introduce a description of the tilery obviously based on her work there. The MS. is among her papers; I do not know if it was ever accepted for publication, but its existence suggests an explanation for the absence of a number of photographs from her note-books, perhaps they were torn out to serve as illustrations.

The first reference to the site in her notebook is a rough sketch plan dated 9 November 1922, the next consists of several pages of notes and photographs dated December 1922 with the heading "Amandus' Tile Kiln — Park House." Some photographs are missing. I have numbered them in sequence and the notes accompanying them are as follows:

- No. 1. Mound over kiln. Hollow. Iter X. 9 ft. wide.
- No. 2. (Missing) Mound. Entrance broken into firing-chamber of kiln. Iter X. 9 ft. wide. Hollow. Mound.
- No. 3. Entrance to firing-chamber. Iter X. Hollow.
- No. 4. Entrance to firing-chamber. Flue from stoke-hole.³
- No. 5. (Missing) Firing-chamber kiln A.
- No. 6. (Missing) Roman brick masonry. The flue kiln A. Granite and cement masonry. [Not cement, fused clay luting. R.L.B.]
- No. 7. Medieval bracken-burning kiln built into mound adjoining kiln.
- No. 8. Bracken-kiln showing masonry. Or lime-kiln?⁴

To this list of photographs I add one found loose among other papers which I will call no. 9. It is noted: Kiln A after excavation. Left, firing-chamber, right, flue.

³ Iter X is the track passing close to the kiln, it cannot be Roman. See CW2 xlix 27, "The Roman road from Ambleside to Ravenglass" by I. A. Richmond.

⁴ Bracken burning, Miss Fair records in another place: "100 years ago (R.D.) brackens were burned for soap — 1 peck of ashes a good day's work." R.D.=Robert Dixon. Miss Fair records his death in 1911 aged 85. Perhaps the Robert Dixon in the Hardknot excavations, CW1 xiii 450.

Further on in the same book are more notes and photographs under the dates 3 February and 3 and 4 April 1293. Continuing my catalogue, the photographs now have longer notes round them:

- No. 10. The mound covering foundations of buildings in Park House Gt. Meadow. (This is spot marked "Site of Roman Tile Kiln" in 6-inch O.S. map.) The foundations may be those of Roman buildings or medieval tenement.
- No. 11. Kiln B. Flue of tile and granite masonry. This kiln is more battered than kiln A at the other side of Private Drive.
- No. 12. (Missing) Hole broken into ? firing-chamber of kiln A by ? animals or action of weather. Broken line indicates direction of flues from stokehole.
- No. 13. Sounding per trench for stokehole from firing-chamber at 1. 16½ ft. from aperture of flue to point — where dome of kiln ends on large stones of sub-structure. Broken line shows direction taken by flue as linked up with 1.
- No. 14. (Missing) Kiln B facing S.W.
- No. 15. (Missing) Kiln B. sss. Masonry of large granite boulders X. ??? (indeciph.) investigated.
- No. 16. Kilns A and B. A north of drive, B south of drive.
- No. 17. Opening out flue 1 (kiln B).
- No. 18. (Missing) Flue 1.
- No. 19. (Missing) Flue 1. Pedestal of firebricks. Flue 2.
- No. 20. (Missing) Flue 1. Rebated fire brickwork dividing flues 1 and 2.

Further notes with the photographs give structural details and indicate that the excavations did not extend beyond 4 April: "Excavations thoroughly filled in 4/4/23 M.C.F. & E.P.E.H."

So much for the books and photographs; one other quotation will suffice, it comes from another of her MSS. entitled "SURVEY. SOUTH-WEST CUMBERLAND." Under Park House the following appears: "Muncaster. Roman pottery and brick-kilns. Trial excavation 1922-23. Fine kiln destroyed by brick thieves 1946." At this stage I will do no more than suggest that some of the information quoted should be treated with reserve, and pass on

to the next section which is the report of the excavations now concluded, at least for this season.

I became interested in the kiln site in 1957 through our member Mr W. Fletcher, who was informed by Mr I. McWilliam, agent to the Muncaster Estate, that timber operations in the woods around it were disturbing the soil and gouging up Roman brick and tile. Mr Fletcher found granite and clay masonry in a rabbit scrape and rightly concluded that he had found a Roman kiln. I went to the place in August and confirmed his discovery, having already discussed the question of excavation with Mr McWilliam. The following October, with his permission, a dig was arranged in which Mr Fletcher in charge of a party of Pelham House boys, members of the Seascale Group, and others took part.

The site was quickly cleared of overgrowth and soil was removed from the slope below the kiln. After four days' work under very trying weather conditions we had revealed the principal features of the structure; it had been built into the hillside and it may be conveniently described in two parts, first, a long tunnel-like stokehole built of rough granite blocks set in red clay, part of which had collapsed in antiquity, leading into a second structure, the furnace proper and the firing floor. It was by now clear that the preliminary examination in August, which was essentially the enlargement of Mr Fletcher's rabbit scrape, had led us through a hole in the firing floor at a point where the stokehole joined the kiln. This hole had no special significance at that time; through it we were able to see the granite pillars and brick corbelling supporting the firing floor. We could not determine how far the furnace penetrated the hillside, but the firing-floor was seen to be built between two parallel walls of granite blocks running into the hill, and the space between them over the floor was filled with a mass of broken brick and tile.

As our first objective had been achieved the holes were

carefully timbered over and turfed against the time when further work could be arranged. Despite a careful watch only a few small potsherds were found, all in the stoke-hole area.

The next investigation had to be delayed nearly two years, but, as it turned out, when work resumed in August 1959 weather conditions were ideal. The removal of the protecting turf and timber revealed everything just as we had left it. Our task this time was to examine and plan the construction of the kiln and to date it if possible. Attention was first concentrated on the jumble of brick and tile in the remains of the firing-chamber; all this had to be removed in order to expose the walls and the firing-floor.

The axis of the kiln being roughly north to south, the west wall at the entrance survived to a height of 2 ft. 6 in. above the firing-floor where it showed the beginnings of courses of brick and tile. The east wall was ruinous, the greater part having long ago fallen outwards, while towards the back of the chamber its surviving part leaned inwards. The back wall above the level of the firing-floor was of coursed brick partly smeared with clay; below the floor, in the furnace, it was the same build as the granite side walls. Where the back wall joined the west wall we observed the beginnings of corbelling, obviously for the roof.

The firing-floor was cleaned and three vents $2\frac{1}{2}$ in. in diameter were found in it leading from the furnace below. Other vents existed at one time, the circular openings could be felt at the apices of the supporting arches of the firing-floor. The floor itself was a smooth level surface of powdered brick and clay readily distinguishable from the jumbled mass of broken brick and tile lying on it which must certainly be collapsed roof. There was no evidence whatsoever that any wares, fired or unfired, remained in the kiln to be covered by the roof when it fell in.

The mode of construction of the kiln was now clear to us; the workmen had made a cut into the hillside and exposed, either by design or accident, a very convenient rock platform on which they had erected three sides of a square using granite blocks and clay. The open side of the square faced south and within it piers of granite and clay were made, from whose tops corbelling of heavy tile formed the base of the firing-floor. At the open side of the square a fourth wall of very substantial brickwork pierced by a single central entrance supported the firing-floor and completed the square. Mr Harry Stout's excellent plans make everything clear.

The stokehole must have been made last; it was a simply constructed tunnel of granite and clay in line with the hole in the brick fourth wall. A space about a foot wide between this wall and the tunnel end was bridged by tiles in order to extend the level of the firing-floor over the stokehole for access to the firing-chamber. A number of *tegulae* wasters lying on top of the stokehole arch at this point indicate that the last charge was probably in large part *tegulae* and that fired ware had been taken from the kiln before it fell into disuse. The greater part of the stokehole roof had long since collapsed and the remaining 4 ft. of arch was decidedly unsafe; this was carefully dismantled and removed together with the fallen masonry. On the floor of the stokehole along its length we found a line of *imbrices*; they started from a gap in the corner of a box-like arrangement of four heavy tiles enclosing a space 17 by 19 in.; the first four were inverted and covered by a mass of burnt clay and broken tile in which we found parts of several cooking-pots. The next three were the other way up and led right into the centre of the furnace where they rested in a trough cut into the solid rock floor, and were protected above by two heavy tiles 18 in. square.⁵ The purpose of this

⁵ The last *imbrex*, a fine specimen, was taken out and is now part of the Roman roofing exhibit in Tullie House.



Photo: R. L. B.

The cross wall of tile and clay with central aperture; stokehole to left, firing floor top right. The left half of the photograph is approximately the full extent of Miss Fair's excavation.



Photo: S. Buck

The tile "box" and the line of *imbrices* along the floor of the stokehole. The tile forming the fourth side, nearest camera, has been taken out. The protecting tile at the end of the stokehole can be seen at the top of the photograph.

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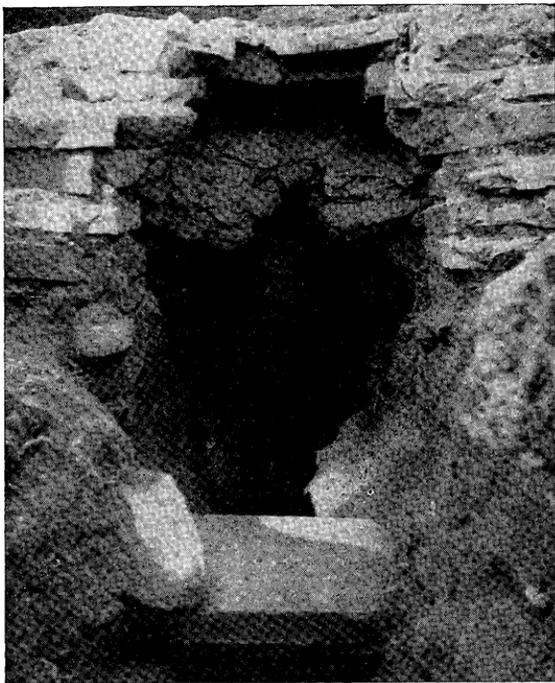


Photo: S. Buck

The entrance to the combustion chamber. The granite piers supporting the firing floor are seen in the centre; the tile in the foreground is one of two protecting the line of *imbrices* along the stokehole.

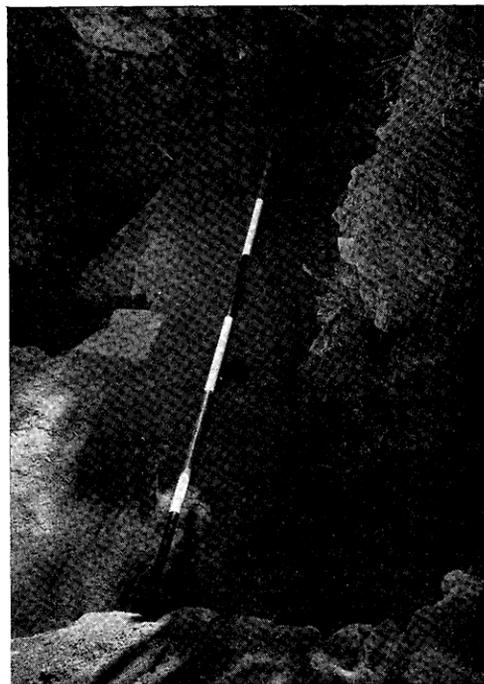


Photo: R. L. B.

The firing floor from above, showing vents.

arrangement must have been to regulate an extra air supply, not to the actual fire, but beyond it to the firing-chamber itself so that the ware would be fully oxidised and of an even colour during the final stage of firing. A similar box beyond the first and at a lower level was a surprise which must await further work at the threshold of the kiln for its full explanation.

The wares made in the kiln as evidenced by the numerous pieces lying around it comprise those already listed, i.e. standard building materials; to this list I add a rebated *voussoir*. Apart from the sherds from the stokehole area not one solitary fragment of pottery was discovered; from this I am forced to conclude that this kiln was not used for the firing of pottery, for, if it was, there would surely be many "wasters" about it.

Now, to return to Miss Fair's notes, it can be proved beyond all doubt that the kiln is the one she called "kiln A"; two of her photographs in particular provide the evidence, no. 9 shows brickwork which is the right-hand corner of the entrance to the furnace beyond the end of the stokehole. Although her identification of the two apertures is wrong, we can see that her excavation went through a hole in the firing-floor, and that we also went in the same way. We can therefore peer into the same hole as she did and verify the accuracy of her description as quoted by R. G. Collingwood (f) above. (The northernmost kiln.)

Photograph no. 16 shows the relative positions of kilns A and B; taken from the east it shows a number of trees which may still be positively identified, and by standing on the site in such a position that the surviving trees appear in relation to each other as they do on the photograph, we may confirm the site of kiln A and be sure that kiln B is the still visible mound with brick and tile in it. For the sake of accuracy it should be noted that Miss Fair's letter A should be half an inch to the right and quarter of an inch down on the photograph.

Kiln B is thus Collingwood's "second kiln, south-east of the first . . .," (f) above.

Miss Fair's material indicates that her excavations were on a very small scale and it would be quite improper to criticize her deductions as to structure and function of the features she revealed. One thing is clear, the complete excavation of kiln B will be well worthwhile, as it was with kiln A; it might throw light on the question of the manufacture of pottery at this place. Careful study of the photographs also proves that neither kiln has been disturbed to an extent which would indicate activity by "brick thieves," likewise her note in CW₂ (e) above "at least three kilns have been found and destroyed at this site . . ." is difficult to understand. The 1884 discovery could in fact be kiln A for the published description exactly describes what Miss Fair found and what we found when the hole in the firing-floor was cleared of earth and debris — "The apertures of two flues remain, and the arched entrance to the main flue can be distinctly traced, though *a portion of it was destroyed* when the kiln was uncovered." (My italics.)

In the same extract (e) the description of a potter's shed or house is as tantalising as the earlier extract from JRS (d) and for the same reason; where is the "sham-rock" kiln, fully stocked and abandoned? Perhaps this was the kiln destroyed by "brick-thieves." I appeal to any members of this Society, or anyone else, who knew Miss Fair and might be able to throw light on this important matter, to send me any information they may have.⁶

However, considering extract (d) further in its context, it occurs towards the end of a report of Professor Richmond's road survey to west of Hardknot when he was accompanied by Miss Fair. No doubt the relation

⁶ At the meeting of the Society at which this paper was read I asked Mr and Mrs Hodges if they could help me. They told me that Miss Fair had indeed described the potters' shed and the ruined kiln and had said many times that she would take them there. Unfortunately the promised visit was never made.

of the kilns to the Roman road was thoroughly discussed, and it may well be that a chance remark suggesting that the structures were in three sections was unfortunately accepted as fact. We have a strong hint in Miss Fair's notes that this was her interpretation of kiln A.

The pit mentioned by Collingwood, extract (f), as being a possible source of clay is shown on a sketch plan found loose among other papers. Miss Fair's notes on the plan are as follows:

"Clay Pit. *Dug.* Worked clay, whitish and also yellowish clay found, neither native to site. Local clay pinkish." I have demonstrated that pink clay can be found here; white clay (kaolin) occurs naturally with red impurities (haematite) in the joints of the granite rock in situations where it cannot be removed by weathering agents. When the clay is worked it takes on a bright rose-pink hue.⁷ Suitable clay may be found almost anywhere in the alluvial plain to south of the kilns; it is reddish in colour and must have been used in quantity, both for ware and for kiln construction. Unrefined clay used as luting and fused by the heat of the furnace contains coarse grains of quartz and felspar indicating either derivation from, or proximity to, granite, thus a local source.

Every fragment of brick and tile was eagerly examined for a legionary stamp, but I have to report that not one of the pieces brought to me for examination by enthusiastic searchers bore any mark even faintly resembling a stamp.⁸

I will conclude this paper with a summary of the established facts about the kiln site:

⁷ I took samples of white clay from a joint in the granite below the floor of the kiln, washed out the mineral grains, and worked it up into a fine pink paste. After firing in the kitchen stove it could not be distinguished, either in texture or colour, from fired ware from the site.

⁸ Readers will find a very interesting account of the pottery industry in Roman Britain by I. A. Richmond (*The Pelican History of England*) p. 163 on. There are also some very good photographs of true potters' kilns in JRS *xlvi* (1958) plate xix, and *xlix* (1959) plate ix. These kilns are quite unlike our kiln A, but it is quite easy to see how three of them, close together, could be served from a common stoke-hole, as indeed two of them (plate xix, 5: Stibbington) are so served.

- (1) *A kiln was found in 1884. Its exact situation and its subsequent fate are not known.*
- (2) *Miss Fair visited the site a number of times, and carried out trial excavations in 1922 and 1923 when she identified two structures as kilns. She called them A and B.*
- (3) *The full extent of kiln A has been examined, and kiln B is still visible nearby.*
- (4) *There is no evidence that kiln A was used for the firing of pottery.*
- (5) *Miss Fair's pictorial record shows that neither kiln has been disturbed since her examination in 1922-23.*
- (6) *The position of the "potters' shed" described in CW2 xlvi 219 is not known.*
- (7) *There is no sign anywhere of debris which would suggest the destruction of a "fine kiln" as late as 1946.*

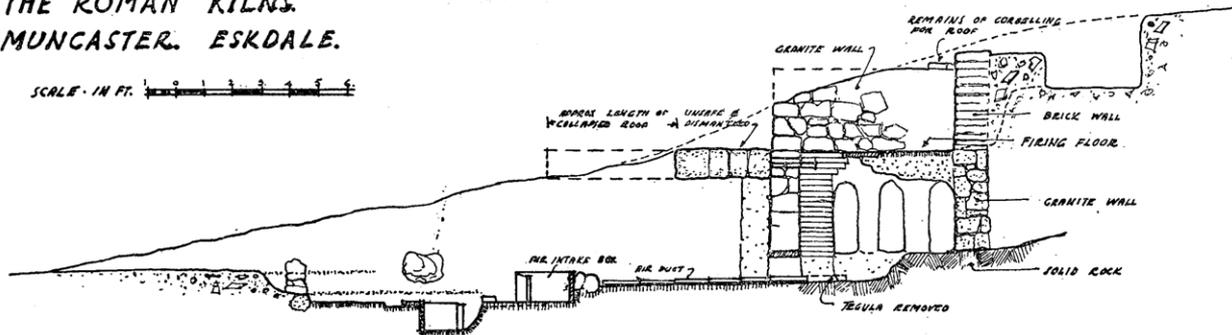
ACKNOWLEDGEMENTS.

I wish to thank members and officers of the Seascale Group for their great help in this excavation, particularly Mr Fletcher and the Pelham House boys; Mr Buck and Mr Mossop for their excellent photographic record; Mr Harry Stout for surveying and planning the kiln, and a skilled party from Manchester under the direction of Mr Anthony Whitehead, for their cheerful companionship.

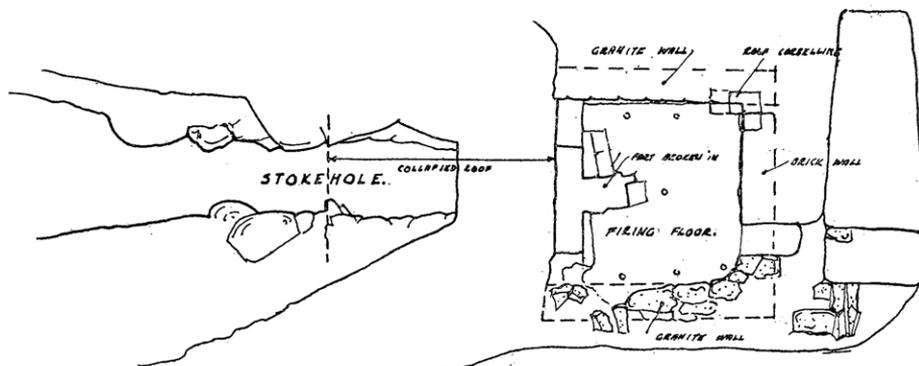
Mr I. McWilliam, agent for the Muncaster estate, readily gave permission for this excavation, and I hope he will allow us to return and examine other parts of this interesting place.

THE ROMAN KILNS.
MUNCASTER. ESKDALE.

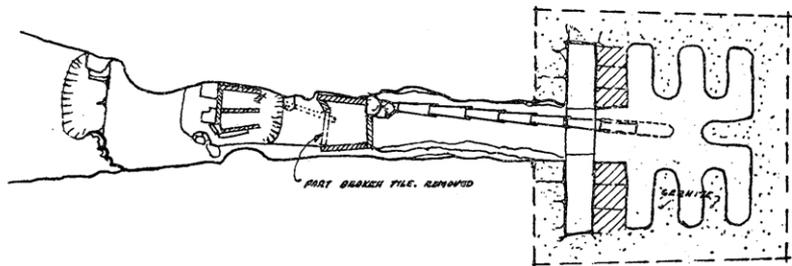
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SECTION.



PLAN AT FIRING FLOOR LEVEL.



PLAN AT FURNACE FLOOR LEVEL.

H.B. STOUR DELT.