

ON THE TRACK OF THE "OLD MEN,"
DARTMOOR.

PART II.

BY ROBERT BURNARD.

(Read 21st March, 1889.)

THE earliest miners on Dartmoor were the tin streamers. Streamstones of tin, consisting of rounded nodules of very pure tin oxide, must from their weight have attracted the attention of man when emerging from the Stone Age into that of the Bronze. As knowledge grew, and the demand for tin increased, he dug down deeper into the earth, forming open shallow pits, or traced the tin in deep open trenches. Later on he commenced to tunnel and sink shafts, and as his skill in devising means for unwatering and ventilating the mine developed, these became longer and deeper.

The earliest smelting furnaces were simple in their construction, but, owing to the purity of the ore, tolerably effective. A few fairly-shaped stones to form the hearth, luted with clay, and a blast from inflated skins or bellows of rude construction, excited sufficient heat in the peat or wood charcoal to reduce the ore to a metallic condition. These small and simple furnaces, put together with no condition of permanency, easily disappeared and made way for a more perfect and durable arrangement.

Pryce states in his *Mineralogia Cornubiensis* that some late discoveries, where the charcoal and metallic dross had been found mixed together, had given him an idea of the early smelting process, which was to dig a hole in the ground, and throw the tin ore on a charcoal fire, which probably was excited by a bellows. It is, however, probable that a race of men who were capable of erecting maenhirs, cromlechs, and kistvaens, would not long be content with such a crude and wasteful arrangement. Dartmoor has thus far yielded no recorded instance of the discovery of such

actual furnace remains of very great antiquity. It would be unsafe to assume that such do not exist, and they may yet be found in or near the hut circles, which occur in such numbers, and in such proximity to ancient stream works.

The production of tin in such a manner and in such small quantities must have made this metal valuable and comparatively scarce. To a certain extent it was employed in early coinage, especially in Gaul, there being only two or three recorded discoveries of such coins in this country. In this shape the metal does not appear to have been current in Devon and Cornwall. The specimens found have nearly all come from Kent, though one has occurred as far west as Dorsetshire. Mr. Evans in his *Ancient British Coins* describes nine, the whole of which have been cast and not struck; and for this purpose it would seem that wooden moulds were frequently used, as the impression of the grain of the wood may be seen upon some of them.

There is a great blank in our knowledge of the progress made in mining matters, and it is only when we come down to mediæval times, and even to a later period than this, that we are able to follow it with any degree of confidence. The Germans were great adepts in the working and management of mines, and there are indications that they were probably employed for the purpose of improving English methods some centuries since. Queen Elizabeth, we know, imported skilled miners from Germany, with the most beneficial results, and it is certain that from this period a great development and improvement in English mining took place.

The Almain or German furnace superseded the older type, whatever that might have been, and remained in actual use down to about a hundred years ago. Pryce writing shortly before 1778 thus describes them :

“The furnace itself for blowing the tin is called the castle, on account of its strength, being of massive stones cramped together with iron to endure the united force of fire and air. This fire is made with charcoal excited by two large bellows, which are worked by a waterwheel, the same as at the iron forges. They are about eight feet long, and two and a half wide at the broadest part. The fireplace, or castle, is about six feet perpendicular, two feet wide in the top each way, and about fourteen inches in the bottom, all made of moorstone and clay, well cemented and cramped together. The pipe or nose of each bellows is fixed ten inches high from the bottom of the castle, in a large piece of

wrought iron called the hearth eye. The tin and charcoal are laid in the castle, *stratum super stratum*, in such quantities as are thought proper; so that from eight to twelve hundredweight of tin, by the consumption of eighteen to twenty-four sixty gallon packs of charcoal, may be smelted in a tide of twelve hours' time. Those bellows are not only useful for igniting the charcoal, but they throw in a steady and powerful air into the castle; which, at the same time that it smelts the tin, forces it out also through a hole in the bottom of the castle, about four inches high, and one inch and a half wide, into a moorstone trough, six feet and a half long [in the original it says six and a half feet high, but this is obviously a misprint] and one foot wide, called the float, whence it is laded into lesser troughs or moulds, each of which contains about three hundred of metal, called slabs, blocks, or pieces of tin, in which size and form it is sold in every market in Europe; and on account of its superior quality is known by the name of Grain tin, which brought a price formerly of seven shillings, that is further advanced, the last two or three years, to ten or twelve shillings per hundred more than mine tin is sold for, because it is smelted from a pure mineral by a charcoal fire; whereas mine tin is usually corrupted with some portion of mundick, and other minerals, and is always smelted with a bituminous fire, which communicates a harsh sulphureous injurious quality to the metal."

Such is a description of the furnace of the stream work blowing-house, in use in Devon and Cornwall one hundred years since, and which was introduced by the Germans into this country over three hundred years ago.

George Agricola, a physician and eminent authority on mining matters, who was born at Glauchen in 1494, wrote several books on metallurgy, and on the working and management of mines. It is interesting to note how very old the bulk of the mining operations as carried on at present are. Our machinery of to-day is improved, and we possess the advantage of steam; but water-power mines are very similar in many respects to those in operation hundreds of years since.

A German edition of Agricola's great work was published at Basel in 1621, and another in Latin at the same place in 1657. Both are profusely illustrated from the same blocks, with spirited and well-executed engravings descriptive of mining and smelting operations.

Some of the impressions are marked with a monogram composed of the letters R.H.M.D. with a dagger, the cypher of Rodolphus Manuel Deutsch, an engraver who flourished about 1548.

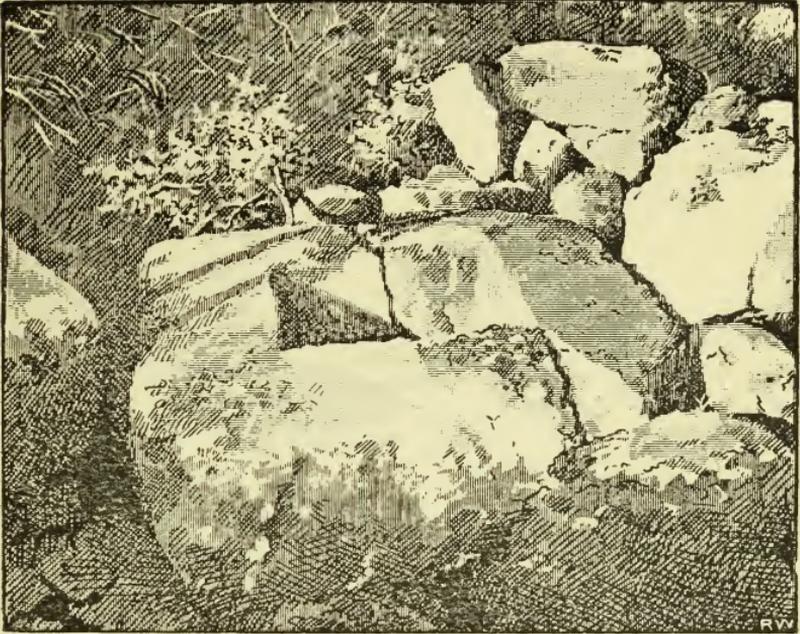
Agricola's work was therefore prepared about three hundred and forty years since.

In the previous paper⁷ a description was given of the ruined blowing-house situated close to Week Ford. This ruin was so choked with debris and overgrown with vegetation that a close investigation was impossible. Having obtained from Mr. Barrington,⁸ the Duchy representative on Dartmoor, the requisite permission, the writer determined to remove the debris with the view of making a careful examination of the interior. Great care was taken that nothing but loose stones were moved, and that the structural portion remained intact. The entrance was first cleared, laying bare the footstone and a grooved stone which partly carried one of the jambs of the door. Inside, another grooved stone forming a further instalment for the same purpose was found. In addition to this, five irregularly shaped stones, the whole of them more or less broken, and with none of the circular or oval shaped cavities perfect, were unearthed. One had five such cavities, another four, another two, and a smaller fragment one. The fifth was found close up toward the south end of the ruin, as if it had been thrown in from the higher ground, which here slopes up toward the south. This stone had three circular cavities on each side, similar to but larger than that which was found in a hedge at Riddipit. Close to the north-west angle lay a large stone having the rounded appearance of a river boulder. It was nearly three and a half feet long, two wide and two deep. On turning it over a perfectly smooth flat face was disclosed, having on its surface three slightly oval shaped cavities, two of which were quite perfect. The diameters of these cavities were respectively ten and a half inches by eight and a half, ten inches by eight, and nine inches by eight. These cavities were polished smooth, a result evidently obtained by attrition. This smoothness is characteristic of all the circular and oval shaped cavities, but this specimen having been so perfectly protected from weathering, possesses it in the greatest degree.

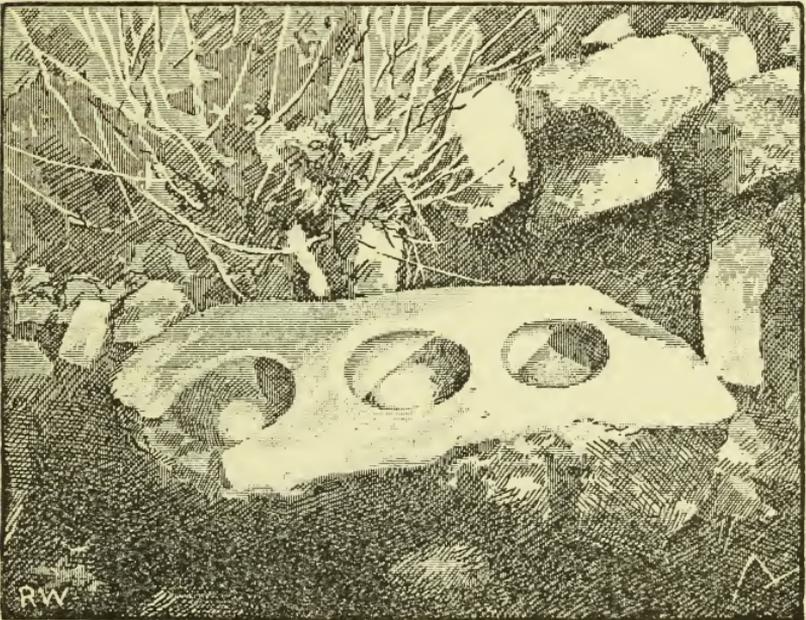
Close by this stone lay a portion of a rectangular mould, and

⁷ *Trans. Plym. Inst.* vol. x. (1888), pp. 104-6.

⁸ Since this I have received from Mr. French, of Dean Prior, a complaint that I should have consulted him as copyholder of the property. I acted in ignorance of this possession, and regret it.

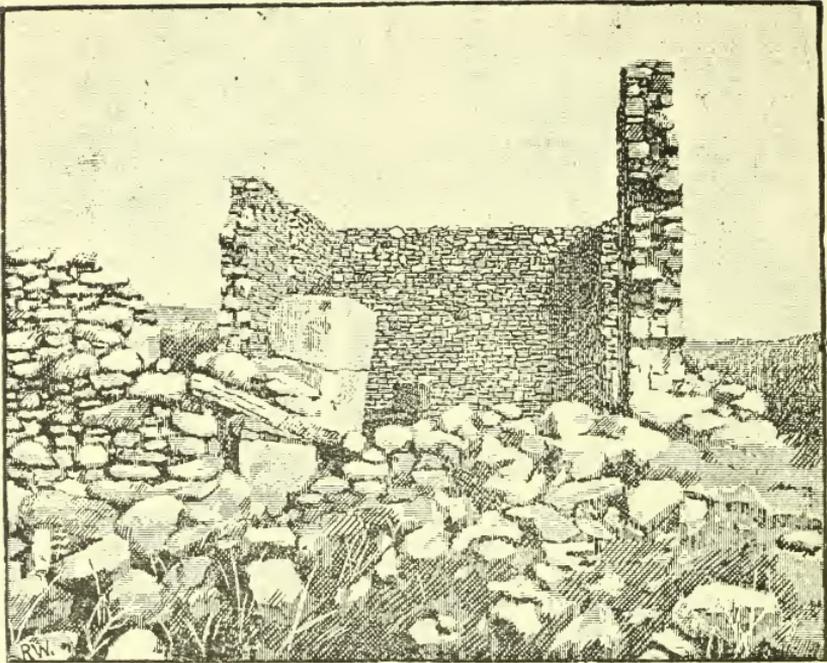


Mould stone unearthed at Week Ford.



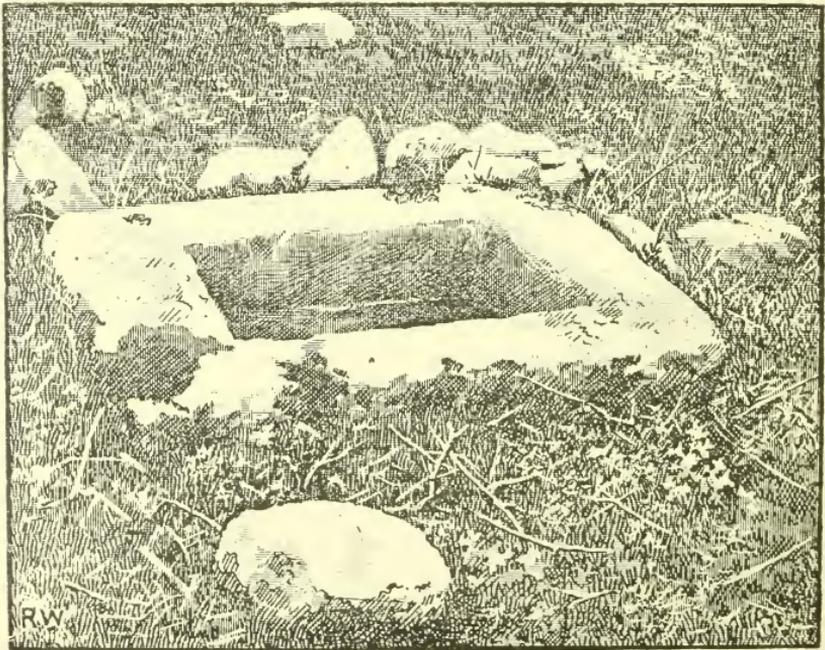
Mortar stone at Week Ford.

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Eylesbarrow Blowing-house (modern).

See page 235.



Mould stone at Post Bridge.

See page 240.

on proceeding further with the clearing, the remaining larger portion was found close under the door or window on the west side of the ruin. The two fragments were carefully pieced together, and the mould was found to be fifteen inches long at the top, with a width of twelve inches at one end and eleven at the other. It was bevelled, so that the bottom length was twelve inches with a width of nine and eight inches respectively. The depth of the mould was five inches. It had evidently been subjected to heat, for it was cracked in several places. It is curious that this mould is precisely of the same dimensions as that at Gobbett.

In clearing out this ruin, no timber, iron, or industrial object was found. There was no paving, the floor being composed of granite gravel, which in the dry makes a good hard working bottom.

There is very little doubt that these cavities are ancient mortars, and were used by the "old men" for breaking up the slags, so as to get at the prills or globules of tin contained in the same, or for pounding up the larger nodules of stream tin. They are not moulds; for they are too numerous and their interiors are too smooth to have been the receptacles of molten metal. The stones containing them are sound and solid, whereas the rectangular mould stones are usually cracked and weakened by heat. They cannot have been the bottom stones of primitive stamps, for if formed in the process of stamping they would have partaken more of the shape of a stamp head which certainly has never been round and pointed. They cannot have been formed by revolving crazing-mill spindles—their shape and number on a single stone forbids this. Had they been formed in this manner, ridges must have been produced in the hollows; there is however no sign of this, for the interiors are quite evenly smooth.

The traditionary idea among the moormen is that they were used for *beating up the tin*. This confirms the supposition that they were used as mortars. The pestle was probably of iron. None of these instruments have been found in the ruins. These cavities thus far have been noticed at Week Ford, Har Tor, Riddipit, and Gobbett. At the latter place they are associated with the remains of a crazing-mill, thus strengthening the idea that at this place, at any rate, they were used as mortars for breaking up the tin-bearing slags, the mill being employed in grinding down the tin stones preparatory to washing and smelting.

On the Gobbett site are heaps of broken-up slag, which still further confirms this opinion. The readiest and most effective plan for dealing with slag is of course by stamping, and the use of primitive mortars for this purpose tends to show that they must have been in use before stamps were generally employed, thus giving the blowing-house ruins possessing them a probable antiquity of at *least* three centuries. They may be much more ancient than this, but unfortunately there are no data at present available to guide the enquirer.

Whilst at Redruth, on the 14th of February last, the writer was informed by Mr. A. H. Jenkin that on the same day two granite stones, with eggcup-shaped cavities, had been laid bare in digging the ground in front of the new hospital, which is situated on an eminence known as Blowing-house Hill. It is interesting to note that the two cavities, one in each stone, are similar to those found on Dartmoor. The cavities at Redruth are circular, the diameter being eight to nine inches, with a depth of about six. A layer of charcoal was found near the stones, which were nearly two feet under the present surface of the field. This interesting find fixes the actual site of the blowing-house, which has given its name for an unknown period to the district.

What has been previously described under the name of the Har Tor blowing-house is situated high up on the head waters of the Meavy, and reference has also been made to the extensive streaming operations in the neighbourhood of this ruin. These stream works continue right down the valley to Sheepstor Bridge, with occasional traces much further down the river. The small tributary streams running into the river also bear traces of old surface mining operations.

There is a striking example of this at Hoo Meavy. Here the operations must have been extensive, for the cuttings are deep and wide, and the mounds of *débris* large. From the hamlet to the common close to Greenwill, the artificial ravine made by the "old men" has been planted with trees which are of considerable size, and form a delightfully-shady and picturesque road of about a quarter of a mile in length. These workings run across to Cadaford Bridge, a distance of about two miles. On the other side of the river they are continued up to and beyond Clearbrook. No blowing-house remains are now visible. If any existed they have been doubtless used in the construction of hedges or houses.

Although there is nothing so far down the valley of the Meavy indicative of early smelting operations, there are unmistakeable signs just above Leather Tor⁹ Bridge, at a place marked Rithy Pit on the Ordnance Map, or, as it is pronounced and named in the map attached to Rowe's *Perambulation of Dartmoor*, Reddipit or Riddipit. Here are the ruins of two dwelling-houses, which were inhabited not many years since. By following the track a few yards further up the river bank from these ruins, some flat granite boulders forming the bottom of the rough roadway will be noticed. On examination these will be found to have on their surfaces curious oval and circular-shaped cavities, previously found and described at Week Ford, Gobbett, and Har Tor. What appears to have been the back of a house is still standing close by. There is a recess formed by the modern hedge builders, who apparently constructed the boundary with the view of including this back wall, thus saving labour but using space, for they doubtless would have carried it in a straight line if the temptation of a standing wall had not diverted their course. The material of this ruin was doubtless a fine deposit from which the houses lower down were partially constructed, and what was left the hedge builders would gladly avail themselves of. There is evidence of the former in the shape of a small stone with a circular cavity in it, in the westernmost ruin; and also of the latter, for close to the site of the ancient remains is a curious stone, with a circular cavity on each side. It is built into the hedge, and is similar to that described by Mr. Amery at Gobbett (since disappeared), and likened by that gentleman to the top of a headsman's block. The stone in the hedge at Riddipit is nineteen inches long. The lower cavity is nine inches in diameter and three deep, whilst the upper is six inches in diameter and two deep.

On one boulder in the roadway are four cavities, six to eight inches in diameter and four to six inches deep. They are in pairs side by side, each pair forming a shape similar to the figure 8.

Two other boulders have a single circular cavity on each.

These are not the only remains indicating ancient workings, for close by is a dome-shaped stone with a flat and perfectly smooth base, nineteen inches by fourteen. The stone is eighteen inches high, and the rounded top has two triangular holes about an inch deep and some two inches apart, with a hole between which

⁹ Anciently "Ledder" Tor.

appears to be round, and contains a small iron plug run in with lead.

The native previously referred to said it was formerly used as a weight. It may have been employed for this purpose, and the iron plug in the central hole might be the remains of a hook, although the size of this hardly appears sufficient to carry so heavy a weight. Whatever it may have been recently used for, it has all the appearance of originally serving the purpose of the upper stone of a small mill, such as might have been used for hand power only. The smoothly ground base and triangular holes in the top for the reception of prongs which carried the cross bar favour this assumption.

Running east of Riddipit is a gully which has been streamed. It terminates about a quarter of a mile distant, at the remains of Keaglesburrow mine, which ceased working in 1810. Here also may be seen evidence of mining operations of an ancient character, and quite unlike the ruins of the modern mine.

A little further east is Clazywell Pool. It is about an acre in extent, and has been excavated out of the slope of the hill facing south. When well filled with water it has a depth of from fifteen to twenty feet. The banks on all sides, excepting the south, are high and steep. Here the tin probably "bunched," and hence the pit. The only other pool like this on Dartmoor is that of Bradford, or Bradmere, near Drewsteignton, which however is larger and said to be much deeper. Although the latter sheet of water has excited the imagination of those who see the Druids' handiwork in all the riddles of the Moor, the popular notion that it was connected with tin mining is correct.¹

From the southern side of Clazywell, a deep stream-work leads down to and intersects the rough moorland track which runs from Kingsett to Nuns Cross and Whiteworks. Across the track and under the northern boundary of the adjacent field is a ruin, but there is nothing particular about it to determine its character. The whole of the valley right up to Nuns Cross has been pulled about and disturbed in a most remarkable manner. The ruins of Plym Consols and Nuns Mine can be more plainly seen, but the more ancient remains have been buried up or obliterated.

¹ Mr. Ormerod states, in an article on "Tin Streaming near Chagford," in vol. i. of *Devonshire Association Transactions*, 1866, that the water in this pool has accumulated during the last seventy years.

If the tin obtained was at all commensurate with the amount of work performed in this valley, it must have been large, and shows remarkable activity, extending probably over a long period. Opposite Kingsett—the name has a mining smack about it—and across the stream, is a ruin, so overgrown with vegetation and covered up with *débris* that it is impossible to say what it was. In the entrance, which is on the north side, is a stone with a cavity twelve inches long and seven wide at one end, and five inches at the other, with a depth of three to four inches. The ends of the cavity are rounded, the interior rough, and not bevelled. It could not have been used as a mould, and it is too small and shallow for use as a trough.

The valley washed by the brook which flows down from under Eylesbarrow between Sheepstor and Down Tor, joining the Meavy at Nosworthy Bridge, has been also streamed to a considerable extent. There are ruins of former habitations, and high up in the valley, close to Deancombehead farmhouse, is a gorge containing two caches, somewhat similar to that previously described at Deep Swincombe. The first is about one hundred yards south-east of the farmhouse, and the second about one hundred and fifty yards further up the gorge, with a cover stone formed by a flat boulder, resting very insecurely on a dwarf wall of dry masonry. Like the cache below, it was in a concealed position.

Whilst searching the deep ravine made by the "old men," the writer's son Lawrence discovered an entrance which appeared to lead to a cave. The approach was through a curved open trench twenty-three feet long, and led to a doorway three feet high and three wide. It was found on examination that the door was gone, but the posts and lintel of worked granite were still in perfect condition.

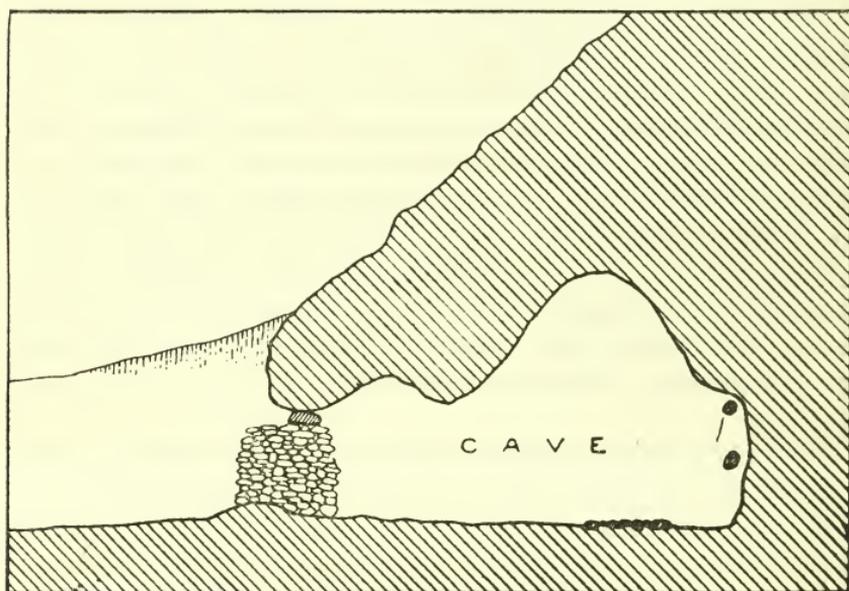
After clearing away the ferns, which quite concealed the entrance, a candle was lighted and the interior explored.

Inside the doorway a tunnel nearly nine feet long, and through which it was necessary to proceed stooping, led into a chamber scooped out of the rotten granite about nine feet long by seven feet eight inches broad and nearly ten feet high. The roof of the chamber was dome-shaped, partly produced by portions of it falling down—as a rough gravel—until the floor had been covered to the extent of a foot or more. Choked up among this were

found half-a-dozen good sized stones, which could not have served any useful purpose unless they were employed to block up the entrance from the inside.

On clearing away the whole of the *débris* the original floor was exposed, and it was found that a portion of it had been paved with flattish stones as large as two hands, with some rather larger.

In the sides of the chamber were three square niches, such as might have been used for resting the ends of timber baulks in or for sconces for candles or lamps. Without being decidedly wet the cave was damp.

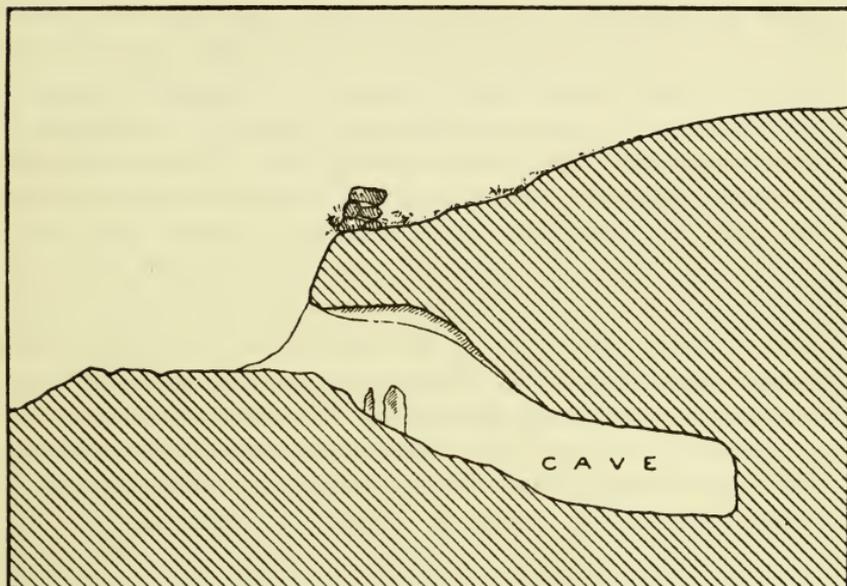


Deancombehead South Cave.

A careful examination of the loose material and the floor yielded nothing in the shape of industrial or other objects. It was probably used as a storehouse for the black tin streamer in the neighbourhood. A very little preparation would effectually conceal the entrance and defy detection.

Across the stream, and about north-east of Combehead House, and distant about two hundred and fifty yards, is another cave. The entrance is concealed from the south by a short dwarf hedge running in a westerly direction. A hole underneath a huge

boulder descends into a gallery, which runs eastward, with a shorter branch in a northerly direction. The total length is twenty-two feet six inches. The greatest width is fourteen feet, whilst the inner recess is six and a half feet wide. The height from floor to roof is five feet. The entrance is three feet six inches high with a width of three feet. This cave is dry, and would make a capital storehouse and occasional shelter.



Deancombehead North Cave.

Both the East and West Glaze have been extensively streambed. Just above Glaze Meet, where these two streams unite, is a remnant of an ancient wall, and a little further on in the plantation are two heaps of moss-covered stones which appear to indicate the sites of old buildings. They may have been connected with the "old men's" workings, but there is nothing characteristic about them to settle this point. At this place a moorland trackway leads across the brook over a carefully-paved ford, taking an eastward direction towards the Avon. Another well-worn path, suitable for packhorses, follows the East Glaze up to Three Barrow Tor, and can be traced to Eastern Whiteburgh. This, with the numerous hut circles near, indicates that at some period it was a well-frequented district.

In concluding the last paper, reference was made to a cache or hiding-place for metal or tools, situated above the ruined blowing-house at Deep Swincombe. As previously mentioned, there are two more in the stream work close to the caves in the Deancombe Valley, which may have been used for the same purpose or for temporary shelter.

There are also small huts of a circular shape to be found in stream works, which are too small for habitations, but doubtless served the purpose of small storehouses. All that have been examined are covered with small mounds of earth and turf, and were very easily and effectually concealed. Even in their present condition they are not easily detected, especially if approached from the back, and the entrance out of view. The roofs are of the bee-hive pattern, and are formed of stones placed one on the other, with each stepping nearer the centre, until a larger stone placed on the top completes the arch. Mr. Spence Bate has described some of these huts on the Avon and Erme. That which is on the right bank of the latter river in a stream work running down from Staldon Moor is quite perfect, and is just six feet long, four wide, and three high. The entrance to this hut is defended by a dwarf wall, which served not only for concealment, but also as a barrier, should the brook, on whose bank it is situated, rise in flood. There is another hut similar to this, also in the midst of "old men's" workings, at Ladle Bottom, about two and a half miles above Post Bridge on the East Dart. The roof is partly broken in, but sufficient remains to show that it is of precisely similar construction. These ancient store-huts are of great interest, and it is to be hoped they may long remain as examples of the manner in which such curious little buildings were erected.

At the head of the Deancombe Valley, rising nearly 1500 feet above sea-level, is the hill crowned with the tumulus known as Eylesbarrow, or, as it is spelt in the ancient map defining the boundaries of the Forest of Dartmoor, *Elysburghh*. This has been for centuries a tin-bearing centre, and near it are extensive prehistoric remains. Not far from Eylesbarrow, but closer to Down Tor, are the remains of a fine avenue of upright stones about a thousand feet long, leading from a circle to a circular pound a hundred feet in diameter, with a tumulus close by the latter. For miles around the valleys and shallow depressions have

been seamed and scored in all directions in the search for tin, whilst a little below the tumulus on Eylesbarrow are the ruins of a modern tin mine. According to Messrs. Lysons there were three tin mines at work on Dartmoor in 1820; viz., Vitifer, near Post Bridge; Whiteworks, near Princetown; and Ailsborough, in Shipstor. Mr. Burt, writing in 1826, adds that the latter had a smelting-house, where one hundred blocks of tin were coined for the Michaelmas quarter of 1824.

This is the latest and the last of the Dartmoor blowing-houses. It is situated about three quarters of a mile south-west of the mine-house ruins, and consists of the remains of a building sixty-four feet long and twenty-four feet wide. The walls, which are still standing to a height of from fifteen to twenty feet, are well built with rubble masonry laid in mortar. Portions of the furnace, consisting of massive stones, one of which is slagged, are still to be seen. The flue also, leading from the furnace, can be easily traced to the ruins of a small stack. This smelting-house was in use sixty-five years since, and was probably erected in the first quarter of the present century. It is quite unlike any of the blowing-houses which have been already noticed in this or the previous paper on the same subject.

The remains of streaming operations in the valley of the Erme, from Harford Bridge to the head of the river, are of an extensive character. In following the river upward, several ruins of rectangular huts are met with, but only one is of an undoubted blowing-house type. This is situated close to the junction of Hook Lake with the Erme, or nearly half a mile below Erme Pound. My attention was first drawn to it by Mr. Crossing. The ruin in question is twenty feet long by twelve feet wide, with a wall dividing it into two compartments. The building runs almost east and west, with an entrance four feet wide into the western compartment. The walls are built of rough stones dry laid.

In the western compartment is a large stone which has been broken longitudinally, and more than half of it removed. The portion remaining is five feet long, two wide, and two deep. It contains one perfect and three imperfect cavities. One of the imperfect cavities is thirteen inches long, seven inches deep, and is evidently the remnant of a rectangular mould. There are also the remains of two small cavities, each about three inches long,

two inches wide, and two inches deep, similar to the small cavities already noticed in one of the mould stones at Gobbett.² The perfect cavity is twelve inches long, three inches wide, and three inches deep, and appears to be similar to the cavity found by the late Mr. Kelly, and mentioned by that gentleman in a communication which is contained in the *Journal* of the Royal Institution of Cornwall for 1866. There are no circular or oval cavities visible.

The streaming operations in Stony Bottom, through which the Hook Lake flows, are considerable, and indicate great activity among the tanners in this neighbourhood. Close by are many groups of hut circles, in several cases surrounded by ruined walls forming enclosures or pounds.

That which is known as Erme Pound is of considerable extent, and encloses a dozen hut circles. This pound is figured in the fifteenth century map of Dartmoor, which delineates the Perambulation of 1240, and was doubtless in use many centuries since for herding cattle. Outside, and between the pound and the Erme, are two ruins of rectangular buildings which may have been tanners' huts, or were used in connection with the pound. One ruin is curious, for it possesses a bench composed of flat stones, which run around both sides and one end, and having somewhat the shape of an horseshoe.

About one and a half miles above Erme Pound are more extensive stream works, with coffins or open trenches and excavations, known as Erme Pits. The heaps of *débris* here are gigantic, and one pit is both large and deep. They were worked two hundred years since, for they are referred to in *Metallographia; or, An History of Metals, by John Webster, Practitioner in Physick and Chirurgery*, published in London in 1672. The author in the chapter on tin refers to Dartmoor as follows:

“Now I shall give the Reader such informations as I received from one *Thomas Creber* of *Plimpton St Mary* in *Devonshire*, who was one (and all his ancestors before him) that had wrought in the Tin-mines; and these particulars I had of him.

² Since writing this paper the author has investigated the ruins of two more blowing houses situated on the Walkham above Merivale Bridge. Both have very perfect mould stones, containing in addition to the mould a small cavity in each; the latter are evidently intended for sample ingots.

"1. The hills where they get Tin Ore, near that place where he lived, are called *Yelsbarrow*³ and *Woolack*.⁴

"2. Black stones that hold Tin, they call Tin-stones and lie either in a load, or in a string.

"3. There is other Tin ore that is softer, and lies in a dun stone, and is of a yellowish colour, but will melt neer both alike.

"4. Pure ore, which they call Corn Tin, being found in grains, and is the hardest to melt.

"5. Another place they called *Armed Pit* (*i.e.* Erme Head Pit) which holds Ore they call *Zill Tin*, which is as small as grit or sand, and needeth nothing but washing, and is the most easily melted of all other sorts of Tin Ore, and lieth in chalk and clay; and this small Ore, because it is rich, they call it fatty Ore.

"6. The black stones, if they find them at the top, do continue in the whole Mine or Work. Sometimes it is in that they call strings, running through earth, or stones, like small twigs or strings: and sometimes it is all in one, like a great branch or trunk, which they call a Lode. Sometimes it runneth in Spar, sometimes in a black stone that will strike fire, sometimes in white stones that are soft.

"7. Their smelting-houses roofs, after certain years they pull down, and find store of Ore in that stuff, that in their former meltings was forced from the fire.

"8. The Corn Ore is found at the bottom of the Hills, being there digged into, and lieth sometimes in one sort of earth, and sometimes in another. And the Zill Ore is found in the same order.

"9. The uppermost part of their Work they call Cooping; and if it be good or rich, the Lode or Strings underneath are good: if bad or indifferent, those underneath, are sometime good, and sometime bad.

"10. They call that part of the mineral, that is found washed down into the valleys, Shoad.

"11. They have a thing they call Mundick, sometimes found in the Ore, which they separate lest it should spoil the Ore; some of it is yellow, which is the worst, and sometimes of other colours: and the Mundick after smelting the Ore, is blackish and hard. Of it Mr. *Boyl* saith thus. Mundick I have had of a fine golden colour; but though it be affirmed to hold no metal, yet I

³ Eylesbarrow in the parish of Sheepstor.

⁴ In the Court Roll of May 14, 13 Henry VIII., A.D. 1521, mention is made of a rental of 3d. to be paid by Richard Cole and Thomas Hele for a mill called *Wallack Mill* and two acres adjoining in the Forest of Dartmoor. This hill is probably *Wallbrook Girt*. Lake and brook means the same thing. *Wallbrook* probably became *Wallalake*, and then further corrupted to *Wallack* or *Woollack*.

found it in weight, and otherwise, to differ from Marchasites, and the Mine Men think it of a poysonous nature.

“12. They have a thing called *Mawy*, mixt with the Ore, which cannot be separated by the water, but by the fire, and then smells very ill, and is of a blewish colour.

“13. Lastly, They also find something like bright Ore, which they call *Shim*.”

The Doctor concludes by saying :

“And thus much of this Metal, seeing there is no need to speak of any Mendicaments prepared forth of it, because I have not had experience of any such.”

This technical description, communicated by a Dartmoor tinner in the seventeenth century, is interesting, and throws a little light on a subject which is at present very obscure.

If there be one district in the Forest of Dartmoor which shows more results on its surface of the work, both of ancient and modern miners, than another, that district lies near Post Bridge. Stream works abound in all directions, testifying to the activity of the “old men,” whilst the ruins of modern tin-mines are dotted about for miles. The greatest interest, however, in this district centres at the Furnum Regis, or King’s Oven. This smelting-place is mentioned in the *Perambulation of Dartmoor*, made in the twenty-fourth year of the reign of Henry III., 1240. In the ancient map defining the limits of this Perambulation it is shown as a large circle lying between Wellabroke, and Capud Wallebroke, or the head of the Wallabrook, which stream flows into the Dart.

The Furnum Regis is mentioned simply because it falls on the line of this Perambulation, and not a word is said which indicates whether it was the king’s furnace of that time, or of some previous period. It is probably much older than the thirteenth century, and is without doubt the most ancient remains of a smelting-place on Dartmoor. It lies about four hundred yards almost due north of the “Warren House Inn,” or about two and a half miles from Post Bridge, and consists of a circular enclosure of about seventy-two yards in diameter. The wall, forming the enclosure, is composed of small granite stones, and is in ruins. In the centre of the circle is a roughly-worked rounded stone, three feet in diameter, and close by it is a small pile formed of stones with one end rounded.

These smaller stones were taken away from the enclosure with the view of using them in a modern mine-house now standing in

ruins close by, but before they were absorbed in the building the spoliation was discovered, and they were returned, but whether again placed *in situ* is not known.

On the southern side of the circle, and connected with it, is the remnant of a small rectangular building; but for what purpose it was used, or whether it is a more modern addition, is uncertain. But for the fact that the Furnum Regis is mentioned in the earliest recorded Perambulation, it could never have been recognised as a smelting-place. It presents the appearance of a circular enclosure, very similar to others to be found on the Moor.

The district near King's Oven must have been at some period, or perhaps in succeeding periods, very fairly inhabited, for ruins of hut circles abound. The well-known Cyclopean enclosure known as Grimspound is not far distant, whilst near Post Bridge are others, all being situated in or near ancient stream works. Post Bridge itself is doubtless a settlement of considerable antiquity, for some of the houses, particularly that of Higher Merripitt, present the appearance of great age. A district formerly so rich in stream tin, and so extensively worked as this has been, must have possessed blowing-houses for smelting the black tin which was streamed and raised during the period between the time when the Furnum Regis was in work—whenever that might be—and the 17th and 18th centuries.

Unfortunately the modern craze for the conversion of Dartmoor into fertile crop-bearing ground and richer pasturage, a craze which was rampant in the earlier portions of this century, has been the means of destroying many objects of great archæological interest. The "new-take" wall builder has been a great sinner in this respect: mediæval crosses with the arms knocked off made fine gate-posts, and blowing-house ruins a splendid deposit from which handy stones could be selected with little trouble and labour. It is no wonder then that the difficulty of recognising sites of smelting places in certain localities is so great. Diligent search in the Post Bridge district has not however gone unrewarded, for the writer found, close to the clapper bridge, an object which proves the former existence on this spot of a blowing-house.

A few yards below the bridge, on the right bank of the river, is a ruin known locally as the "Barracks." This building was erected some years since as a residence for miners, and the discovery on the spot by the writer of what appeared to be a

mould for tin, cut in a large block of granite, caused him to make enquiries which resulted in the establishment of this place as the site of an old smelting-house. Jonas Coaker, the Dartmoor poet, now in his 89th year, recollects that when very young this spot was by tradition regarded as the remains of a blowing-house; and George French, of Post Bridge, has also heard the same. The latter says it was regarded in his younger days as a former central smelting-place for the neighbourhood, and that the tanners all over this part of the Moor used to bring their black tin here to be blown.

The Rev. John Shattock, who resides close by, discovered another mould a few yards south of the first. It is close under the wall of a small ruined outhouse. The moulds are almost of exactly the same dimensions, being at the top two feet long, fourteen inches wide, and nine inches deep. They are bevelled, so that the bottom length is sixteen inches, with a width of eight to nine inches. They are therefore intended to turn out ingots of about the same weight. These moulds are symmetrical, and well and carefully wrought in large solid blocks of granite, sunk into the earth so that the top of the mould is nearly flush with the surface of the ground. They are the largest and best-made moulds of any of the numerous examples previously described.

The ingots made from such moulds would correspond in shape and weight with the tin imported into Italy from Devon and Cornwall during the fourteenth century, and also with the blocks described by Carew in the seventeenth century. As we are told by Chapple, in his *Review of Risdon*, 1770, that Devonshire mining had then sunk into insignificance, and as this was a traditional smelting-place a century since, it is probable that we must go back to the seventeenth century, at least, for the time when this site was occupied by a working blowing-house. From Furnum Regis to this there is a blank of many centuries. Thus far no intermediate remains, between these periods, have been found in this locality. It is mostly by comparison that any idea at present can be formed of the age of the blowing-houses already described. We know that in the sixteenth century streaming was very active on Dartmoor, and it is highly probable that some of them date from about this period.

At Week Ford, the oak trees growing in the lower ruin prove that this place has been in a ruinous condition for a lengthened

period. One of these trees has a trunk circumference of five feet six inches. In Wistman's Wood there is a large triangular-shaped boulder with the following inscription: "By permission of H.R.H. the Prince of Wales, Wentworth Buller, on September 16th, 1866, cut down a tree near this spot; it measured nine inches in diameter, and appeared to be about 168 years old." If this estimate be correct, and if the growth of this tree and that at Week Ford proceeded in anything like the same ratio, it would give an age to the latter of something like four centuries. The tree at Wistman's Wood had to contend with an elevation of about 450 feet more than that at Week Ford, and would therefore have a slower growth, so that although a mere comparison of size may be made to roughly approximate the difference of ages in the two trees, too much reliance must not of course be placed on such an estimate. Living persons remember the Week Ford ruin, or "Beara House," as it is sometimes called, for fifty years and more, in precisely the same condition as it now is, and with no apparent appreciable growth of the trees. Taking into consideration the whole of these circumstances, it is tolerably safe to assume that we have to go back some three or four hundred years before we reach the period when this place was smelting stream tin. It is impossible to indicate, with any degree of certainty, the age of the remains at Gobbett or on the Yealm and Erme. The only thing similar about them is the stone moulds, but as a type of mould might have been in use for a lengthened period, they do not help us forward in the desired direction. Some may be comparatively modern, whilst others may be of respectable antiquity.

The primitive blowing-house at Deep Swincombe, with its single and peculiarly shaped mould cut into the face of a huge boulder, is probably the most ancient of all the rectangular smelting-places yet noticed on Dartmoor. The district in which it is situated, possessed at any rate sufficient importance to be mentioned in the earliest Forest records.

Whilst active streaming and mining operations were going on in this district agriculture was not neglected, for we gather from the bailiff's account of the manor of Dartmoor, A.D. 1379, that 1½d. was paid for an acre of land in Hextworthy—near Deep Swincombe—let to John Browning; and also 3d. for two acres of land in Bysouthexworthie let to John Holrig.

The summering of cattle on the Moor must be a very ancient custom, for as early as 1305 there is an entry that *Donebrugge, i.e.* Dunnabridge, arrented this year to Richard Rauf, Hamlin de Sherwell, William Togot, Richard Steven, and James de Woghby ; whilst thirty-eight years later credit is given in the Duchy Accounts for a lock bought "for the gate of the Pinfold at Donnabridge." We thus gather that, five or six centuries since, mining, agriculture, and cattle-grazing flourished side by side, finding employment for numbers of men who have left traces of their handiwork and industry scattered all over the Moor.
