

The Archaeological Journal.

DECEMBER, 1869.

ANCIENT CIRCULAR HABITATIONS, CALLED CYTTIAU'R GWYDDELOD, AT TY MAWR IN HOLYHEAD ISLAND; WITH NOTICES OF OTHER EARLY REMAINS THERE.

By the Hon. WILLIAM OWEN STANLEY, M.P., F.S.A.

THE former account of excavations made by Mr. Albert Way and myself in 1862, published in the *Archæological Journal*, and again in the *Archæologia Cambrensis*,¹ having created considerable interest, in 1868, with the assistance of Colonel Augustus Lane Fox, I directed several of the circular foundations at Ty Mawr to be cleared out.

The first that we excavated was a hut-circle at the east end of the ancient village, situated under a cliff of rock about 20 ft. high, sheltering it from the north. (See ground-plan, No. I.)

The external face of wall was built as usual of large unhewn stones set on end, and sunk about 2 ft. in the ground; the interior of the walls, about 3 ft. thick, was made of loose stones and earth, or sods, occasionally lined with small flat stones set in rude courses, with large upright stones at intervals to prevent the walls crushing inwards; and here and there a long flat stone placed at right angles with the wall, projecting into the hut. Mr. Ormerod informs me that this same form of construction is found in the circular huts on Dartmoor; it occurs also in the ancient buildings on the Cheviots, at Greaves Ash near Linhope, Northumberland.²

¹ Arch. Journ. vol. xxiv. p. 229; Arch. Cambr., third series, vol. xiv. p. 385.

² See a memoir by Mr. George Tate, F.G.S., Transactions of the Berwickshire Naturalists' Club, vol. iv. p. 293; also an abstract, with a ground plan, &c., and

some observations by Professor Babington, Arch. Cambr., third series, vol. viii. p. 201. The investigation of that very curious Celtic town was carried out in 1861 by the Club, through the liberality of the late Duke of Northumberland.

The entrance was facing the south-east, with two large upright stones for door-posts. Attached to the hut, on the south, was a somewhat irregular semicircular chamber, adjoining the entrance. The diameter of the circle was about 25 ft.; and that of the semicircular appendage, 6 ft. On the north side of the large hut was a fire-place level with the floor; the sides were made of flat stones placed upright; above was a well-defined chimney formed in the thickness of the wall, sloping back, and with a large flat slab of stone in the slope. In front of this fireplace, a little to the left and

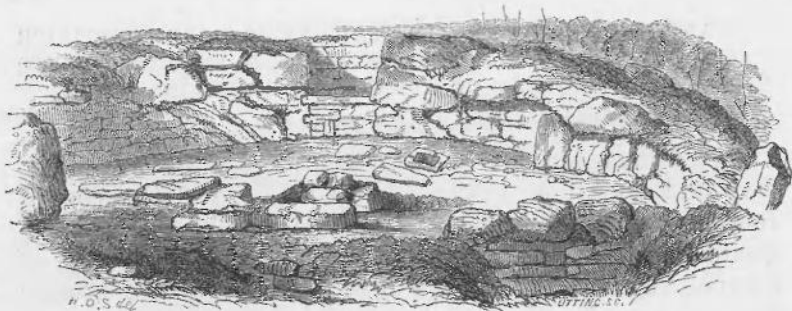


Fig. 1. Interior view of a circular hut at Ty Mawr, Holyhead Island. Compare the ground-plan, No. 1.

facing the entrance, was a stone mortar or basin, the cavity of which measured 11 in. in diameter and 6 in. deep, sunk to a level with the floor of the hut; this basin was hollowed out of a rough piece of hard trap or basalt, and well polished inside; it was tightly wedged into its bed, as appeared on removing it, with pieces of stone, evidently to resist pressure and to keep it firmly fixed when it was in use for the purpose of pounding, or the like. On either side of this basin, within a few inches, there was a large stone of the same material; one of these stones with a rounded surface, which, from the notched appearance, had apparently been used for breaking stones upon it; the other, about 2 ft. long and 15 in. wide, also sunk to the level of the floor, was slightly worn away or hollowed from having been used for grinding some hard material upon it.

In the centre of the hut there was another fire-place, made of flat stones set edgeways in the ground; it was of wedge shape, about 2 ft. long and 18 in. wide in front, tapering to a point at the back; it had been lined with clay burnt to the

consistency of brick ; in the fire-place were particles of metallic slag and fine sand, like that used for moulding ; scattered about was a quantity of broken pieces of quartz, with slight indications of copper ore in most of them. The upper half of the hut floor had been flagged with large unhewn slabs of the schist rock, and it was raised about 5 in., even with the top of the fire-place, which was sunk in the floor. We found great quantities of pebbles, which bore marks of having been used for pounding, grinding, and polishing, the ends being broken, or the sides rubbed by friction. There were also here several stones suited for similar purposes, probably not shaped artificially, but selected on account of their natural forms being well adapted to form rude implements. (See figs. 7, 8, 9.) A few stone hammers were also found, of more regular fashion, grooved or notched in the centre. (See figs. 10, 11.) It is probable that all these hammers were hafted, like a blacksmith's chisel of the present day, with a hazel band twisted round the groove, and strongly lashed with fresh sinew, or some other ligature. The same form of implement is found in Spain, Africa, North America, and all over Europe,³ in old copper and iron mines worked either previous to or by the Romans. Here also was brought to light a singular stone, that bears some resemblance to a weight. (See fig. 12.)

Some of the whetstones or rubbers had a greenish hue, as if bronze implements had been sharpened upon them. A



Fig. 2.—Stone cup.

small stone cup or crucible (see woodcuts, fig. 13) was found here ; it may have been used as a lamp, somewhat similar hollowed stones being used to this day for that purpose in

³ International Congress of Prehistoric Archaeology, No. V., Lisbon, 1868. Notícia de Alguns martellos de pedra

descobertos em trabalhos Antigos da mina de cobre de Ruy Gomes, no Alemtejo.

the Hebrides, as stated by Dr. Wilson in his *Prehistoric Annals of Scotland*. A stone cup of the same description, found at Carreglwyd, Anglesey, on the estates of Miss Conway Griffith, was recently exhibited by her at a meeting of the Institute, and has been figured in this Journal.⁴ We

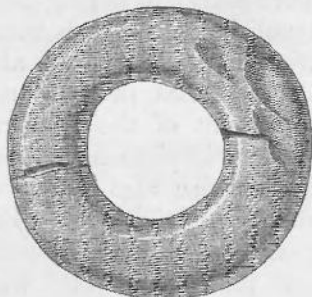


Fig. 3.—Stone ring or brooch (orig. size).



Fig. 4.—Stone whorl or button (orig. size).

found also a white stone spindle-whorl, as such objects are called, but more probably they were used as brooches or buttons, to fasten the clothing made of skins of animals. Tacitus says of the Germans,—“The clothing common to all is the *sagum*, fastened with a clasp, or, in want of that, a thorn; with no other covering they pass whole days on the hearth before the fire.” There is a notch or slight groove on each side, which might have served to catch the pin or *acus* when passed through the brooch. (See fig. 3.) Silver rings are now used in Sweden and Finland to fasten the dress, which is passed through, and a separate pin run through it. About fourteen of the buttons or “whorls,” of various sizes and materials, were found in the huts. See a curious ornamented specimen, fig. 4.

With slight variations, all the seven or eight huts that I excavated presented the same general appearance—the fire-place to the north, and, in the centre, the chimney, the stone mortar or basin, and the grinding and pounding stone on either side; in some of the huts there are two or three small fireplaces round the centre. (See ground-plans, Nos. 2, 3.) In all these huts there were the same appearances of slag, sand, and burnt clay, also coarse pieces of pottery, and stone hammers, with a great many rounded stones, some

⁴ See p. 232, *ante*.

of them being doubtless natural pebbles from the sea-shore, but others had apparently been rounded by friction ; some of these may probably have been sling stones. They are either oval or round, and measure from half an inch to about three inches in length. (See fig. 5.) It is to be remarked

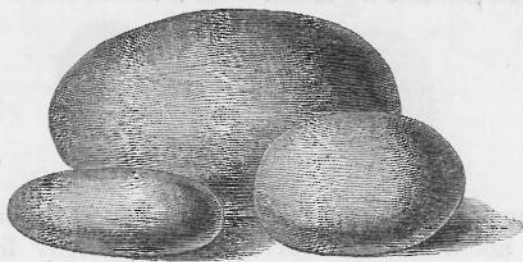


Fig. 5.—Sling-stone ; half original size.

that the people of Anglesey to this day are most skilful in throwing stones. The use of the sling was retained in mediæval warfare to a comparatively recent period ; even as late as the time of the Black Prince, the Spanish army in the year 1367 had the front rank of slingers, in the wars between Pedro and Henry of Navarre.⁵

In a large hut (ground-plan, No. 6) at the west end of the village the fire-place, stone mortar, &c., were to the south. The indications of smelting were here much greater ; we found quantities of charcoal, thick masses of iron slag or, as Sir Richard Griffith is inclined to think, portions of the metallic lode, mixed with the stone and floor of the hut, and hard to detach even with the pickaxe. About a dozen coins of about the size of a penny piece were here found, much corroded and seemingly much damaged by exposure to strong fire. These, which appeared unquestionably to be second brass Roman coins, were carefully examined by Mr. Roach Smith, who is of opinion that they may be ascribed to the period between Marcus Aurelius and Severus, or about the latter half of the second century ; he remarks, however, that they may have been long in circulation. In this hut we brought to light many broken pieces of rude pottery, nearly half an inch thick, ill burnt, and the clay as usual mixed with small stones and quartz ; here also many shells of limpets and periwinkles were found. Adjoin-

⁵ Life of Edward III.

ing this hut there was an oblong chamber, about 12 ft. long, containing a fireplace and a stone basin, or mortar, raised on a foundation of rough stones ; in this mortar lay the broken moiety of a spherical stone exactly fitting it, and underneath was a small quantity of broken quartz and finely-ground gravel. In this hut we found several small, flat, well-polished



Fig. 6.—Original size.

black stones, like counters ; they are slightly convex, and measure about half an inch in diameter, by five-eighths. (See woodcuts, fig. 6.) May they not have been used for some game ?

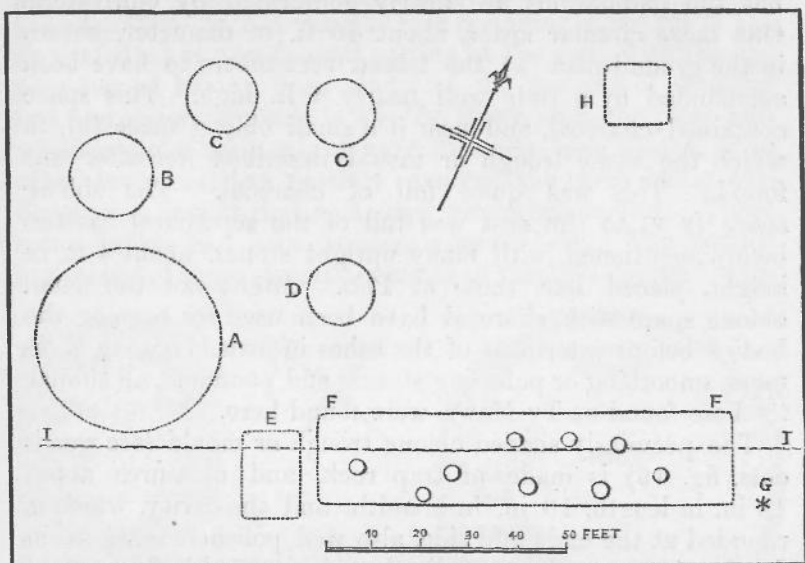
A few yards south of this hut we excavated an oblong building, 15 ft. long by 5 ft. in width, constructed of rough stones in regular courses ; it measured about 4 ft. in depth, the entrance to it was from the north, sloping from the level of the ground to the bottom ; in the floor were channels in the form of a cross ; they were about 5 in. wide, made of flat stones set edgeways in the ground, a flat stone being placed at the bottom, as if these channels had been made for running ore. (See ground-plan, No. 9.) Here also were numerous fragments of coarse pottery, which must have formed an utensil of large size ; here was found, mixed with slag, the curiously-shaped object which Professor Ramsay thought might have been the nozzle of a bellows. The Hottentots, to this day, use rude bellows of skins in smelting iron ore, as related by Mr. Burchell in his *Travels in South Africa*. In various parts of the ancient village there are oblong pits of the like description abounding with shells, but without any appearance of channels in the floor.

At Pen y Bonc, about half a mile to the south, in the lower ground, where the necklace of jet formerly described was found in a rock grave, the tenant, in removing an old fence, came upon a row of holes lined with stone, and with one slab at the bottom.⁶ The cavities were of circular form,

⁶ A meinhir was removed by John Jones, the tenant of Pen y Bonc. It stood about 60 ft. S.E. of the western extremity of the burial ground, and

measured nearly 5 ft. in height. John Jones remembers several similar stones about the burial ground.

about 2 ft. deep, and the same in diameter at the top, but narrower at the bottom ; in these lay charcoal made from brushwood. The cavities appeared to have contained urns



Plan of Cyttau and other remains at Pen y Bone.

A. Hut-circle, diam. 40 ft. B. A quantity of shells found here. C, D. Hut-circles, diam. 15 ft. E. Charcoal in abundance found here, and an oblong stone-mould (fig. 16). F, F. Supposed extent of a burial ground, with cists containing broken pottery. G. About 160 yards E.N.E. from this point the necklace of jet was found in 1828. H. A rectangular site found about 45 yards to E.N.E. of this spot, oblong stones in courses. I, I. Line of the present fence.

and ashes ; broken pieces of pottery being found, also one oblong, and several round, well-polished pebbles from the shore. These graves had apparently been opened and destroyed, and then filled with soil ; in ploughing close to them the plough-share turned up a small urn of black pottery ; it was broken to pieces, but when whole must have measured 2 in. in diameter at the bottom, $3\frac{1}{2}$ in. at the top, and 3 in. in height. It is considered by Mr. Franks to be of coarse Romano-British ware. In removing the fence the soil had all been placed in a heap, but I obtained portions of three kinds of pottery, a few small fragments of a polished black ware, which Mr. Franks pronounces to be of a kind rare in England, and of foreign make, also one or two pieces of ornamented red Samian, a ware also imported from foreign parts, and larger fragments of an imitative red Samian, probably of English make, with marks of the lathe.

Near the square foundations called "Ty Adda" and "Ty Efa" (Adam's and Eve's houses), described in the previous memoir,⁷ are the remains of many circular huts, but the foundations are nearly obliterated by cultivation. One large circular space, about 40 ft. in diameter, shown in the ground-plan (A), the tenant remembers to have been surrounded by a rude wall nearly 4 ft. high. This space contained charcoal, and near it a small oblong space (E), in which the stone trough or mould described hereafter was found. This was quite full of charcoal. The oblong space (F F) to the east was full of the sepulchral cavities before mentioned, with many upright stones, about 4 ft. in height, placed like those at Plâs. Might not the small oblong space with charcoal have been used for burning the bodies before interment of the ashes in urns? Stone hammers, smoothing or polishing stones, and pounders, all similar to those found at Ty Mawr, were found here.

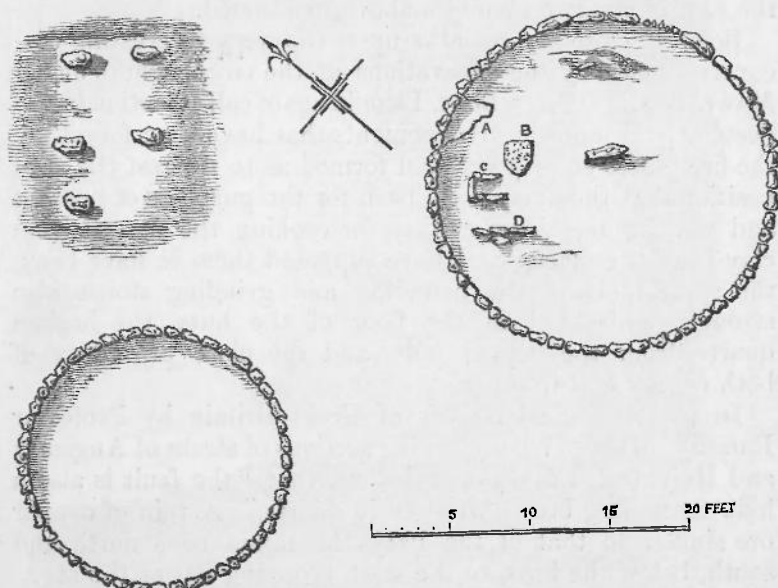
The peculiarly shaped oblong trough or mould (see woodcuts, fig. 16) is made of trap rock, and measures about 18 in. in length, 10 in. in breadth, and the cavity, which is rounded at the ends and side, also well polished, is $3\frac{1}{2}$ in. in depth. At one end externally there is a round hollow, about the size of half an orange, which was highly polished when first found; for what purpose this cavity may have been intended I cannot determine. A similar object with an oval cavity at the side, an inch in depth, was found in subsequent excavations; it is of the same material as that above described, and the dimensions are nearly identical. It is remarkable that three cakes of copper found recently at Llechylched are of somewhat the same form; it might be imagined that the metal had been run in this trough as a mould. The remarkable oval hammer of trap rock (fig. 17), and also one of the hammers grooved around the centre (fig. 11), were found here, with a quantity of stone pounders of all sizes.

In the former memoir on the Hut circles⁸ a plan was given of the huts at Plâs Milo, as the name appears in the Ordnance map of which a copy was appended, but, as it ought rather to be called, Plâs Penrhos feilw, or the extreme point of the *Penrhos*, a name given to the whole district, from my resi-

⁷ Arch. Journ., vol. xxiv. p. 258; 424.
Arch. Cambr., third series, vol. xiv. p.

⁸ Arch. Journ., vol. xxiv. p. 238.

dence on the east of Holyhead Island, to the extreme western point at Penrhos feilio. From the excavation of one of the most perfect of the circular foundations, it appears that precisely the same arrangement presents itself as at Ty Mawr,—the small fire-place at the side, the pounding stone set in the floor of the hut, the flagged portion at the side, with the appearance of having been made for the purpose of dressing ore, and generally found in the Ty Mawr huts, the place also where a stone basin might have formerly been placed, as in other instances, but possibly removed, the earth being evidently not firm at that spot, and somewhat hollow. These stone basins had been frequently found here. The pounding stones of large size, the remains of “saddle-querns,” with



Plan of remains explored at Plâs, near Holyhead, on the estates of the Hon. W. O. Stanley, M.P.
A. Stone bench. B. Grinding-stone. C. Fire-place. D. Pavement of rudely-worked flagstones.

the rubbing stones of grit, whorls also, or buttons, hammers, and smoothing or polishing stones occurred in abundance. All these seemed to denote that the same process, whatever it was, had been carried on at Plâs and Ty Mawr, as well as at Pen y Bonc. The copper vein runs near. The five erect stones, that now are about three feet above the real surface of the ground, are singular; they stand like gravestones in a churchyard, and appear to have been worked like small

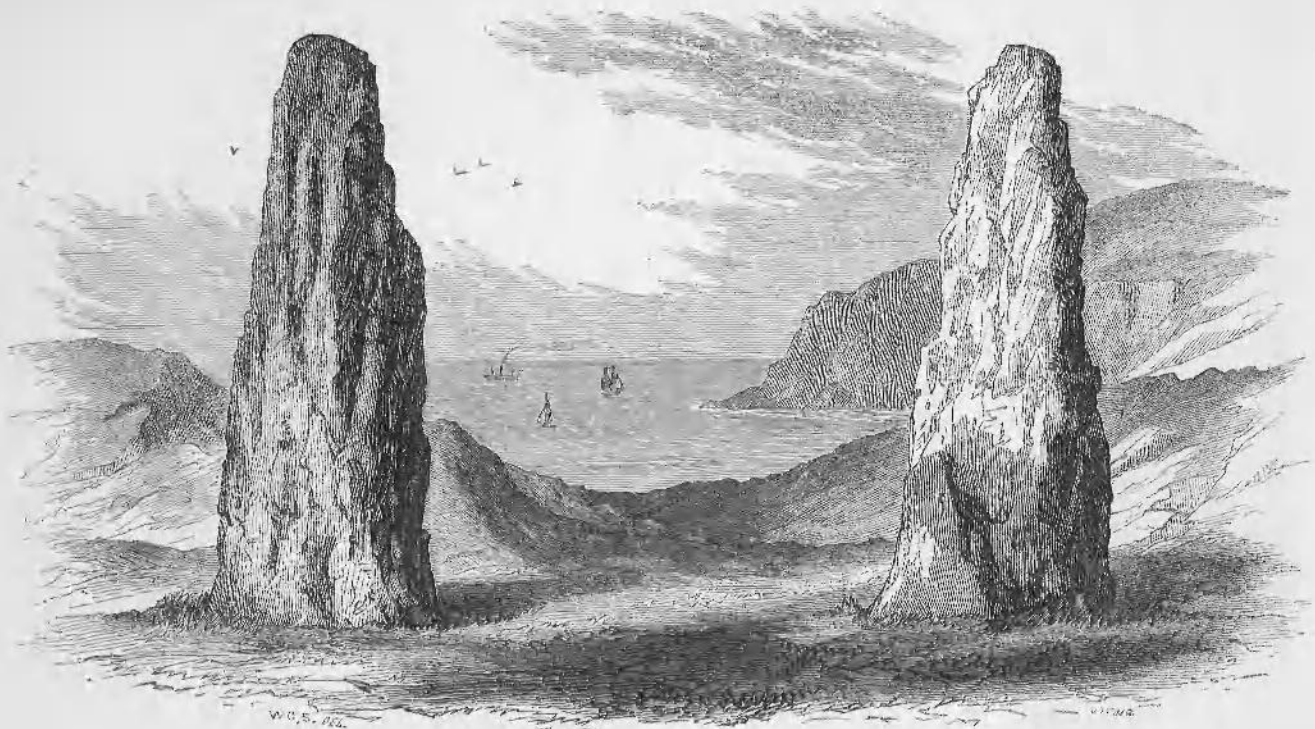
round pillars. Similar upright standing stones were lately seen at Pen y Bonc, in the oblong space where the urns were discovered, as shown in the ground-plan. No pottery was found here. The whole district of Plâs is interesting, and must have been a place of importance in Celtic times. There are moreover still to be seen two large meinhirs of schist rock, measuring 11 ft. in height above the ground, and 10 ft. apart, which, as old tradition affirms, were surrounded by a circle of large stones, standing 4 or 5 ft. above the surface; many of these were removed by the tenants to build the outhouses, fences, and to form gate-posts. Almost all these stones are of trap rock, unhewn, each stone weighing four or five tons. There is one still standing in the field to the east of the two meinhirs above mentioned.

Before I close my remarks upon the very interesting discoveries made by the excavations of the circular huts at Ty Mawr, Plâs, and Pen y Bonc, I would again call attention to the peculiar and uniform arrangements that have been found;—the fire-places so disposed and formed as to suggest the supposition that they may have been for the purposes of heating and working metal rather than for cooking, the slag and the clay-lined fire-places, as I have supposed them to have been, the stone mortars, the pounding and grinding stones also strongly embedded in the floor of the huts, the broken quartz from the copper lode, and the close proximity of both copper and iron ore.

In the Geological Survey of Great Britain by Professor Ramsay, in sheet 78, presenting sections of strata of Anglesey and Holyhead, I find the statement that "the fault is also a lode containing brown iron ore in quartz." A vein of copper ore similar to that of the Parys Mountain runs north and south, below the huts, to the west, cropping out at the sea.

The following is the report sent to me by the kindness of the Professor from the School of Mines in Jermyn Street, after examination of various specimens that I sent to him from the huts recently excavated:—

"1. Oxide of iron cementing fragments of the rocks of the country; it may possibly be a very ferruginous slag, the iron of which has subsequently oxidised, but it may be possibly in the state in which it was extracted from the lode; it is slightly magnetic, and this gives reason to believe that it may have been a piece of metallic iron that was



Meini hirion (long stones) of schist rock, at Pllas, Holyhead Island. (Height 11 feet: they stand 10 feet apart.)
From a drawing by the Hon. William Owen Stanley, M.P., on whose property these ancient monuments are preserved.

smelted, and by subsequent oxidation the stones became cemented on its surface.

"Close to the huts a fault runs across the country to the north east, which may be a lode; it should be examined where it comes out on the shore.⁹

"2. Broken quartz, as if from a lode.

"3. Oxide of iron, probably a piece of manufactured iron since completely oxidised; it is very magnetic, and this helps us to confirm that opinion.

"4. Stalactite, oxide of iron, or 'limonite.'

"5. Fragments of oxide of iron.

"6. Ferruginous clay or ochre.

"7. Carbonate of copper.

"8. Floor of a hut, fragments of artificially broken stones, probably stamped in clay.

"9. A small parcel containing a piece of colored glass, cut on one side, also a long rectangular specimen which, under the microscope, seems to be basalt chipped artificially on one side, and rubbed down on the two long narrow sides; also a square piece of the same basalt, chipped artificially on the concave side.

"Two pieces of clay also deserve notice, that are vitrified by heat inside and outside. One of these appears as if it might be part of the nozzle of a bellows, used perhaps for smelting purposes." (See p. 306, *supra*.)

The Britons, in rude primitive times, before the conquest by the Romans, used, as it is believed, a very simple process in smelting minerals. They placed the ore in a hollow in the ground, mingled and heaped up with wood or charcoal, which being fired was found sufficient to fuse the lead or other metal out of the soft and kindly ores of Britain. A small channel, as it is supposed, communicated with a second cavity, into which the fused metal ran from the furnace thus simply contrived.¹

I cannot refrain here from inviting attention to what appears to me much to the purpose of the subject under consideration. Mr. Aldis Wright, in his very interesting notices of Ancient Mining, in Dr. Smith's Dictionary of the

⁹ This has subsequently been done, and the lode or vein is there found, with appearances seeming to indicate that it had been worked in very ancient times.

¹ See Pennant's Notices of Ancient

Mining in Britain; Tour in Wales, vol. i. p. 50-66. Pennant states that the Romans knew only the weak power of the foot blast; *ibid.* p. 64.

Bible,² cites an account of an Egyptian mining colony in the Sinaitic peninsula, in the Wady Magharah, at a very early period. In this district is to be seen a ruined fortress, supposed to be for the defence of the miners ; hammers of green porphyry also have been found, and reservoirs so disposed that when one was full the surplus flowed into the others, so that they must have held an ample supply for years. The ancient furnaces are also to be noticed. There were at Surâbît-el-Khâdim, remains of dwellings, 140 in number, about 10 ft. square, and, at a short distance, ruins of a much greater number. Sir Gardner Wilkinson also, in his valuable work on the Ancient Egyptians,³ gives an account of the gold mines found by MM. Linant and Bonomi, and quotes the following particulars communicated by the latter :—

“Ruins of miners’ huts still remain, as at Surâbît-el-Khâdim. In those nearest the mines lived the workmen who were employed to break the quartz into small fragments, the size of a bean, from whose hands the pounded stone passed to the persons who ground it in hand-mills, similar to those now used for corn in the valley of the Nile, made of granitic stone, one of which is to be found in almost every house at these mines, either entire or broken. The quartz thus reduced to powder was washed on inclined tables, furnished with two cisterns, all built of fragments of stone collected there ; and near these inclined planes are generally found little white mounds, the residue of the operation.”

According to the account of mining operations by Diodorus Siculus, the ore was pounded in stone mortars with iron pestles till it was reduced to the size of a lentil ; the women and old men then ground it to a fine powder in the mills. The superintendent then spread the powder on a broad, slightly inclined table, and rubbed it gently with the hand, pouring water upon it from time to time to carry away the earthy particles.⁴ Have we not found in every hut recently explored at Ty Mawr similar contrivances suited for pounding, grinding, and washing the ore ? For what else could these appliances have been used, surely not for preparing food ?

² Vol. ii. p. 368. The descriptions of the extensive ancient mining establishments was taken from a most interesting letter in the *Athenæum*, June 4, 1859, from Surâbît-el-Khâdim, in the Desert

of Sinai.

³ *Anc. Egypt.*, vol. iii. p. 229.

⁴ Dr. Smith’s *Dict. of the Bible*, *ut supra*.

The hut excavated in 1862 and described in my former memoir presented a different arrangement, and was adapted for cooking ; the saddle-querns then found were of coarse grit, such a material as is now used for grinding and rubbing corn, whilst, in the huts lately examined, the grinding and pounding-stones are all of hard trap. This grit-stone, I may here observe, must have been brought from the centre of Anglesey ; there is none found near Holyhead. The grinding-stones are exactly similar to those found in Egypt and Africa, that may be seen in the Christy Collection. All these circumstances taken together convince me that we have here the evidence of a mining or metal-working population.

The bronze weapons of Irish type found in 1832, and the rude stone implements that have been discovered, might denote a native population.

The Roman coins of comparatively early date, the Roman pottery and urn burial, and remains of Roman querns or hand-mills at Pen y Bonc, quite different from the ruder Celtic form found in the huts above at Ty Mawr, give distinct evidence of Roman occupation ; but all these facts are easily reconciled, and would all point to about the end of the second century as the time when the mining works were carried on. The Romans conquered and inhabited Anglesey about A.D. 78, when Agricola invaded the island ; the first expedition of Suetonius, some years before, not having led to any permanent occupation, he was obliged to withdraw his forces, and to join the Roman army near St. Albans, to resist the Queen Boadicea. The Romans in 423, A.D., under Valentinian, finally left Britain.

The Irish occasionally occupied Holyhead and portions of Anglesey previous to, and after the time of, the Romans.

We may here consider with propriety what could have been the inducement for the Romans to invade and garrison Anglesey with, as Roman writers would lead us to suppose, a scanty and barbarous people, poor, and possessing nothing to offer to the cupidity of the conqueror. Was it for their own security, and that of their new settlements at Segontium, Conovium, and other points in North Wales ? Was it to break down the power of the Druids or Priests of the British nation, who had fled before them, or was it for gain and to secure the mineral wealth of Mona ?

In Whitaker's Manchester and in Carte's History, we find

that it is most erroneous to suppose that the Britons had no intercourse with other nations previous to the Roman invasion under Julius Cæsar, or that the people were wholly ignorant and barbarous. They had long traded with and were well known to the Belgic and Gallic nations, whose youths were occasionally sent hither to complete their education. Carte, but more especially Whitaker, has made it appear from sufficient authorities that the great commercial nations of antiquity, the Phœnicians and Carthaginians, traded to this island for a long period before the Romans made their appearance in the western parts of Europe. The first commerce of the Britons, according to Whitaker, was occasioned by the resort of the Phœnicians to their coasts.⁵ This was before the time of Herodotus, and about 500 years before the Christian era. The trade was opened with the Cassiterides or Scilly Islands at that period, antecedent to the establishment of Roman power here; the trade of the island, it is believed, was considerable; two roads were laid across it, reaching from Carnarvon to Sandwich, on one side, and from Dorsetshire to Suffolk, on the other, namely, the Ikening Street, that led to the one from the Icenî, and Watling Street, that led to the Irish Guetheli, denominated by the British Sarn Guetheling, or road of the Irish. The trade of tin was removed from Scilly, and settled in the Isle of Wight; the metal was transported by the Belgic traders over the neighbouring channel, unshipped on the other side, and sent by horses along the roads, or by boats along the rivers, to Marseilles and Narbonne. The exports were, as we learn from Diodorus Siculus, besides tin, gold, silver, iron, lead, hides, cattle, corn, and slaves; dogs, gems, mussel pearls, polished horn, objects of bone, horse collars, amber toys, and glass vessels; baskets, the silvery marl from Kent, mentioned by Pliny, and oysters.

I have quoted this from the *Cambrian Register*, now a scarce book, but it well deserves perusal, as are also the histories by Whitaker and Carte. The statement places before us the fact that Anglesey was then commercially known to Ireland as well as England; that the produce of the country was sought after by nations before the coming of the Romans, and that the mines of Anglesey may have

⁵ Pliny, lib. vii. c. 56.

been worked in very early times for export to foreign countries.

In various parts of Anglesey copper cakes have been found—three were brought to light in 1867 at Llechylched ; of these two are now in the possession of the Rev. W. Wynn Williams and the Rev. Hugh Prichard. These cakes weigh about 45 lb. each ; they bear no mark, and probably are not Roman. A detailed notice of the discovery will ere long be given by Mr. Prichard in the *Archæologia Cambrensis*.

I can trace three others ; one found at Caerhŷn, and now at Mostyn, is described by Pennant, and noticed in the *Archæological Journal* by Mr. Albert Way in a memoir on vestiges of ancient metallurgy in Britain ;⁶ one is in the Caernarvon Museum ; and a small cake found at Llangwyllog is preserved at the residence of Sir R. Bulkeley, Bart., at Baron Hill, Anglesey. Old workings for copper are traced at Amlwch, Parys Mine, Orme's Head, and also on Snowdon,⁷ as we are informed by Mr. C. Reed, F.S.A. Pearls were obtained at Conway and conveyed to Rome, where they were much esteemed. All this local wealth, if known to the Romans, may have induced them to invade Mona.

If we consider the value of Anglesey to the Romans strategically, from its prominent position as an outpost, it was absolutely required to take the precaution to occupy and garrison all the strongholds, for the sake of security against the attacks of tribes hostile to Roman rule beyond the seas, or from the half-subjected inhabitants of Mona itself, and to protect the new settlements of Segontium and Conovium (Caernarvon and Caerhŷn, near Conway), and other stations in North Wales. Still more was this indispensable to them if Ireland was to be invaded.

I will not enter into the discussion whether the Romans ever occupied Ireland ; this subject has been discussed at considerable length by Mr. Wright and Mr. Brash, in the *Archæologia Cambrensis*.⁸ As no one, however, has alleged that a yard of Roman road, masonry, or earthwork has been found in Ireland, we may conclude that no position there ever was occupied for any length of time, even if any descent was actually made upon its shores.

⁶ *Arch. Journ.*, vol. xvi.

⁸ *Arch. Cambr.*, third series, vol. xii. p.

⁷ *Proceedings, Society of Antiquaries*, 296 ; vol. xiii. p. 83.
second series, vol. i. p. 10.

adorned with crest, wreath and mantling, as in the figure of Duke Louis of Bavaria, 1449, engraved by Hefner (Trachten, part 2, pl. 44). The royal seals of Richard III. and Henry VII. also exhibit the Salade surmounted by the crest. In a great-seal of Edward IV., the king has Salade with beavor, but no crest. The *grand'-garde* or *manteau d'armes* was commonly worn with the Salade in the joust (see Hefner's plates 74, 89, and 109, and the Tourney-book of Duke William of Bavaria). Maximilian's "Triumph" gives us the "Course appelée Bund," in which the tilters wear with the Salade a *grand'-garde*, so attached that by being successfully struck by the adverse lance, it becomes loose and flies into the air; such a hit being of course counted a prize.

The *Celata*, however welcome to the knight of the fifteenth century, was a sore puzzle to the latteners and marblers of that day, whose aim in the monumental effigies they produced was by no means to "conceal" the features of the departed warrior. They mitigated the embarrassment by giving to the knightly head half its legitimate ornament; one while, according the visored skull-piece minus the beavor, at another supplying the beavor without the cap. Nos. 8 and 9 of our pl. 2 afford examples of both methods; the first from the brass of a Stapilton in Edenhall Church, Cumberland, dated 1458; the second from the monumental statue of Conrad v. Schaumberg, at Wurzburg, 1499. Occasionally they contrived to give both pieces, as in the Ingelheim monuments figured by Hefner, part 2, plates 131 and 136. Hans von Ingelheim, however, under date 1480, only ventures to show his nose and a part of his closed eyes.

From the earliest times of the Salade it was enriched with silver mountings. On the triumphal entry of the French into Rouen in 1449, a body of archers of the Comte de Clermont had "brigandines et harnois de jambes, et leurs Salades pour la plus grande partie garnies d'argent" (De Coucy, Hist. de Charles VII., p. 593, ed. 1661). Compare Chartier, p. 215, and the Institution of the Compagnies d'Ordonnance in 1445.

To the Salade was sometimes accorded the high honour of receiving the Pope's blessing, in the view of its being presented to some distinguished champion of the church. Brantôme tells us, in his "Discours sur le Grand Duc d'Albe,"

Was the expedition of the Romans into the remote island of Mona only to chastise the Druids and destroy their power? Possibly that may have been one object, as the Druids incited the natives to resist the Roman power; but it was not the custom of the Romans to war against the religion of a conquered nation. It is probable, therefore, that the search after mineral wealth and tribute, and the view to their own security, may have induced the Romans to hold Anglesey with a strong force.

Finding that the natives had been, or were, working the mines in Anglesey, it is natural that the Romans should employ native labor to raise the mineral, which they may probably have taken as tribute.

Mr. Tate, in his account of certain early vestiges in Northumberland, mentions slag heaps found on the moors of Eglingham and Harehope, a district abounding with (carboniferous formation) ironstone, and coal and limestone; these heaps always occur near ancient British camps and circular dwellings.⁹ We find the same on the hill-sides in North Wales; the ore was probably smelted on open hearths.

In Sussex and Kent, I have been informed that the Romans extracted iron from peat. In the bog near the Ty Mawr huts the peat is strongly impregnated with iron; and until very lately the peat at Parys Mountain, Amlwch, was burnt, the ashes containing a small percentage of copper. I learn from Mr. T. F. Evans, the able manager of the mines, that copper being so low in value it is no longer worth smelting.

In giving this memoir to the public, I feel how necessary it is to suspend all hasty conclusions as to the real nature of the objects found, or the races who inhabited these huts. A complete and searching investigation by the ablest archæologists is requisite before we can attempt to arrive at any satisfactory conclusions. I here offer these remarks, as, in my former memoir, from the absence of all traces of metal or pottery in the excavations then made, I was inclined to give an earlier date to the occupation of the village at Ty Mawr than the time of the Roman conquest.

The recent investigations, however, have dispelled my former conclusions too hastily formed; nevertheless, I do not

⁹ Proceedings of the Berwickshire Naturalists' Club.

think that anything then advanced is adverse to what we might expect to find under the new aspect that now presents itself to us.

The first huts excavated in 1862 were entirely different in their arrangement and in the objects found in them to those examined in 1868. The former I still must consider as huts set apart for cooking. Stone-boiling or cooking appears to me more probable now than formerly; all recent research teaches us that it was a custom prevalent in all Celtic countries, even to a late period of our history. Mr. Campbell, of Islay, tells me that what Capt. Birt stated, in 1746, regarding the customs of the islanders in the Hebrides, although he was never there himself, is known to be the common tradition. The islanders were accustomed to cook their beef in the hide, and in wooden vessels hollowed out with their dirks and the aid of fire. Into these they threw heated stones for the purpose of cooking their food and boiling water.¹

Sir Richard Griffith also informs me that a Roman Catholic priest at Mallow, with whom he had occasion to converse, in reference to the great heaps of stones on the hill sides in Ireland bearing marks of fire, and as to which the local tradition was that they had been places where charcoal had been made,—told him that it was well known that the natives, in former times, had used the stones for heating water and cooking food in wooden vessels.

We may suppose that the Romans found a native mining population at Ty Mawr and Holyhead; what could be more natural than that the natives should be compelled by their conquerors to continue mining operations for their benefit, whilst the native Britons continued to live in the huts that they had previously occupied, and retained their ancient customs.

Since this memoir was written, I have had the great pleasure and advantage of visiting the huts again, in company with Sir Richard Griffith, Bart. As a geologist and

¹ In connection with the curious subject of stone-boiling I may cite the narrative of Gilbert Malcom Sproat in his account of *Savage Life in Vancouver's Island*. He states that the natives use dishes formed of wood, either hollowed from a block or having sides fastened with wooden pegs. They carry water in

these, and the practice is to heat the water by throwing hot stones into it until it boils. They soften the split tree to form a canoe, when partly hollowed by axes of elk horn or shell; in the same way filling it with water and heating with hot stones.

mineralogist no one is more competent to form an opinion. He was greatly interested in all that he saw at Ty Mawr and Pen y Bonc; it could not be doubted that some extensive works had there been carried on, connected in some manner with metallurgical operations; but, as we had before remarked, there was no scoria in any quantity, nor, as it appeared to him, the indispensable means and appliances for smelting hard ores; still they might perhaps have worked metal in these huts, or even smelted the soft carbonates of copper usually found on the surface of lodes, similar to the nodule found and examined by Prof. Ramsay. The quantity and large size of many of the pounding and smoothing stones found could not have been for the exclusive purpose of preparing food; those appliances must have been used in some sort of manufacture.

When visiting the coast of Antrim, I was struck with the intense white heat produced by burning the kelp, or seaweed, in open kilns made with perforations or open-work in the building, to allow the blast of air to act as a bellows. May not the ancients have found that the alkali served as a solvent, and thus have smelted the ore near the sea-shore where it was found, and where the lode is most easily worked?

I cannot conclude without noticing the conduct of some unknown visitors at the huts recently explored at Ty Mawr. I had purposely left everything exactly as I had excavated it, for the advantage of all interested, to see how the arrangement had been. They hired persons to pick up the mortars and stones, and carried away the best; so that I have been obliged to remove the remainder into a place of safety. Such conduct cannot be too highly blamed; it destroys the pleasure of so many intelligent persons desirous to examine the remains, and it is in itself a most dishonest act.

DESCRIPTION OF THE GROUND-PLANS OF CIRCULAR HUTS AND BUILDINGS EXCAVATED IN 1868.

No. 1. Ground-plan of the hut, first examined, at the east end of the village of Ty Mawr (the hut to the south of a triangle of huts, under M in the word Mynydd, in the Survey of the Cyttiau'r Gwyddelod, given with the former memoir in the *Archaeological Journal*, vol. xxiv., p. 229).

No. 2. Hut at the extreme west end of the village, near the road to the South Stack (in a line with the last letter of the word Stack, in the Survey).

No. 3. Hut 15 yards north of the one excavated in 1862, and described in the former memoir.

No. 4. Hut in the group at the west end of the village, and near Nos. 2 and 3.

No. 5. Portion of circular foundations in the same group as the last.

No. 6. Hut situated above Nos. 4 and 5, in the fence to the north of the village. In this building there were appearances of a fierce fire having been made. Coins, numerous fragments of coarse pottery, with charcoal, and much slag, were here found.

There is a small building, or chamber, of oval or oblong form, and lined with stone, adjacent to the south end of each of the huts, Nos. 3, 4, and 5.

No. 7. An oblong building or pit, with a fire-place at one side, and a stone seat. Near the hut, No. 3.

No. 8. Oblong building, with an opening (like a doorway?) at one side. Near the hut, No. 4.

No. 9. Oblong building or pit, situated 15 yards S.E. of the hut, No. 6. This pit, the floor of which is curiously channeled, is carefully lined with stone laid in courses. In this building the supposed nozzle of a pair of bellows was found. The pit might possibly have been used in some process connected with smelting metal. (See *Smith's Dictionary of the Bible*, under Metal and Mines; and *Dr. Ure's Dictionary of the Arts*.)

The Samothracians used a simple process of smelting iron: Sir Gardner Wilkinson has described the method employed.

IMPLEMENTS AND OBJECTS OF STONE FOUND IN THE EXCAVATIONS.
(See Woodcuts).

Fig. 1. Interior view of the hut first excavated. Ground-plan No. 1. The supposed chimney in the north wall of the hut, the position of the mortar, rubbing-stone, &c., and the fire-place near the middle of the area are here shown.

Fig. 2. Small stone cup, that may have been used as a lamp; it measures about 2 inches in each direction. Several objects of this description were found. Somewhat similar lamps, formed of soap-stone, are used by the Esquimaux. Stone cups, intended possibly for the like uses, have been repeatedly found in Scotland: these for the most part have small handles or ears; the lamps used by the Esquimaux are frequently formed without handles.

Figs. 3, 4. Stone whorls; possibly fastenings of the dress. About 14 objects of this description were found. (The woodcuts are of the full size.)

Fig. 5. Oval pebbles, of various sizes ; supposed to have been sling-stones.

Fig. 6. Small oval black pebbles, rubbed down to a flat surface, and well polished ; probably used for some game. (The woodcuts are of the full size.)

Figs. 7, 8, 9. Objects of stone apparently selected on account of their natural forms, being suitable for use as hand-hammers, or for some process of trituration. Implements of like fashion have occurred in the north of England, and elsewhere ; somewhat similar objects seem to have been used also by the Carib Indians.

Since the examinations were carried out in 1868, a remarkable specimen has been found at Ty Mawr, weighing 10 lbs. The form is well suited for being grasped by the hand, for use in pounding, or the like.

Figs. 10, 11. Stone hammers, of a form that occurs in all countries, and found in old mine workings ; they are more or less grooved around the middle, probably for the purpose of attaching them to wooden handles by means of animal sinew, bands of skin, or even by withy bands twisted round, and strongly lashed, a mode of hafting implements of stone commonly used by savage nations.

Fig. 12. A rounded stone, somewhat resembling a weight : the bottom is flat, as if the stone might have served for some process of trituration ; on the top there are two singular projections, separated by an intervening groove. The general form of this stone may have been natural, but the object has probably been adapted artificially for some use, which it is not easy to define. The stone measures at the bottom $3\frac{1}{2}$ inches, and about 2 inches in height.

Fig. 13. A small oval cup of stone, suited for use as a lamp. Length, $4\frac{1}{2}$ inches. Compare the notice of Fig. 2, *supra*.

Fig. 14. A rounded stone, flat at top and bottom, rubbed down with considerable care, so as to reduce it to an irregularly spherical form, with numerous facets all around its circumference. Of these flat rounded stones several examples occurred ; their use has not been satisfactorily ascertained. Diameter, 3 inches.

Fig. 15. Another implement of the same class and dimensions ; it may have been a polishing stone, and has been worked with considerable care, so as to give regularity in giving the rounded form of its contour. There appear to be no indications of use as a hammer. Several other like objects of ruder fashion were found, formed of quartz.

Fig. 16. An oblong trough or mould formed of trap. Found in the excavations at Pen y Bonc. Length 18 in., breadth 10 in., height $7\frac{1}{2}$ in. It had been broken into several pieces, and the ends were much fractured. The cavity is well polished, and the surface within, when carefully examined by the microscope, has a certain appearance indicating exposure to great heat, that had produced a slight degree of vitrification. At one of the ends there is a round cavity, about the size of half an orange, the use of which it is very difficult to conjecture, more especially in the present imperfect and broken condition of that extremity of the block of stone. It has been supposed that the oblong trough may have been used as a mould for running melted metal. A fragment of another similar object was found, of the like material, and of which it appeared that the dimensions, in its perfect state, were nearly the same. At the

extremity of the stone there was likewise a cavity, as in the object first described, but of oval form.

Fig. 17. A well-formed oval hammer of trap rock. (Found at Pen y Bonc.) It measures rather more than $4\frac{1}{2}$ in. in length, 3 in. in breadth, and is perforated for hafting; the perforation is about three-quarters of an inch in diameter. This implement, of comparatively rare type, has been presented to the British Museum. The moiety of a second similar implement, of decomposed granite, was found in the Ty Mawr huts; when perfect it had measured about 6 in. in length by 5 in. in breadth. Another specimen (of decomposed granite?), precisely similar in form and appearance, the surface much weathered, is in the possession of Mr. Granville Leveson Gower; it was found near his residence, Titsey Park, Surrey, and has been figured in the Surrey Archæological Collections, vol. iv., p. 237.

Fig. 18. A sharpening-stone, the surface being marked by transverse grooved lines, produced apparently in the process of sharpening some edged implement. This piece of stone, much fractured at each of its ends, measures about 6 in. by 5 in. These scorings may be compared with those occurring, to a much greater extent, on certain rocks in Caernarvonshire and other places in North Wales, and supposed to have been produced in sharpening weapons, arrow-heads, and the like. A remarkable example, now destroyed, existed near Aber in Caernarvonshire, where the Welsh princes anciently had a residence. This stone, wholly covered with scorings caused, according to popular tradition, in sharpening arrows and the like, was known as "*Carreg y saethau*,"—the stone of arrows. It has been figured, Arch. Journ., vol. xxi., p. 170.

Fig. 19. Another sharpening-stone, scored with three deep grooves; it measures about $3\frac{1}{2}$ in. in length and breadth, and 1 in. greatest thickness. In one of the grooves lay a small irregularly-fashioned object of stone, possibly an implement for some use not ascertained. It is represented at the side of the woodcut. These relics, and also that last described, were found in the hut No. 3.

Fig. 20. A four-sided implement of stone, fashioned with considerable care; the sides are flat and smooth; one extremity is worked to a sharp edge. (Found at Pen y Bonc.) It has been suggested that it might have served as a burnisher, or polishing-stone. Dimensions, about 4 in. by $2\frac{1}{2}$ in.; thickness, $\frac{3}{4}$ in. In the Blackmore Museum at Salisbury there is an implement of stone, found near Frome, Somerset, similar in general form and dimensions.

A considerable number of pebbles, with indications of having probably served for various mechanical or other uses were found, some of them bearing traces of percussion, whilst others may have served as mullers or rubbers, or for polishers and the like. Amongst them occurred the little

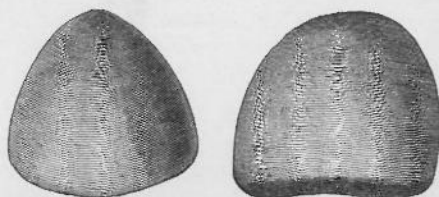


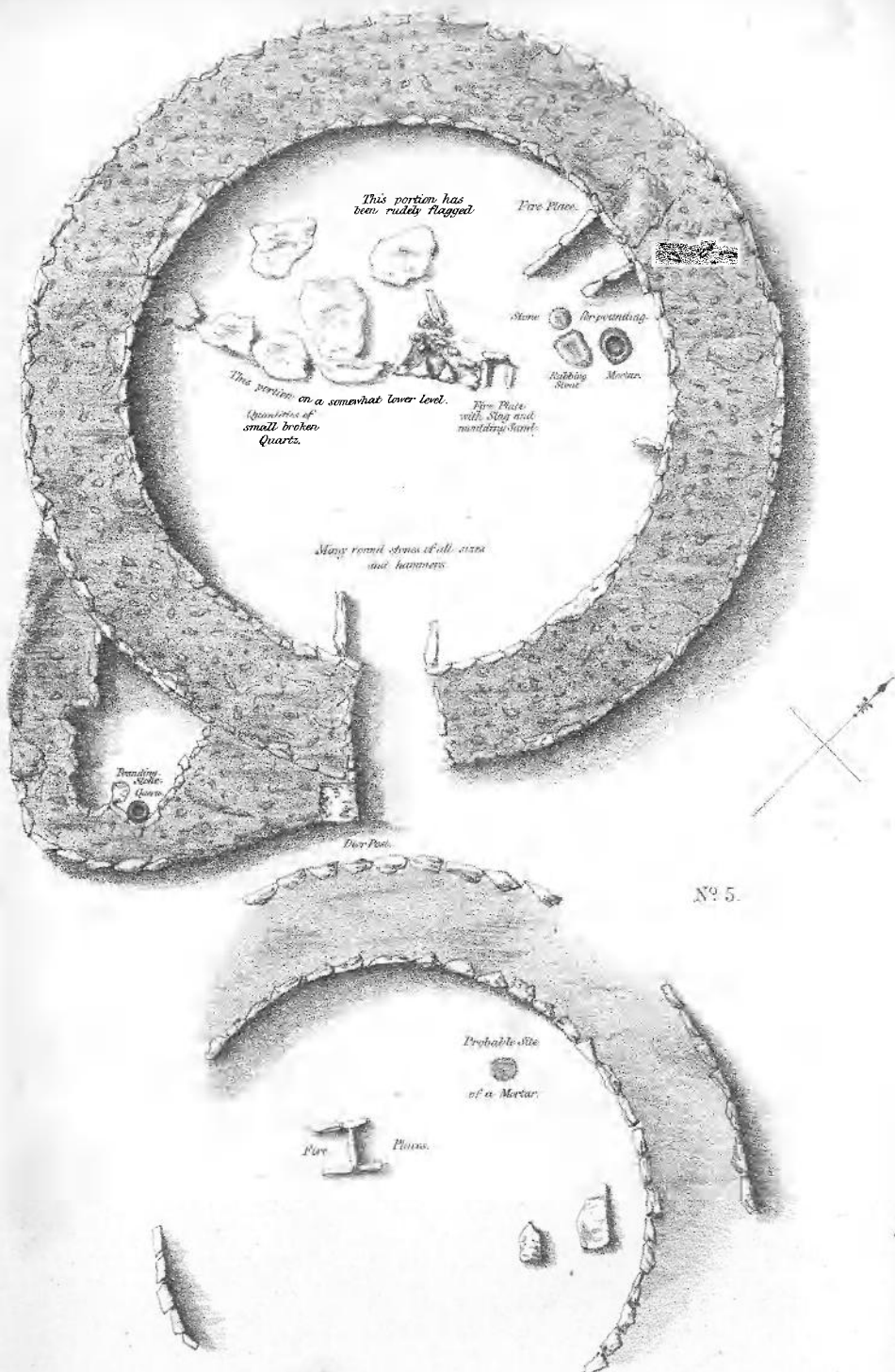
Fig. 21. Small stone muller. Side view and profile.

object here figured, Fig. 21, measuring about $1\frac{3}{4}$ in., greatest breadth. The appearance of friction upon the surface of this and other stones, suitable by their form for certain purposes, seem to entitle them to be regarded as implements of simple character.

In all the huts there were found oval and round sea-shore pebbles, measuring from a small size to 4 in. in diameter, in great quantities, and presenting the appearance of having been exposed to great heat, probably in the process of "stone-boiling." Notices of the occurrence of the like indications of that usage were given in a former memoir, *Arch. Journ.*, vol. xxiv., p. 248. Some smooth pebbles may have been missiles and sling-stones; some, mostly of hard quartz, may have been, as indicated by traces of percussion, hand-hammers, with which certain implements of stone were fashioned and chipped. They do not appear, as shown by their rough and notched surfaces, to have served in pounding or grinding grain and the like.

Two "saddle querns" of grit-stone were found, of fashion similar to that found at Ty Mawr in 1862, and figured *Arch. Journ.*, vol. xxiv., p. 244; also numerous broken rubbers, the oblong upper stones or "runners," that were used with the grinding appliances of that peculiar description. There were also portions of rounded objects of trap-rock, that in their perfect state may have measured about 10 in. in diameter, and 3 in. in thickness, well smoothed and polished, and fitting the stone mortars, which occurred in so many instances in the remarkable ancient buildings that have been described.

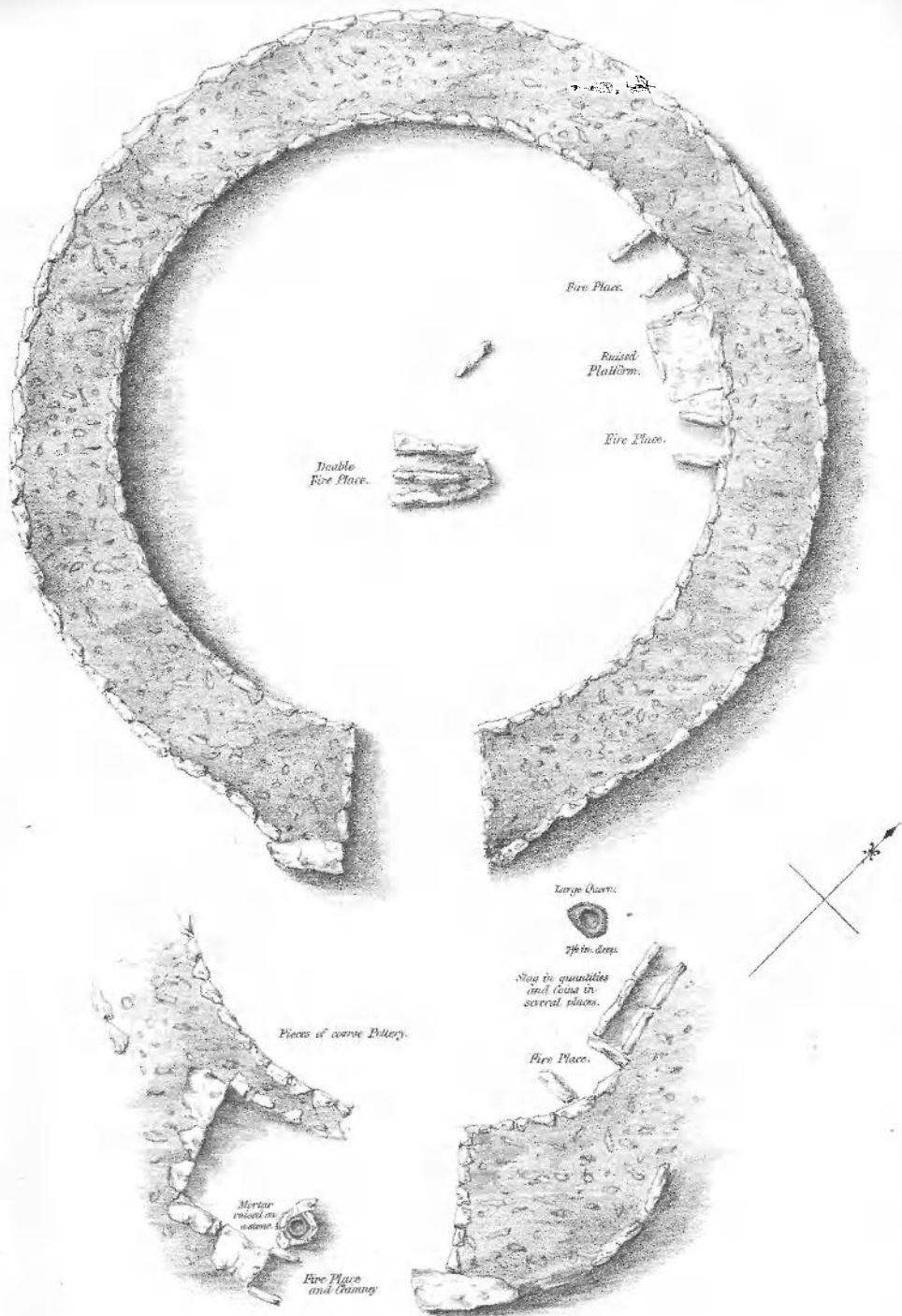
The Institute is indebted to the gratifying liberality of the Author of the foregoing valuable memoir, by whom the greater part of the accompanying illustrations have been contributed.



FOUNDATIONS OF CIRCULAR BUILDINGS AT TY MAWR, HOLYHEAD ISLAND.

SCALE.
 $\frac{1}{4}$ inch = 1 foot.

Surveyed, 1868 by M^r T.P. Elliott, of Penrhos.

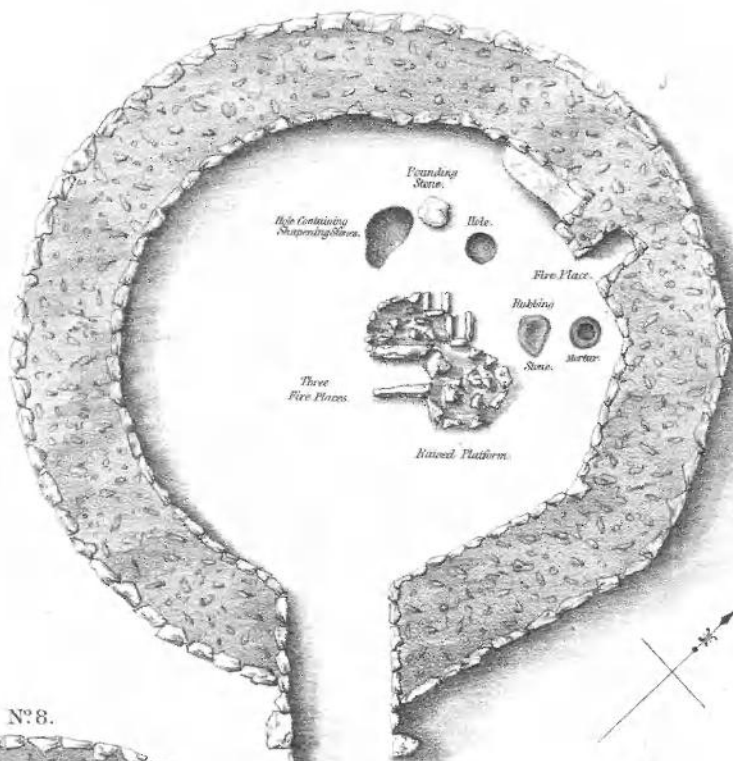


Nº 6.

FOUNDATIONS OF CIRCULAR BUILDINGS AT TY MAWR, HOLYHEAD ISLAND.

SCALE.
1/8 inch = 1 foot.

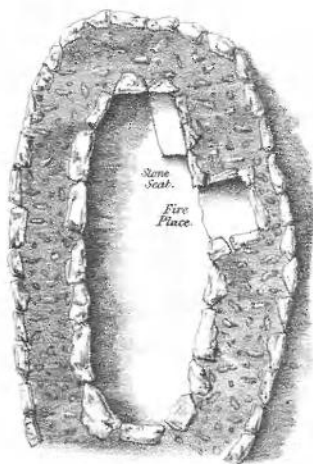
Surveyed 1868 by M^r T. P. Elliott, of Penrhos.



Nº 8.



Nº 7.



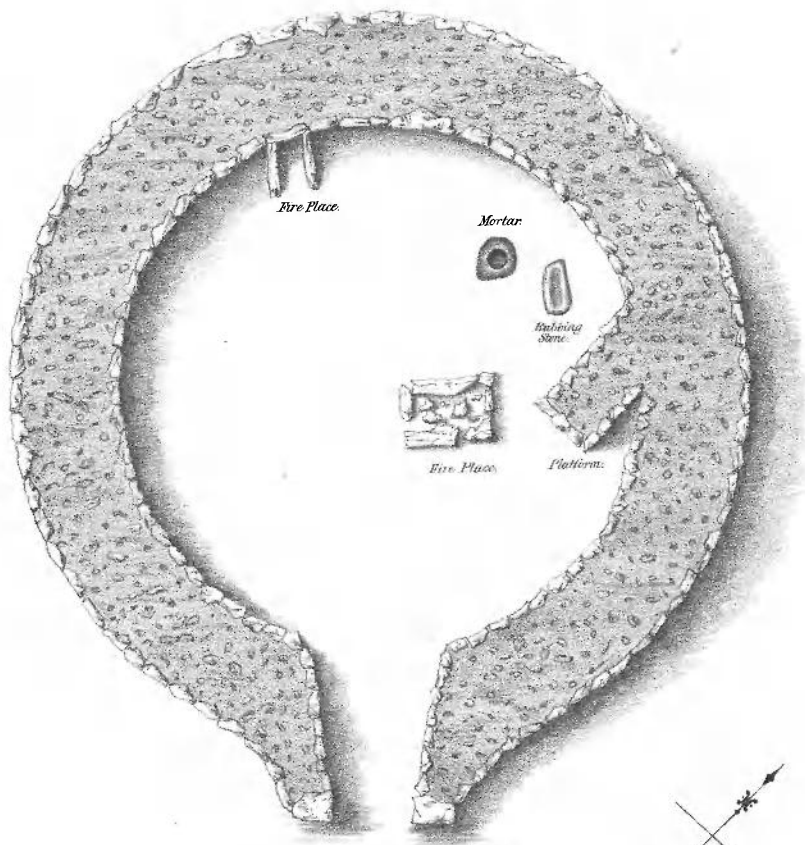
FOUNDATIONS OF CIRCULAR BUILDINGS AT TY MAWR, HOLYHEAD ISLAND.

SCALE.

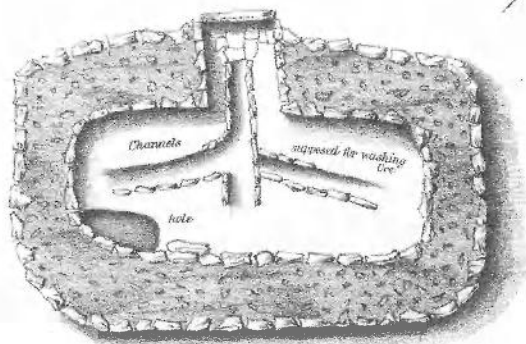
$\frac{1}{8}$ inch = 1 foot.

Surveyed 1868 by M^r T. P. Elliott, of Penrhus.

Nº 4.



Nº 9.



Slag and coarse Pottery in abundance.

FOUNDATIONS OF CIRCULAR BUILDINGS AT TY MAWR, HOLYHEAD ISLAND.

SCALE.
 $\frac{1}{8}$ inch = 1 foot.

Surveyed 1868 by Mr T.P. Elliott, of Penrhos.

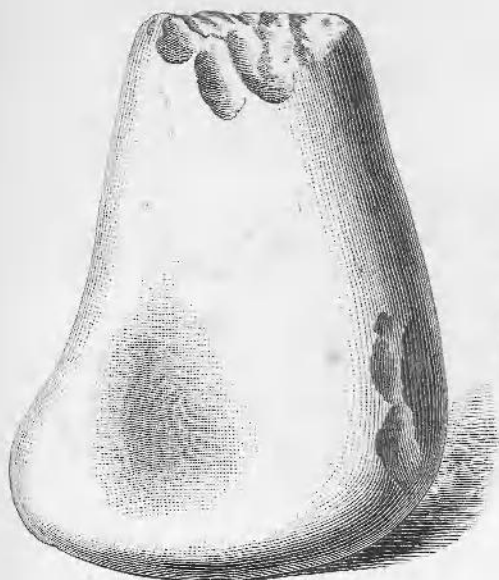


Fig. 7.

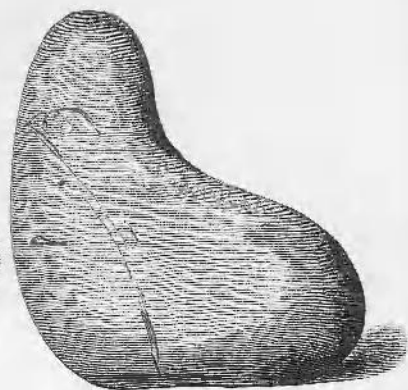


Fig. 8.

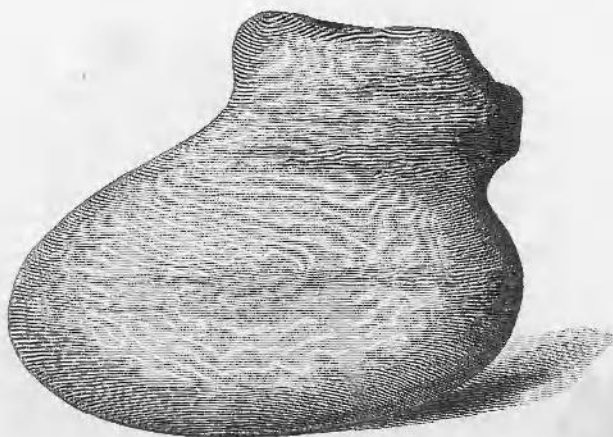


Fig. 9.

I. Implements of stone, found in hut-circles in Holyhead Island, on the estates of the Hon. William Owen Stanley, F.S.A.

(Scale, two-thirds original size.)

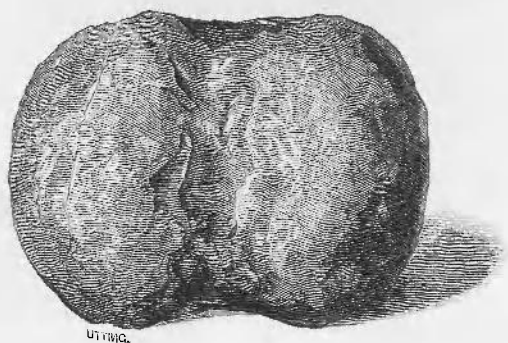


Fig. 10.

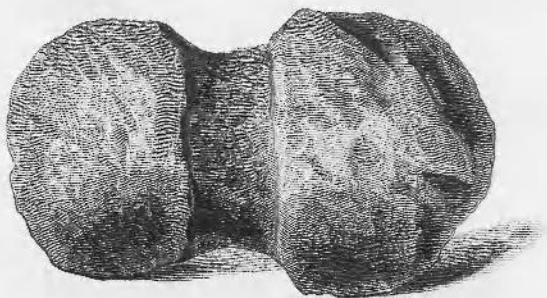


Fig. 11.

II. Hammers or Implements of stone, found in hut-circles in Holyhead Island, on the estates of the Hon. William Owen Stanley, F.S.A.

(Scale, half original size.)

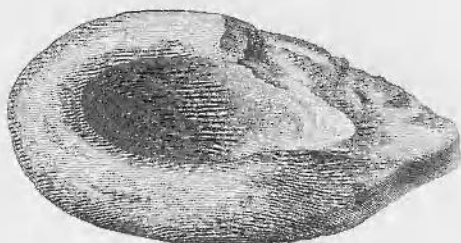


Fig. 13.

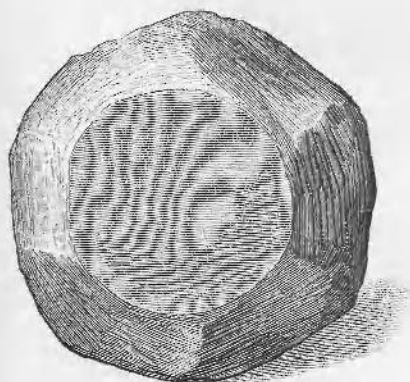


Fig. 14.



Fig. 15.

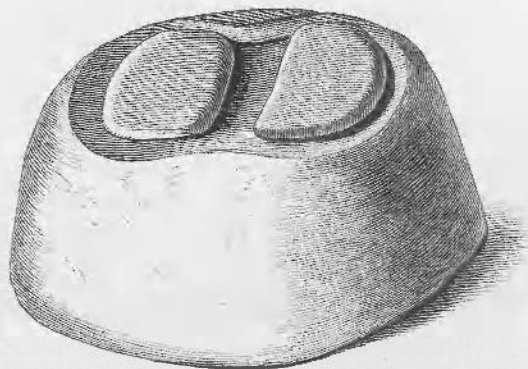


Fig. 12.

III. Cup and relics of stone, found in hut-circles in Holyhead Island, on the estates of the Hon. William Owen Stanley, F.S.A.
(Scale, two-thirds original size.)

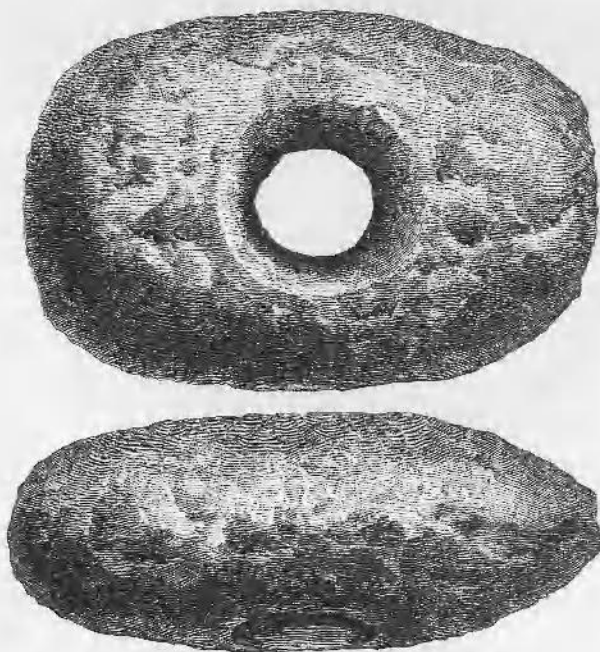


Fig. 17.

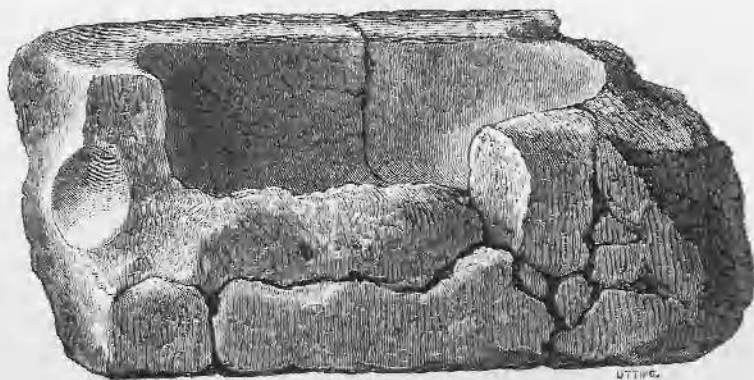


Fig. 16.

IV. Ancient objects of stone, found in hut-circles in Holyhead Island, on the estates of the Hon. William Owen Stanley, F.S.A.

Fig. 17.—Hammer-head, length $4\frac{1}{2}$ in.

Fig. 16.—Oblong trough, length 18 in., breadth 10 in.

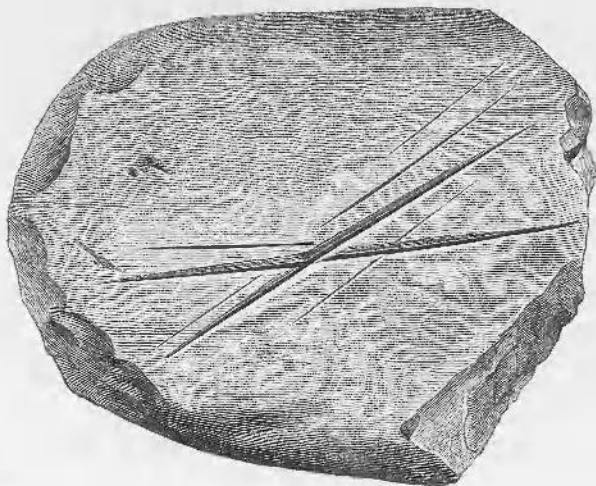


Fig. 18.



Fig. 19.

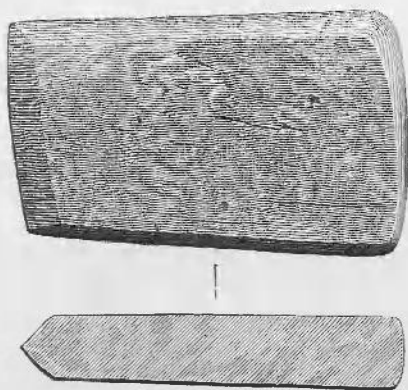


Fig. 20.

V. Ancient objects of stone, found in hut-circles in Holyhead Island, on the estates of the Hon. William Owen Stanley, F.S.A.

(Scale, half original size.)