

ON THE KIMMERIDGE "COAL MONEY."

[Read at Canterbury, September 10, 1844.]

AN investigation of that antiquarian puzzle, the so-called "Kimmeridge Coal Money," may not be considered inapt on this occasion, as furnishing facts from which indications may be afforded of the state and progress of the arts amongst the earlier inhabitants of Britain.

The articles termed "Kimmeridge Coal Money" are found only in one locality, in the pseudo-isle of Purbeck, on the southern coast of Dorsetshire. They are mentioned and briefly described by Hutchins, the historian of Dorsetshire; who, however, offers no opinion in regard to them. A short treatise on them was published a few years since by Mr. W. A. Miles, who constructed a very ingenious hypothesis on the subject, attributing these obscure relics to the hands of Phœnician artists, and regarding them, not as money in the way of a circulating currency, "but as representatives of coin, and of some mystical use in sacrificial or sepulchral rites."

These curious articles are found in two little secluded valleys open to the sea, divided by an intervening ridge of considerable elevation, and known as Kimmeridge and Worthbarrow bays. These bays are in the wildest and least frequented part of Purbeck, where the ploughshare is scarcely known, and the scanty population, retaining much of a primitive character, live remote from the busy world with which they have but rare intercourse. It is beneath the unbroken pastures of this romantic district, that the "Kimmeridge Coal Money" is to be sought for and found.

The material of which these articles are formed is a bituminous shale, of which an extensive bed exists on that part of the coast. It has been much used in the neighbourhood as fuel, and is still in request by the inhabitants for that purpose. It burns freely, with a white ash and slaty residue, and diffuses a disagreeable bituminous odour throughout the apartment in which it may be consumed.

In form these articles are flat circular pieces with bevelled and moulded edges, from $1\frac{1}{4}$ inch to $2\frac{1}{2}$ inches in diameter, and from $\frac{1}{4}$ to $\frac{5}{8}$ of an inch in thickness. The accuracy with which the circular form is preserved, and

the sharpness of the mouldings, even after the lapse of many ages, shew that the pieces were turned in a lathe. They have on one side, two, three, or four round holes, apparently for fixing the point of a chuck, and on the other side a small pivot hole. In a few instances these round holes are absent, and the pieces are wholly perforated with a single central square hole, so that the piece may be fixed on a small square mandril-head, circumstances which prove that the people who made these articles were well accustomed to the use of the lathe, not in its primitive rude form, but as an improved and somewhat perfected instrument. Much irregularity is observable in the number of the holes. The greater proportion of pieces have two holes; where three occur they are by no means arranged with mathematical exactitude, but sufficiently so for the purposes of turning. Pieces with four holes are rare, and generally of a small size.

As already stated, the "Coal Money" is exclusively found in the two bays of Kimmeridge and Worthbarrow. Here, in the primitive pastures unbroken by the plough, or by any operation of man, these antiquarian problems are discovered beneath the surface, at depths varying from five to eighteen inches, or occasionally perhaps at a still greater depth. In some spots they are much more numerous than in others; in one instance upwards of thirty pieces were dug up within the compass of about a square yard. They are frequently brought to light in some numbers in the construction of drains for the purpose of bringing the land into cultivation. The cliffs that constitute that portion of the coast are of a yielding nature, giving way rapidly to the frosts and storms of winter, and after a portion of the summit has crumbled into the surf below, it is not unusual to observe pieces of the "Coal Money" projecting their edges from the new face of the cliff. They are generally found at the bottom of the superior stratum of mould irregularly scattered about, and having no appearance or association to indicate an intentional and careful depositure.

Of the substances with which the "Coal Money" is found associated, the first place must be assigned to fragments of pottery. The ware thus found is of the same well-established character as that met with in all our Romano-British settlements. Chiefly of a hard close-grained texture, with a smooth black surface, it is occasionally mingled with pieces of a

lighter, reddish colour, and coarser manufacture; and rare instances have occurred of fragments of that peculiarly fine red decorated ware termed Samian being exhumed. Of the coarse unbaked early British pottery, very few fragments have been observed. The ware is invariably found in dispersed fragments of vessels of various descriptions, some shallow pateræ, others large wide-mouthed jars. No authenticated instance of an entire vessel having been discovered can be adduced; Hutchins indeed mentions the "Coal Money" as found in kistvaens and urns, but he speaks solely upon hearsay, and repeated and patient personal observation and research in the neighbourhood, extending over some years, and much oral communication with the peasantry of that part, have failed to ascertain any such instance. The "Coal Money" is frequently found mixed with small flat pieces of stone having each but a few inches of surface.

Fragments of the Kimmeridge shale, the "raw material" of which the articles are formed, are very frequently discovered mixed with the "Coal Money," or under the same circumstances. Some of these shew the marks of cutting tools, as if prepared for the lathe, whilst the shale, being fresh from the quarry, was comparatively soft. Others exhibit lines, angles, circles, and other figures, drawn with mathematical accuracy, the central point, in which one leg of the compasses was inserted, being observable in some of the circles. Pieces of rings of the same material, apparently from two to three inches in diameter, and about $\frac{1}{4}$ of an inch thick, have likewise been turned up; and in one instance a perfect ring was dug up in the formation of a drain, the inner diameter of which was $1\frac{1}{4}$ inch, and the thickness of the ring $\frac{3}{8}$ of an inch, making a total diameter of two inches. One piece of the shale has been rudely cut by some very sharp instrument into an irregular form with a large perforation, as if worn about the person. Small fragments of charcoal are also frequently found mixed with the "Coal Money."

As to the origin of these articles, and the purposes for which they were constructed and to which they were applied, the hypotheses hitherto advanced have been equally varied and unsatisfactory, and those antiquaries under whose notice they have fallen, have been, to use the language of Sir R. C. Hoare, "in doubt and uncertainty respecting the use to which these articles were originally appropriated." The notion that they

were used as money needs not a word of refutation; no one has seriously advanced such a position; there is nothing whatever to support it; and the circumstances that the fragile nature of the material utterly unfits it for passing from hand to hand, and that the articles are found only in the Kimmeridge mint, are sufficient negative evidence to controvert any conclusion that may be drawn from a name, doubtless popularly acquired from the circular form of the pieces, and traditionally preserved amongst the peasantry.

All the considerations as to the use to which these articles were destined, resolve themselves into a negative character.

The "Coal Money," for instance, is not found in direct association with any sepulchral deposit. An interment in a kistvaen, in a low tumulus, has indeed been found in the same locality, with specimens of the "Coal Money" near, but manifestly from their position and all other circumstances not in connection with any sepulchral intention.

Nor is there any evidence that these articles were applied to any sacrificial purpose. It is true that Mr. Miles found a kistvaen, containing evidence of a sacrifice of the head of a bullock, but he distinctly says, that *within* this chamber there was *no deposit* of "Coal Money," though around it fragments of pottery and "Coal Money" were abundant; but this is the case all over the neighbourhood.

And on another occasion an instance was brought to light of a manifest sacrifice, consisting of the head and other parts of a bullock, but equally destitute of all evidences of direct association with the "Coal Money," specimens of which were irregularly scattered in the neighbourhood. Again, during the course of some investigations for "Coal Money" in the face of the cliff in Worthbarrow bay, evidences of sacrificial remains were discovered about two feet below the surface. A number of small flat stones were found, between and on which were ashes, charcoal, black mould, and other indications of the action of fire. These burnt materials were in some places in considerable abundance, and at one spot was a large quantity of charred wheat, the grains still retaining their form, resting on a flat stone somewhat larger than the average size. No "Coal Money," however, was found in immediate connection with these remains, but several pieces were observed lying as if accidentally and irregularly placed around them.

For the purposes of such an enquiry as this, it may avail to

see whether any analogy or information can be derived from other articles to the construction of which the same material has been applied; and in this respect some very conclusive facts were brought to light early in 1839. Excavations were then made in what was proved, beyond all question, to be the cemetery or burial-place of the Romano-British settlement of Durnovaria, (the present Dorchester,) and amongst the discoveries then made were several armillæ of the Kimmeridge coal, all of which had been evidently turned, highly polished, and finished in a manner indicating an advanced state of art. One was grooved and neatly notched by way of ornament; the interior diameter of this ring was $2\frac{1}{2}$ inches. Others were polished but not ornamented, presenting a similar appearance to the larger specimens of ring-money. One of these rings was round the wrist of the skeleton of a female. At the same time were found two or three amulets, or large beads, of the same material. These were nearly spherical, of a flattened barrel shape, being $1\frac{1}{4}$ inch in the longer, and 1 inch in the shorter diameter. Associated with these relics were all the ordinary indicia of Romano-British interments; pottery, precisely similar in description to that found in Kimmeridge and Worthbarrow, urns of various descriptions, coins of Hadrian, Gratian, and others.

Under these circumstances, and in the absence of any trace of careful and intentional depository, but with every indication that the pieces of "Coal Money" were thrown on the ground and left for disposition as chance might direct, there seems good reason to arrive at the conclusion that they were mere waste pieces thrown out of the lathe as the refuse nuclei of such rings as those found at Durnovaria. Three pieces of the Kimmeridge shale, now submitted to inspection, would appear to be conclusive on the subject. Two of these have been cut into a circular form, each $3\frac{1}{2}$ inches in diameter, and prepared for the lathe, by a keen cutting tool, the shape having been determined by compasses. One has a small pivot point indented on one side, with holes on the other side for retaining the points of the chuck. The other piece has been wholly perforated with a square hole for a mandril-head. On the formation of rings from such pieces whilst in the lathe, it is manifest that circular waste pieces of the same size, form, and description as the "Coal Money," must necessarily be produced.

The third specimen is exactly such a piece as must be placed in the lathe for the formation of a bead, like that found at Durnovaria. A comparison between these pieces and the specimens of Coal Money and beads, can leave scarcely a doubt of the origin.

It may indeed be said that the material is ill fitted for the construction of armlets, because of its fragile nature; but the fact is established in the above instances, that such rings have been found, and have been used as armlets; and there are also other instances of a somewhat similar material having been appropriated to the same purpose in the other extremity of the island. An armlet of precisely similar form and dimensions to those discovered at Durnovaria, has been found in Scotland, and is figured in the volume of "Transactions of the Society of Antiquaries of Scotland." This bracelet, with other ornaments, was formed of "cannel coal," a material somewhat similar to the Kimmeridge shale. A difficulty may also, at first sight, appear in the depth at which these articles have been found beneath the surface, and which would seem to imply a purposed depositure by inhumation. But it is remarkable that they are generally found in unbroken pasture ground, where no trace of any disturbance of the soil is to be observed. By what means, then, were they buried at the depth at which they are now found? The problem is of easy solution. These pieces of "Coal Money," with the accompanying stones and fragments of pottery, carelessly left on the surface, have reached their present position by the steady and long-continued operation of a natural cause, the effect of which is frequently observed on digging into soil that had been chalked or marled some years previously, and where the chalk or marl will invariably be found in a layer at a depth below the surface proportionate to the time that may have elapsed. The certainty of this effect, and the nature of the operating cause, are well noted in a paper "On the formation of Mould," read before the Geological Society of London, by Charles Darwin, Esq., F.G.S., in which the writer adduces a number of instances conclusively demonstrative that this effect is attributable to an operation which, however trivial it may appear, is proved to be sufficient for the purpose, viz., the natural operation of the ordinary earthworm,—that the whole is due to the digestive process by which the earthworm is supported. It is well known that worms swallow earthy matter, and that

having separated the nutritive portion, they eject at the mouth of their burrows the remainder in little intestine-shaped heaps. The worm being unable to swallow large particles, and as it would naturally avoid lime and other noxious matters, the fine earth beneath those things would by a slow but certain process be removed and thrown to the surface. The earthworm, moreover, requires moisture, and in dry weather finds it necessary to burrow beneath the parched surface; and the depth to which these animals descend to avoid the drought of summer and the frosts of winter, is frequently very great. This agency, trifling as it might at first be thought, is not so slight, the great number of earthworms (as every one must be aware who has ever dug in a grass field) making up for the insignificant quantity of work which each performs. The rapidity with which the operation is sometimes carried on, in soils of favourable description, is astonishing; a very few years comparatively being sufficient to bury the refuse matters beneath the whole of the surface soil. In one field chalked fourteen years since, the chalk now forms a perfect layer about twelve inches beneath the surface. In another instance the chalk was buried three inches in ten years. The time required for the work varies much with the nature of the soil.

The circumstances already stated will therefore indicate that amongst the Romanized Britons, in the remote vales of Kimmeridge and Worthbarrow, an establishment was founded for the manufacture of ornaments, amulets, beads, and other articles, out of the easily worked material here provided by the hand of nature; and the great quantity of fragmental ware here found, the charcoal and coal ashes, of which great quantities have been exhumed, and other local indications, render it not unlikely that a pottery had been previously founded in this locality, to render available the convenient contiguity of the Purbeck clay and the Kimmeridge coal, and that accidental circumstances had demonstrated the facility with which the coal might be converted into articles of utility or ornament, and thus suggested the manufactory which, we have seen, was here established.

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