ARCHÆOLOGICAL

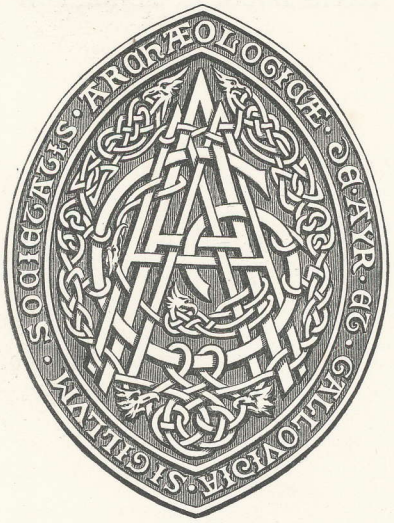
AND

HISTORICAL COLLECTIONS

RELATING TO

AYRSHIRE & GALLOWAY

VOL. V.



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CONTENTS.

VII.

THE LAKE-DWELLINGS OF WIGTONSHIRE.

The western portion of Wigtonshire, known as the Rhins of Galloway, is joined to the mainland by a flat isthmus, composed of a subsoil of sand and gravel, which separates Loch Ryan on the north from Luce Bay on the south. A slight lowering of the land would constitute this peninsula an island—a condition which is proved to have existed in former times by the abundant remains of raised beaches still to be seen, especially on the western shore of Luce Bay. When Loch Ryan and Luce Bay were thus united and formed a continuous channel, the mainland, from Finnart Point to Burrow Head, was an exposed rocky shore, affording here and there points sufficiently sheltered to admit of the deposition of permanently raised beaches—a good example of which may be seen in a section close to Dunragit Railway Station. Also in many places the action of sea currents and rough rolling waves is still manifest on some of its cliffs not far from the present seashore. The south-eastern portion of the county, bounded by Luce Bay on the west and Wigton Bay on the east, forming a triangular peninsula, having its apex at Burrow Head, is called the Machers, from the Gaelic *Machair*, a word still used by the Highlanders to designate the lower and generally cultivated lands of Scotland. In contradistinction to the Machers of Wigtonshire are the more barren and hilly regions to the north, which go under the name of the Moors. Geologically, the whole of the county is included in that broad band of Silurian rocks, some 40 miles wide, which extends right across Scotland, in a north-eastern direction, from the Irish Channel to the German Ocean. In the vicinity of the Isle of Whithorn a small patch of the Upper Silurian beds is found; but, with this exception, all the stratified

rocks in the county belong to the lower beds of this formation.[1] These sedimentary or metamorphic rocks, especially in the southern districts, are frequently disturbed by igneous dikes and protruded masses of basalt. The natural rock-sculpturings, necessarily involved in the great antiquity of these formations, owing to the incessant corroding influences of atmospheric and geological agencies, have received a final surface polish from glaciers and land ice. Hence, the lowlands of Wigtonshire, though not deeply intersected by river channels, are of an extremely undulating character, consisting of a succession of rounded bosses of rock or hillocks of *till*, with intervening hollows, many of which are clearly defined as rock-scooped basins. When the great ice sheet finally disappeared the country must have been profusely studded with small shallow lakes. But many of them, owing to the pluvial condition of the climate which subsequently prevailed, have now become entirely obliterated by peat bogs and other deposits of organic debris. When, however, by any chance, portions of these hollows become exposed, as by the removal of the superficial peat or the artificial drainage of a loch, the rocky bottom is found to have the characteristic glacial polish and markings. Striking instances of these phenomena are at the present time to be seen on the dried bed of Dowalton Loch and that of the partially drained Loch of Dernaglaur, as well as many other places. In the higher districts of Galloway the glacial striæ (which always indicate the direction of the ice) follow the trend of the valleys, but in the southern and lower parts, as the Rhins and the Machers, their general direction is from N.E. to S.W., a course which appears to have been unaffected by the surface inequalities of the land. But notwithstanding the filling up of so many of these lake basins, there is still no county in Scotland which contains so large a number of lakes and mossy tarns, supplying the special conditions of security sought after by the constructors of the lake-dwellings of prehistoric times.

And here let me observe that the disparity in the number of lake-dwellings hitherto discovered in the different districts of Scotland may be partially accounted for by the disparity in the distribution of the lakes. It is quite clear that in localities where there were no natural lakes, lake-dwellings could not abound; and hence the inhabitants of such localities, though contemporary with the Crannog-builders in other parts of Scotland, and even conversant with their art, would have recourse, of necessity, to some

[1] On the west coast of Loch Ryan is stretched a strip of Permian breccia and stratified sandstone, beyond which, to the west, appear some clay beds, apparently of the Carboniferous series.—*Ed.*

other means of protection. A ready explanation of the unusual number of lake-dwellings now being discovered in Wigtonshire may therefore be found in its peculiar topographical and hydrographical conditions, which, as we have seen, were so favourable to the security of insular abodes.

It is now nearly 22 years since the first lake-dwellings in Wigtonshire were discovered and investigated, and, though not the earliest examples of the kind observed in Scotland, they were, up to within the last few years, the only ones whose practical results were of much scientific value. Previous to this the attention of antiquaries was directed to the probable existence of lacustrine abodes in Scotland by Dr. Joseph Robertson, who, in December 1857, read a paper on the subject to the Society of Antiquaries of Scotland. The reading of this paper brought to the recollection of Dr. Mackinlay, F.S.A. Scot., that he had seen, as early as 1812, during an unusually dry summer, what he considered to be palisaded islands in Dhu-Loch, Bute. Also, in 1863, Dr. Grigor of Nairn communicated to the same Society a notice of similar structures in the Loch of the Clans, in his vicinity; and in the same year Dr. Grierson of Thornhill announced at a meeting of the Dumfriesshire Natural History Society that a stockaded island had been observed in a small tarn near Sanquhar, which had been artificially drained for the purpose of recovering the body of a man who had drowned himself in it. It must, however, be remembered that, when the first Wigtonshire crannogs were discovered in consequence of the drainage of Loch Dowalton during the summer of 1863, at the instance of the late Sir William Maxwell of Monreith, these notices had not been published, and could have no influence in guiding the investigations which ensued, and were immediately described by Lord Lovaine at the August meeting of the British Association, then being held at Newcastle-upon-Tyne. Indeed, Dr. Robertson's paper was not published at all; and it was not till the 13th March 1865, nearly two years later, and *after he had visited the Dowalton crannogs,* that Dr. Stuart's paper "*On Artificial Islands or Crannogs in Scotland*" was read at the Society of Antiquaries of Scotland. The only other notice of Scottish crannogs that appears to have been written, prior to the report of the Dowalton discoveries, is the excellent article in Chambers's Encyclopædia; but it is not likely that this article would be then available to the public, seeing that this book was not completed till 1868, and that the writer (the same Dr. Robertson) refers to published literature on the subject in other countries as late as 1861.

In claiming, therefore, for Wigtonshire the honour of being the first

county in Scotland in which the existence of crannogs was proved by systematic investigations, and their antiquity and historical importance determined by an indubitable array of relics, I am not straining the laws of legitimate inference. The correctness of this assertion will be sufficiently exemplified by the facts adduced in the course of this article.

In addition to the series of explorations conducted in various parts of the county under the auspices of the President, Secretaries, and other members of the Ayr and Wigton Archæological Association, the results of which have been placed at my disposal, I have to mention that His Grace the Duke of Northumberland has most willingly granted permission to reprint the entire text of his original and extremely valuable article on the Dowalton Lake-Dwellings.

1. *Dowalton Crannogs.*

Before its final disappearance by drainage, Loch Dowalton, or, as it is named in Bleau's *Atlas*, the Loch of Boirlant,[1] was situated about the centre of the Machers, and occupied the eastern portion of a narrow valley which extended westwardly for about 5 miles. Its form was extremely irregular, measuring $1\frac{1}{2}$ mile in its greatest length, and about half that in breadth. At its eastern end there are three slight hollows, leading to lower ground, through any of which the surplus water of the loch might find a natural exit. It is now, however, difficult to say which of them was the original outlet, as they have been all artificially deepened and used as water-lades to some neighbouring mills. A small island, near its western extremity, was called the Miller's Cairn, from its having been used as a mark to indicate the depth of water in the loch. When this exceeded a certain point the bordering meadow-lands became flooded, and then their tenants claimed the right to open the mill sluices and allow the water to run off. This right the present venerable tenant of Stonehouse, Mr. Cumming, who in his earlier years lived on the farm of Drummoddie, at the west end of the loch, often enforced, by walking to the other end of the loch and opening the sluices with his own hands. In former times, when a corn mill was erected on an estate, the tenants were obliged to send their grain to it alone. This practice led to the erection of mills all over the country wherever suitable streams could be got. The system of *thirlage*, as this practice was called, having been discontinued long ago, these local mills gradually fell into disuse; and of their former existence, in many instances, no evidence now remains except artificial dams and water-lades.

[1] Boreland, the name of a farm at its western extremity.

To expose new land and help to drain the extensive meadows and mosses which occupied the western portion of the Dowalton valley (the drainage of a large portion of which was into the loch), the proprietor, the late Sir William Maxwell of Monreith, conceived the project of cutting through the lip of rock, which at its extreme eastern point was the sole barrier between its waters and the lower ground in that direction. This excavation was completed during the summer of 1863, and as the waters subsided the artificial islands now about to be described became visible. To the curious and to the lovers of natural cataclysms, no less than to agriculturists, the event must have been extremely interesting, more especially as the loch was known to be well stocked with fish. But this remark does not apply to the unfortunate fish, to which the discharge of the waters was by no means a welcome occurrence, as they were captured in large quantities by the surrounding peasants. Sir Herbert Maxwell, who was an eye-witness of these exciting scenes (though in a spirit of contrition he now acknowledges to have been 'more interested in wild ducks and fish than the antiquarian treasures of Loch Dowalton'), kindly furnishes me with the following reminiscences of the circumstances which led to the recognition of the true nature of the artificial islands:—"I remember when Lord Lovaine was taken down to see the drainage operations in 1863, that the islands were just appearing above the subsiding waters. His lordship had, I think, just returned from Switzerland, where he had visited the lake-dwellings there. My father told me that he exclaimed 'Why, here are just the things I have been looking at in the Swiss lakes.'

"Many objects were picked up without excavation, lying on the surface. I remember picking up a piece of white armlet. I was told at the time that a tradition had always been current that a village lay below the waters of Dowalton Loch.

"Upon removing some stones from the surface of the Miller's Cairn (the only crannog which used to show above the surface) one Sunday, when I visited it with a friend before it had been excavated, I found some coarse woollen (?) cloth of a very dark colour, of which I brought home about half a yard, leaving a quantity behind. Next morning I left for Oxford, and the cloth was forgotten. I remember its appearance distinctly.

"The bronze tripod vessel (see Fig. 31 in article on "Ancient Implements," p. 39) was found by a boy cutting weeds in the bed of the loch. He said it was full of tow when he got it."

The following is the report of his Grace the Duke of Northumberland, D.C.L., LL.D. (then Lord Lovaine), as published in the *Transactions of the British Association for the Advancement of Science*, held at Newcastle-upon-Tyne in August and September 1863. It is entitled:—"On the recent Discovery of Lacustrine Human Habitations in Wigtonshire. By Lord Lovaine."

"Dowalton Loch, in which the structures about to be described were discovered, is a sheet of water of very irregular form, about two miles long and half a mile broad, situated in Wigtonshire, on the west coast of Scotland, at the end of a narrow valley five miles in extent, the whole of which is occupied by a moss, part of whose waters flow into the loch, and the remainder into the sea near Monreith; the elevation of the watershed near the middle of the valley being almost imperceptible. Sir William Maxwell, of Monreith, has effected the drainage of this loch at his own heavy expense, to the great benefit of his neighbours as well as himself, by a cutting at its southern extremity of no less than 25 feet deep, for a considerable distance through the wall of whinstone and slate that closes the valley. The water having been partially drawn off, the bed of the loch exhibits the appearance of an immense sheet of mud, surrounded by beaches of different elevations, covered with large rolled stones and angular blocks of slate. It contains a few small islets, composed, apparently, of the same materials as the beaches. Sir W. Maxwell, having heard that a bronze vessel had been found in the mud near the southern shore, succeeded in obtaining it, but could not trace other articles of the same description reported to have been found near it. On visiting the spot, 19th of August, 1863, to obtain further information, I observed some timbers standing on an island near the centre of the loch, and was told that some one had been there in a boat when it first appeared above water, and had found bones, a small granite quern, and piles; and a spot was pointed out to me at the extremity of one of the little promontories, when similar piles were observable, which, on inspection, I found to be true. These piles varied from a foot to 18 inches in circumference. Sir W. Maxwell's bailiff, Mr. Chalmers, who displayed great zeal and intelligence throughout these researches, having proceeded to the spot to secure labourers for the next day's search, reported that, though it was not possible to reach the larger island, a smaller one was accessible, and that a canoe lay near it. On reaching the island, over about 40 yards of mud, I found it nearly circular, about 38 yards in circumference and 13 in diameter.

It was elevated about 5½ feet above the mud, and on each side of it were two patches of stone, nearly touching it. On the north side of it lay a canoe of oak, between the two patches, and surrounded by piles, the heads just appearing above the surface of the mud; it was 24 feet long, 4 feet 2 inches broad in the middle, and 7 inches deep, the thickness of the bottom being 2 inches. On removing the stones which covered the surface, several teeth, apparently of swine and oxen, were found; and I proceeded to cut a trench round the islet; and upon coming to the southern end a small quantity of ashes was turned up, in which were teeth and burnt bones, a piece of a fine earthenware armlet of a yellow colour, and a large broken earthenware bead, striped blue and white, together with a small metal ornament, apparently gilt; two other pieces of an armlet of the same material, one striped with blue and white, were also found on the surface. On cutting deeper into the structure (the foregoing objects having been found on the outside, about 2 feet from the top), it proved to be wholly artificial, resting on the soft bottom of the loch; the uppermost layer was a mass of brushwood about 2 feet thick; beneath it large branches and stems of small trees, mostly hazel and birch, mingled with large stones, evidently added to compress the mass; below that were layers of heather and brushwood, intermingled with stones and soil, the whole resting upon a bed of fern about 1 foot thick, which appeared in all the structures examined to form the foundation. The whole mass was pinned together by piles and stakes of oak and willow, some of them driven 2½ feet into the bottom of the loch, similar to those above mentioned. The islet was surrounded by an immense number of these, extending to a distance of 20 yards around it; and the masses of stone, which apparently were meant to act as breakwaters, were laid amongst them. The one next examined stood about 60 yards off, at the extremity of a rocky projection into the loch, but separated from it by the now hardened mud. It was smaller, and the layers were not so distinctly marked, and some of the timbers inserted in it under the first layer of brushwood were larger, and either split or cut to a face. A stake with two holes bored in it about the size of a finger, a thin piece of wood in which mortises had been cut, and a sort of box, the interior of which was about 6 inches cube, with a ledge to receive the cover, very rudely cut out of a block of wood, were found. I succeeded two days afterwards in reaching the largest islet in a boat. It appeared by measurement to be 3 feet below the level of the other islets; but it was much larger, and several depressions

on its surface showed that it had sunk. Wherever the soil was not covered with stones and silt, teeth were scattered all over it. We found quantities of bones at different depths in the mass, but always below the upper layer of faggots, and towards the outside. The progress of the excavation was very soon stopped by the oozing in of the water; but a workman, plunging his arm up to the shoulder into the soft material, brought up handfuls of the fern layer, mingled with sticks and hazel-nuts, and large bones believed to be those of oxen. Near the spot, lumps of sand and stone, fused together, were picked up. On the south side of the island extraordinary pains had been taken to secure the structure; heavy slabs of oak 5 feet long, 2 feet wide, and 2 inches thick, were laid one upon another in a sloping direction, bolted together by stakes inserted in mortises 8 inches by 10 inches in size, and connected by squared pieces of timber 3 feet 8 inches in length. It extended to the length of 23 yards, and its base, about 5 yards beyond the surface of the mud, was formed of stems of trees laid horizontally and secured by stakes. In other respects, the formation resembled that of the other islet, but it was far larger, measuring 100 yards round by about 36 yards across. No building of any sort was discovered; but a large plank of oak, 12 feet long, 14 inches broad, and 7 inches thick, lay covered with stones on the north side. The sinking of the mud had by this time laid bare a second canoe between the islet first examined and the shore; it was 18½ feet long, 2 feet 7 inches wide, and barely 2 inches deep; a block of wood, cut to fit a hole left probably by a rotten branch, was inserted in the side, 2 feet long, 7 inches wide, and 5½ inches thick, and had there been secured by pegs driven through the side; across the stern was cut a deep groove to admit a backboard; a hole, 2 inches in diameter, was bored at about one-third of the length of both canoes in the bottom. This was so rotten that it would not bear my weight without breaking. The next day, being unable to reach the last-mentioned island, I found upon the spot which had been indicated to me on my first inquiry, no less than six structures similar to those before described, in a semicircle. They were, however, much smaller, apparently single dwellings. Though upon some of them charred wood was found, nothing else was discovered, except a mortised piece of timber which might have drifted there; and in one, inserted under the upper layer of brushwood, a large oak timber, measuring 8 feet long by 3 feet in circumference. Throughout these investigations, no tool or weapon of any sort has come to light. In the layers, the leaves

and nuts were perfectly fresh and distinct, and the bark was as plainly distinguishable on the stems and timber as on the day they were laid down, as were also the heather and the fern. It is difficult to conjecture the state of the loch when these edifices were formed, and whether or not they were completed at one period. The finding of the large stones in the lower layer of ferns might lead to the belief that they were gradually raised as the waters of the loch increased; and the necessity of strengthening them by breakwaters would seem to prove that the loch must have risen considerably before they were abandoned. No other sort of building has been discovered on them; but the great number of teeth scattered over the surface of the larger island, and even on the mud surrounding, and the immense expenditure of labour indicated in the shaping and hewing of the large timber with tools, which must have been, from the work produced, of the rudest description, betoken apparently a considerable population. The loch must have remained for a considerable period at each of the different levels before mentioned; at one time 6 or 7 feet above its last level (that is, before its drainage was effected), to which it was reduced by three cuts made to feed neighbouring mills, one certainly of great antiquity. At $3\frac{1}{2}$ feet below the ordinary level there are unmistakable appearances of a former beach, with which the top of the first-mentioned islet almost exactly coincides. It is remarkable that though there are many rocky eminences in the bed of the loch, none bear token of ever having been used for the erection of these dwellings, which seem invariably to have been based upon the soft bottom of the loch, where the intervening mud and water may have afforded the inhabitants a greater security from attacks from the shore. I had not time to examine fully the shores of the loch; but I was assured by Mr. Chalmers that he had examined them carefully without finding traces of other structures. On a hill to the south there are remains of a Danish fort[1] (*i.e.* a circular intrenchment), and the very ancient ruin called Longcastle is on an adjacent promontory on the north side. Since writing the above a very old man in Sir William Maxwell's service told me that in cleaning out a channel between a small wooded island in Myrton Loch, close to Monreith House, and the beach, he remembers there being found layers of timbers, piles, and flat stones laid in circles.[2] I have also obtained from a farmer

[1] His lordship adds, as a footnote: "This has subsequently proved, on closer investigation, to be decidedly Roman. A Roman fibula (penannular brooch, Fig. 8) in bronze has also been picked up on the larger islet."

[2] When Mr. Cochran-Patrick and I were

living near Ravenstone Moss a paddle of black oak, 3 feet long, 14 inches broad, and 1 inch thick, which, with four or five others, he had found in

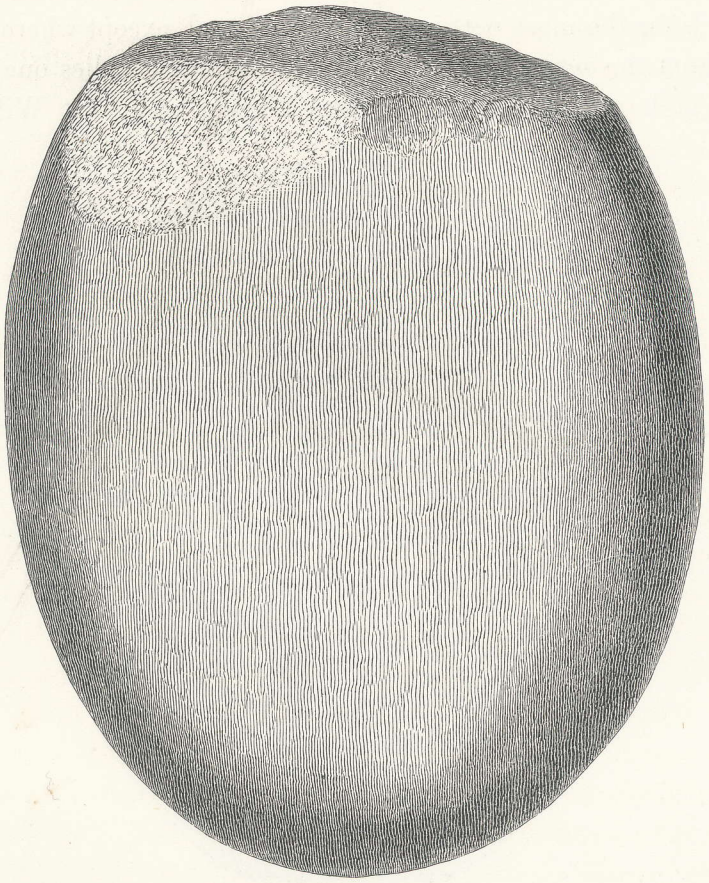


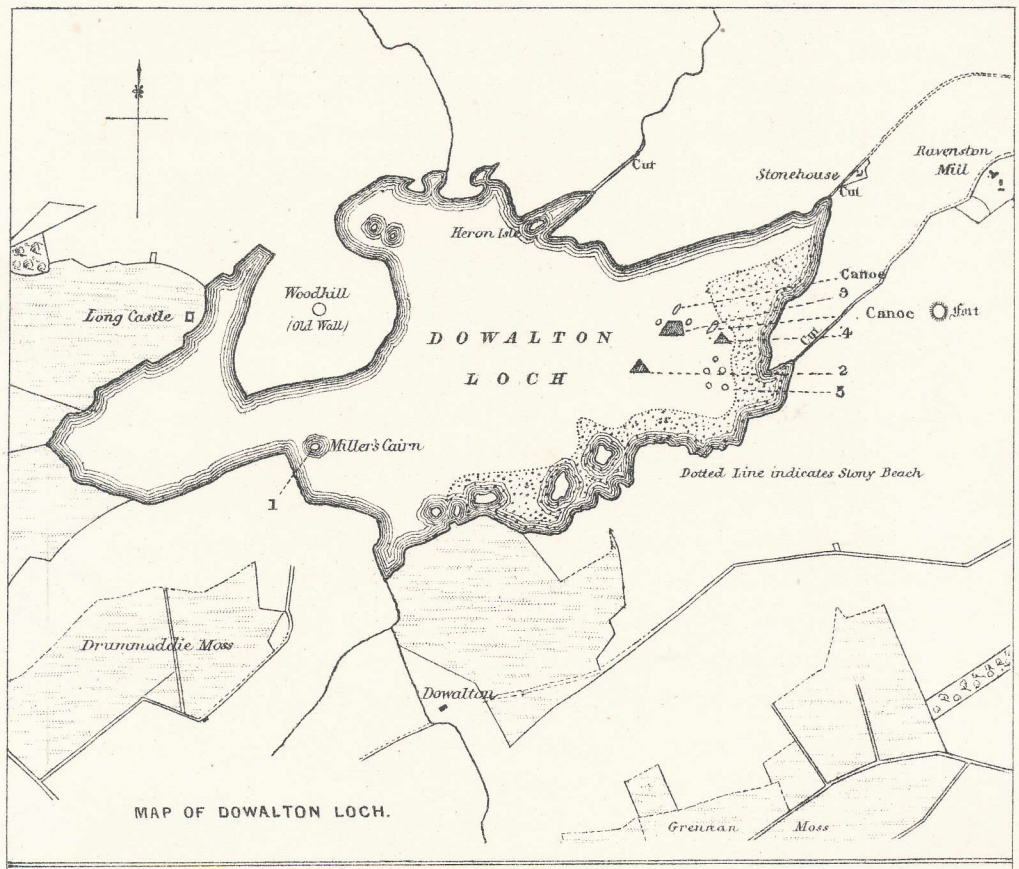
Fig. 1.—Hammer Stone. Natural size.

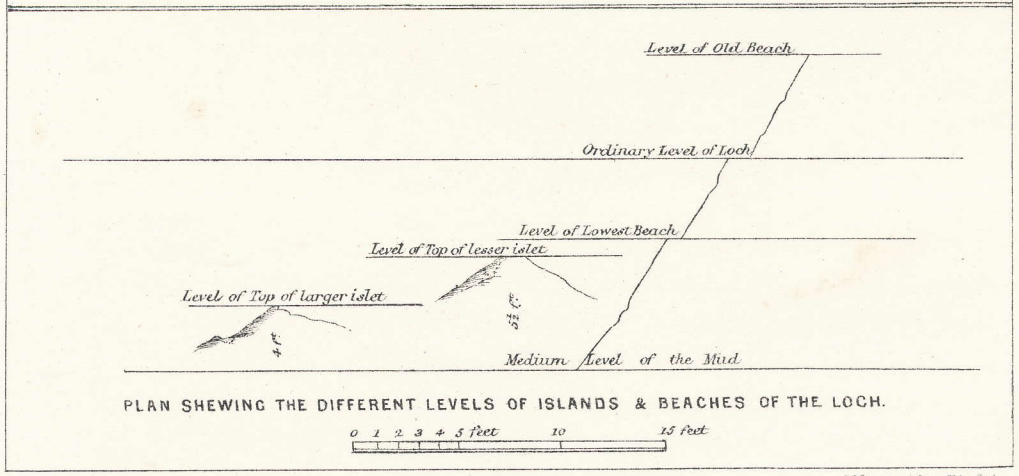
staying for a few days at Monreith during the autumn of last year, Sir Herbert Maxwell took us to see a supposed crannog in the dried bed of the Black Loch of Myrton, adjacent to the White Loch here referred to by Lord Lovaine, and in a short time we succeeded in detecting, through a dense thicket of bushes and nettles, the tops of a few black posts of oak which formed part of its surrounding stockade. Since then Sir Herbert made some tentative digging, of which he sends the following notes: "The crannog which I showed you close to this house will I think repay further investigation. The loch has been drained for 80 years, and its bed repeatedly cropped and then planted. Trees now over 25 years old. Surface of island extensive (140 feet diameter), and shows 8 or 9 mounds. Opened one: found pavement of flat stones laid in clay, about 9 feet in diameter and irregularly circular. Stones much fire-marked, with much ashes and cinders both above and below. Dug $4\frac{1}{2}$ feet deep, when water came in before reaching the old lake bottom. Found several excellent grinding-stones of white quartz (Figs. 1 and 2), and hard sandstone beach pebbles. Also many whitened beach pebbles, and some masses of corroded iron and vitreous slag. Worked only for four hours."

that moss, lying close to a mass of timber about 6 feet from the surface; this, I have every reason to believe, formed part of a structure similar to those described. I should have mentioned that, though retaining its shape, the timber is for the most part completely decayed, except where it has been protected from the action of the mud. Dowalton Loch lies one mile to the left of the high road, half-way between Wigton and Port William. The

Fig. 2.—Hammer Stone. Natural size.

name of the loch is probably derived from the Macdowals, formerly lords of this part of the country, and possibly of Irish origin, constant communications with the north of Ireland having taken place from the earliest period. Sir William Maxwell suggests, as an easy explanation of the different levels found in the loch, that the waters originally discharged themselves into the sea from the western end of the valley, a portion of them only now finding an exit that way, in consequence of the formation of the moss towards the centre of the valley, which compelled the remainder to flow into the loch. In this case the structures must be supposed to have been formed in the early stages of the growth of the moss, whilst the loch was so shallow as to





G. Waterston & Sons, Edin. Lith.

ILLUSTRATING DOWALTON CRANNOGS.

make it easy to raise the moss above its waters, and yet deep enough to float canoes and afford the desired security from an enemy."

About a year after Lord Lovaine's investigations, Dr. Stuart, Secretary to the Society of Antiquaries of Scotland, while on a visit to Sir William Maxwell, had an opportunity of re-examining the antiquarian remains in Dowalton Loch, an account of which he read at a subsequent meeting of the Society, held on the 13th March 1865. (*Proceed. Soc. Antiq. Scot.* vol. vi.) Into this paper Dr. Stuart incorporated all the facts he could glean, so as to afford a basis for comparing the Scottish Crannogs with analogous remains in other countries, and, accordingly, freely availed himself not only of the details in Lord Lovaine's article but also the unpublished notes of Dr. Joseph Robertson, which now fell into his hands. "By this time" says Dr. Stuart "the whole bed of the loch was exposed, and all the islands were approachable, although in many places the great depth of quaking clay rendered it somewhat difficult to walk upon, and in some deep spots, where the clay was softer than elsewhere, even dangerous, from the risk of sinking.

"The rough outline sketch (Plate XVIII.) will give an idea of the shape of the loch, and it will be convenient to describe the islands in the order in which they there occur, beginning at the west end; in doing so, I avail myself of the details in Lord Percy's paper.[1]

"The first is called Miller's Cairn, from its having been a mark of the levels, when the loch was drained by cuts for feeding neighbouring mills. One of these cuts is known to have been made at a remote period. It was still surrounded by water when the place was visited by Lord Percy in 1863. On approaching the cairn (Plate XVIII. 1), the numerous rows of piles which surrounded it first attracted notice. These piles were formed of young oak trees. Lying on the north-east side were mortised frames of beams of oak, like hurdles, and below these, round trees laid horizontally. In some cases the vertical piles were mortised into horizontal bars. Below them were layers of hazel and birch branches, and under these were masses of fern, the whole mixed with large boulders, and penetrated by piles. Above all was a surface of stones and soil, which was several feet under water till the recent drainage took place. The hurdle frames were neatly mortised together, and were secured by pegs in the mortise holes.

"On one side of the island a round space of a few feet in size appeared,

[1] *Transactions* of the British Association Meeting at Newcastle, 1863, p. 141.

on which was a layer of white clay, browned and calcined, as from the action of fire, and around it were bones of animals and ashes of wood. Below this were a layer of fern and another surface of clay, calcined as in the upper case. A small piece of bronze was found between the two layers. On the top another layer of fern was found, but the clay, and the slab which probably rested upon it, had been removed. There can be no doubt that this had been used as a hearth. In one of the crannogs in Loughrea, in Ireland, the flag which formed the hearthstone rested in the same way on a mass of yellow clay.[1]

"Near this cairn a bronze pan was found; and opposite to it, on the south and north margins of the loch, uprooted trees, mostly birch and alder, were seen, which had all fallen to the east. Hazel branches had been much used in the formation of the island, and many hazel nuts were found among the debris. In the layers, the leaves and nuts were perfectly distinct. The bark also remained, and the fern and heather looked as if recently laid down. The fern is the common bracken, of which in many places the fronds were quite perfect. In some places innumerable chrysalides of an insect occurred between the layers of fern; they are found to be those of a dipterous fly of the genus *Dicara*, closely allied to the 'daddy-long-legs.'

"In the vicinity of this cairn is a ridge of rock which *might* have formed the nucleus of a superstructure, but it was not used. Miller's Cairn was much dilapidated. Lines of piles, apparently to support a causeway, led from it to the shore.

"The next in order is the largest island (Plate XVIII. 2). Lord Percy succeeded in reaching it in a boat in 1863. It appeared to him to be 3 feet below the level of the other islands, and, from several depressions on its surface, to have sunk. The progress of excavation was, however, soon checked by the oozing in of the water. On the south side of the island great pains had been taken to secure the structure; heavy slabs of oak, 5 feet long, 2 feet wide, and 2 inches thick, were laid one upon another in a sloping direction, bolted together by stakes inserted in mortises of 8 inches by 10 inches in size, and connected by square pieces of timber 3 feet 8 inches in length. The surface of the island was of stones, resting on a mass of compressed brushwood, below which were branches and stems of small trees, mostly hazel and birch, mingled with stones, apparently for compressing the mass. Below this were layers of brushwood, fern, and

[1] *Proceedings of the Royal Irish Academy*, vol. viii. p. 421.

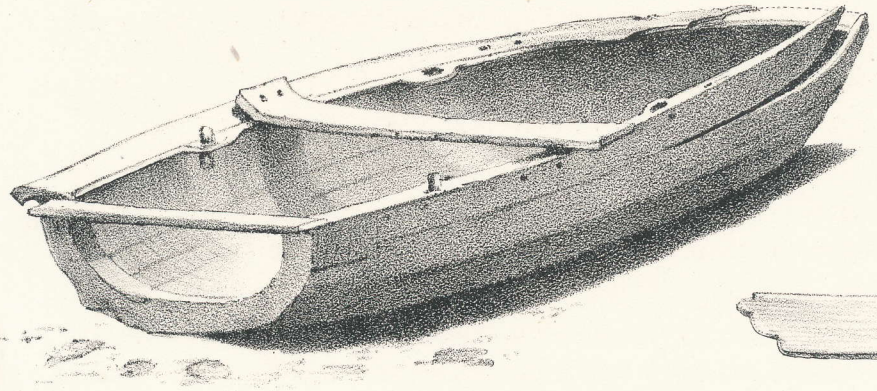


Fig. 1

Fig. 4

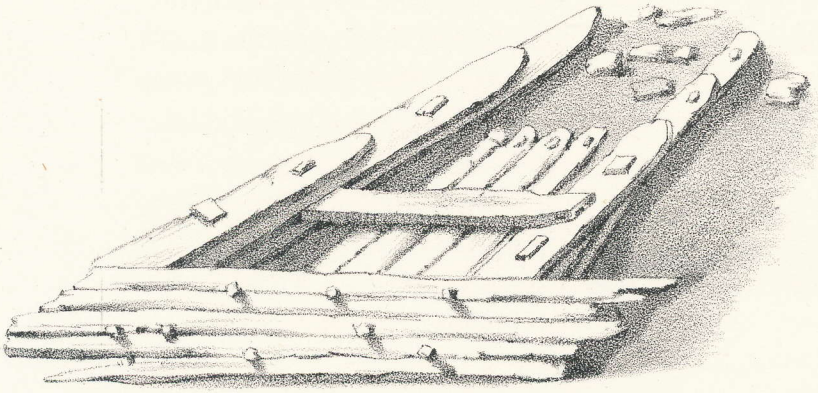


Fig. 2

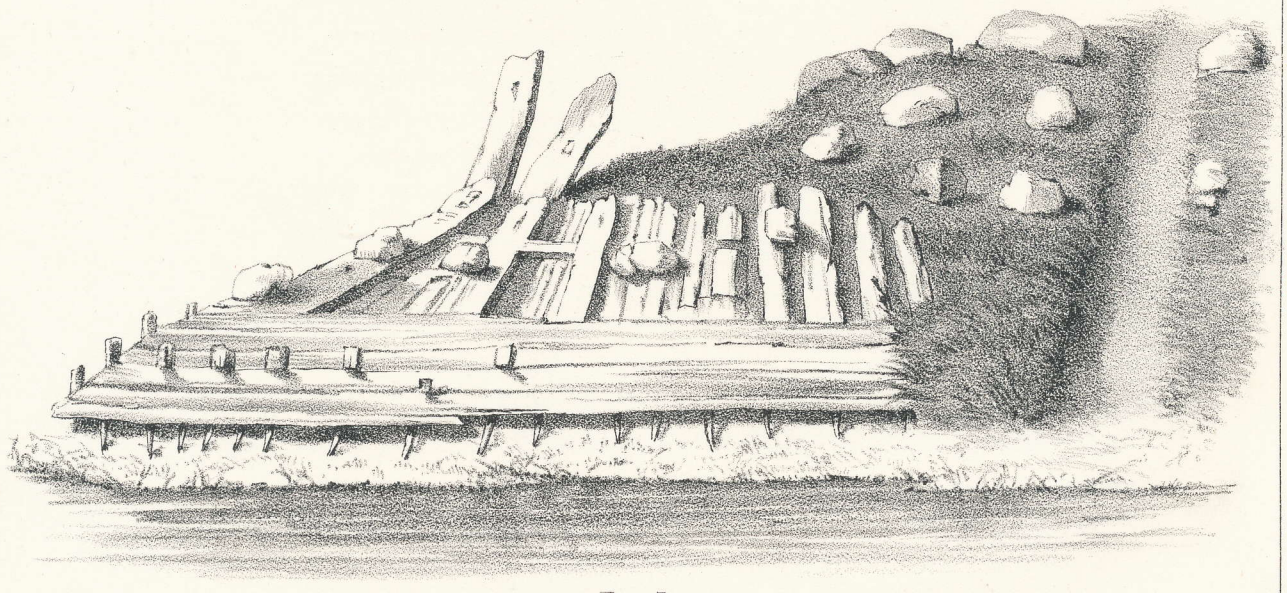


Fig. 3

ILLUSTRATING DOWALTON CRANNOGS.

AYR & GALLOWAY ARCHᴸ ASSOCⁿ 1885.

heather, intermingled with stones and soil, the whole resting on a bed of fern 3 or 4 feet in thickness. The mass was pinned together by piles driven into the bottom of the loch, some of which went through holes in the horizontal logs. The general appearance of the island, and of the mortised beams on its south side, will be gathered from the sketches engraved on Plate XIX. Figs. 2 and 3. For these sketches I am indebted to the courtesy of Lord Percy. I noticed some of these flat beams of great size and length (one of them 12 feet long) with three mortise holes in the length, 7 inches square. A thick plank of oak of about 6 feet in length had grooves on its two edges, as if for something to slide in; and it may be noted that some of the oak beams in the Irish crannog at Dunshauglin, county of Meath, had their sides grooved in like manner, to admit large panels driven down between them.[1] This island measured about 23 yards across, and was surrounded by many rows of piles, some of which had the ends cut square over, as if by several strokes of a small hatchet. Mr. Chalmers, the intelligent overseer of Sir William Maxwell, pointed out to me vestiges of branches interlaced in the beams of the hurdles. On the north-east side, and under the superstructure of the island, a canoe was found, made of a single tree of oak. It was 21 feet in length, 3 feet 10 inches across over all near the stern, which was square. Its depth at the stern was 17 inches, or, including the backboard which closed the stern, 20 inches. The stern was formed by a plank inserted in a groove on each side with a backboard pegged on above it. The part containing the grooves was left very thick. There were two thole-pins on each side, inserted in squared holes in the solid, which was left to receive them, and wedged in with small bits of wood. One thwart of fir or willow remained. A plank or washboard, projecting a few inches over the edge, ran round the canoe. It rested on the top, and was fastened with pegs into the solid. The vessel was pointed at the bow, and the sketch, for which I am indebted to Lord Percy (Plate XIX. Fig. 1), will give a general idea of it. As I have said, it was found in the foundations of the island, with hurdles and planks above it. It was very complete, and in good order. In the mass of stuff thrown out, a piece of curiously stamped leather was found, apparently part of a shoe. Great quantities of the teeth and bones of animals were strewed over the surface of the island and surrounding mud. Bones were also found at different depths in the mass, but always below the upper layer of faggots

[1] *Wilde's Catalogue of Antiquities* in Museum Royal Irish Academy, p. 222.

and towards the inside. All the bones were split, probably to admit the extraction of the marrow. Specimens of the bones were submitted to Professor Owen, who has expressed his opinion of them in the following note :—

"'The bones and teeth, from the lake-dwellings, submitted to my examination by Lord Lovaine, included parts of the ox, hog, and goat. The ox was of the size of the *Bos longifrons* or Highland kyloe, and was represented by teeth, portions of the lower jaw, and some bones of the limbs and trunk. The remains of the *Sus* were a lower jaw of a sow, of the size of the wild boar, and detached teeth. With the remains of the small ruminant, of the size of the sheep, was a portion of cranium with the base of a horn core, more resembling in shape that of the he-goat. Not any of these remains had lost their animal matter. —R. O.'

"Other specimens of the bones presented by Sir William Maxwell are in the Museum. Regarding these I have been favoured with the following memorandum by Dr. John Alex. Smith, Secretary :—

"'After a careful examination of the bones now in the museum, found on an artificial island in Dowalton Loch, in which I was kindly assisted by Mr. William Turner, M.B.; we find them to consist of those of small short-horned cattle—the *Bos longifrons*, I doubt not, of Professor Owen—similar to those found with Roman remains at Newstead, and presented by me to the museum—a rather small-sized pig, and the sheep; also a bone of a large bird. The mass of fern leaves forming the substratum of the dwelling consisted of the *Pteris aquilina*, the common bracken.'

"On one spot a few flat stones were placed as if for a hearth. They showed marks of fire, and around them were ashes and bones. The bronze dish of Roman work afterwards described was found in the mud, near the east margin of the loch. The best saucepan was found between this island and the shore. A small circular brooch of bronze, four whetstones, and two iron hammers were found *on* the island. A third iron hammer was found near it, and may have been thrown out with the debris.

"Lumps of iron slag were also found on this island, and similar masses have been found on several of the Irish crannogs.

"The original depth from the surface of the island to the bottom was probably from 6 to 7 feet; but the structure was much dilapidated before I saw it.

"Proceeding southward, we come to the island first examined by Lord Percy (Plate XVIII. 3). It proved to be nearly circular, and to be about 13 yards in diameter. Its surface was raised about $5\frac{1}{2}$ feet above the mud, and on each side of it were two patches of stone nearly touching it. These, probably, answered the purpose of the jetty or pier, formed of a double row

of piles, about 8 feet asunder, which supported horizontal logs, noticed on one side of the crannog in Cloonfin Lough.[1] On the north side lay a canoe of oak, between the two patches, and surrounded by piles, the heads just appearing above the surface of the mud. It was 24 feet long, 4 feet 2 inches broad in the middle, and 7 inches deep, the thickness of the bottom being 2 inches. Under the stones which covered the surface teeth of swine and oxen were found. A trench was cut round the islet, and at the south end a small quantity of ashes was turned up, in which were teeth and burned bones, part of an armlet of glass covered with a yellow enamel, and a large broken bead of glass, together with a small metal ornament; two other pieces of a glass armlet, one striped blue and white, were also found on the surface. These objects were found on the outside of the islet, about 2 feet from the surface. On cutting into the islet itself, it proved to be wholly artificial, resting on the soft bottom of the loch, and in its composition exactly the same as the large island already described. The whole mass was pinned together by piles of oak and willow, some of them driven $2\frac{1}{2}$ feet into the bottom of the loch. The islet was surrounded by an immense number of piles, extending to a distance of 20 yards around it; and masses of stone, which apparently were meant to act as breakwaters, were laid amongst them. On the sinking of the mud a canoe was found between the islet and the northern shore. It was $18\frac{1}{2}$ feet long, and 2 feet 7 inches wide. A block of wood cut to fill a hole, left probably by a rotten branch, was inserted in the side, 2 feet long, 7 inches wide, and $5\frac{1}{2}$ inches thick, and was secured by pegs driven through the side; across the stern was cut a deep groove to admit a backboard; in both canoes a hole 2 inches in diameter was bored in the bottom.

"The next islet is about 60 yards from the last, and nearer to a rocky projection on the south margin of the loch. It was examined by Lord Percy, and was found to be smaller; the layers were not so distinctly marked, and some of the timbers inserted under the upper layer of brushwood were larger, and either split or cut to a face. A stake with two holes bored in it about the size of a finger, a thin piece of wood, in which mortises had been cut, and a box, the interior of which was about 6 inches cube, with a ledge to receive the cover, very rudely cut out of a block of wood, were found. I saw this rude box, but it has gone to pieces since that time.

"On the south-east side of the loch, near one of the little promontories,

[1] *Proceedings of the Royal Irish Academy*, vol. v. p. 209.

were several cairns surrounded by piles, of which the outline had mostly disappeared at the time of my visit. When they were first seen by Lord Percy there were six structures, of the same character as those already described, arranged in a semicircle. They were, however, much smaller than the others, and appeared to have been single dwellings. Though upon some of them charred wood was found, nothing else was discovered except a mortised piece of timber, which might have been drifted there; and in one, inserted under the upper layer of brushwood, a large oak beam, measuring 8 feet long by 3 in circumference.

"This group of small islets was close to the shore. They had, however, been surrounded by water at the time when the level of the loch reached the highest beach mark. I could not discover any causeway or piled connection with the shore.

"Near the north margin of the loch a canoe was found in the mud. It measured 25 feet in length, and was strengthened by a projecting cross band towards the centre, left in the solid in hollowing out the inside; lying under it a portion of another canoe was found. Along this shore many uprooted trees occur in the mud, mostly birch and alder; some trees also are still rooted.

"The articles already found on the islets and neighbourhood are:—

1. Bronze dish, with handle, of Roman work.
2. Two bronze dishes, hammered out of the solid.
3. A smaller bronze dish of separate pieces, riveted together.
4. A bronze ring, having attached to it a portion of the vessel of which it had been a handle.
5. Fragment of leather, with a stamped pattern on it.
6. A large blue glass bead.
7. Two glass beads, with streaks and spots.
8. A bead of amber.
9. A bead of vitreous paste.
10. A small brooch of bronze.
11. A small ring of bronze.
12. A copper coin.
13. Five querns.
14. A fragment of bronze.
15. Pieces of iron slag.
16. A small earthen crucible.
17. Whetstones.
18. Three iron hammers.
19. Portions of armlets of enamelled glass.
20. Five canoes.

"Most of the articles were found in the neighbourhood of the islands. It is probable that the bronze vessel found near the eastern margin, as well as other articles, may have been floated off during the period when the islands were submerged. It is plain, from the appearance of several beaches of rolled stones around the margin of the loch, that the waters had

stood at different levels at different times—at one time 6 or 7 feet above its last level, to which it was reduced by three successive cuts made to feed neighbouring mills—one of them certainly of great antiquity. When at this height the surface of the mosses to the west must also have been under water. Lord Percy has remarked that, at 3½ feet below the ordinary level, there are unmistakable appearances of a former beach, with which the top of the islet, first examined by him, coincides. Sir William Maxwell suggests, as an easy explanation of the different levels found in the loch, that the waters originally discharged themselves into the sea from the western end of the valley, and at last, in consequence of the formation of moss towards its centre, *a part* of them could only escape in that way, while the remainder was forced into the loch. On this assumption Lord Percy concludes that the structures must be supposed to have been formed in the early stages of the growth of the moss, while the loch was so shallow as to make it easy to raise the obstructing moss above its waters, and yet deep enough to float canoes and afford the desired security from an enemy. He adds that it is difficult to conjecture the state of the loch when these edifices were formed, and whether or not they were completed at one period. The finding of the large stones in the lower layer of ferns might, he thinks, lead to the belief that they were gradually raised as the waters of the loch increased; and that the strengthening them by breakwaters might be held to prove that the loch had risen considerably before they were abandoned.

"The rising of the level of the loch is a feature common to this with the Irish lochs in which crannogs have been found. In some Irish cases there are appearances of these having been raised to meet this change of circumstances; but when we consider the compressible nature of the materials, it is more likely that the islands may, in many instances, have required such heightening from the effect of natural subsidence. The stones among the lower strata of fern were probably used to compress and solidify the substructure in the course of erection, and it seems to me most probable that the islets were wholly erected at one time.

"It would appear that no islets were above the surface of the water at the time of Pont's survey, about the middle of the seventeenth century. In Bleau's map of Galloway no islets are seen on the loch of Dowalton, while several are laid down in the neighbouring loch of Mochrum, which shows that such projections were not overlooked.

"In the moss of Ravenstone, a little to the east of Dowalton, five paddles of oak were discovered lying close to a mass of timbers about 6 feet under the surface. Lord Percy was led to believe that these were the remains of a structure similar to those in the loch of Dowalton. One of these paddles forms part of the donation of Sir William Maxwell to the Museum (Plate XIX. Fig. 4).

"In the White Loch of Mertoun (a name which reminds us of the Cluain-fin Lough in Roscommon, which is said to mean "the enclosure of the White Lake"), about three miles westward from Dowalton, there was formerly a stockaded island. The discovery of the islands in Dowalton Loch brought to the recollection of an old man in the service of Sir William Maxwell that, when the loch was partially drained by Sir William's grandfather, he had seen a small island in it with timbers, piles, and flat stones on its surface. This led to an examination of the island, from which it appeared that it was surrounded by piles, and was constructed, like those at Dowalton, of layers of furze, faggots, and brushwood, layers of fern, etc. This island, prior to the lowering of the loch, had been covered by eight feet of water.

"On Dunhill, which is a rising ground a short way from the south-east end of Dowalton Loch, there remains a circular rath, surrounded by a deep ditch. The rath is about 36 yards in diameter. Similar elevations occur on the north and south west sides of the loch, where raths may also have been placed, but if so, they have been obliterated by cultivation.

"It will be remarked that no weapon or tool of stone has as yet been found at Dowalton; but no certain inference can be drawn from this, as such objects, with many others, may yet be found below the deep bed of clay surrounding the islets.

"Of the bronze objects which have been discovered, one is a dish of Roman work, with a stamp (apparently CIPIPOLIBI) on the handle (Fig. 5). It measures $8\frac{1}{2}$ inches in diameter at the mouth, and 6 at the bottom. Its depth is $5\frac{1}{2}$ inches. The handle is 7 inches long, and there are five raised and turned rims on the bottom. It is turned in the inside, in which respect, as well as its general appearance, it resembles a bronze patella found in Teviotdale, presented to the National Museum by Dr. J. A. Smith, and figured in the *Proceedings of the Society* (vol. iv. p. 598).

"Two vessels of the same character, the one within the other, were found in a moss near Friars Carse in Dumfriesshire, in 1790. The largest one

has engraved or stamped on its handle the letters ANSIEPHARR. They are figured in the *Archæologia*, vol. xi. p. 105. Another similar vessel, which formed one of a remarkable collection of ornaments of the Roman period, found in the county of Durham about the beginning of last century, now in the British Museum, has on its handle the letters MATR · FAB · DVBIT.[1]

"Other two bronze dishes have each been hammered up into form out of a single piece, and to one an iron handle has been riveted. They resemble bronze culinary dishes found at Rodingfield, in Essex, figured in *Archæologia*, vol. xvi. p. 364. They are about 14 inches across by 3 or 4 in depth, and one of them is figured Fig. 4. A third is formed of two separate pieces welded together. It has obviously been much used on the fire, and bears many marks of rude mending by rivets. It has had an iron handle for lifting it, and it measures 10 inches across by 4 in depth (Fig. 3).

"The iron hammers have a great resemblance to those found with Roman remains at Great Chesterfield, in Essex, in 1854, and figured in the *Archæological Journal* for 1856. Iron hammers of a somewhat similar shape have been found in some of the Swiss deposits. An iron hammer was found on a fortified island in Carlinwark Loch, and specimens occur in the Irish crannogs. The axes figured on the column of Trajan are generally narrow at one end, and expand into a wide cutting edge at the other, and do not resemble those found at Dowalton.

"The ring of bronze has obviously been riveted to another object of the same metal, of which a fragment remains. It so exactly resembles one of two rings attached to a large Irish caldron, presented to our Museum by the late Mr. Leckie of Paisley, and to those of another caldron, formed of plates of hammered bronze, riveted together with pins of the same metal, found under 12 feet of bog in the barony of Farney, in Ulster, and figured in Mr. Shirley's *Account of the Dominion of Farney*, p. 185, that I cannot doubt of its having been originally attached to a vessel of the same description. A similar ring formed part of the mass of bronze relics dredged from the Loch of Duddingston.

"The largest glass bead has a core of bronze, and is finely milled on a projecting band of yellow glass on each neck (Fig. 13).

"Such beads of glass and amber are often found in cists, and occasionally in Picts' houses.

[1] *Archæological Journal*, vol. viii. p. 37.

"Enamelled glass armlets, like those found at Dowalton, are of very rare occurrence. Two specimens are in the National Museum, of which one was discovered in the Flanders Moss, in Stirlingshire, and the other was found, with a necklace of jet hanging from it, in a sepulchral cairn at Boghead, near Kintore, in Aberdeenshire.

"Part of a similar armlet was recently discovered in excavating one of the hut circles at Greaves Ash, in Northumberland.

"The stamped piece of leather seems to have formed part of a moccasin or shoe (Fig. 17).

"All these remains seem to be associated with an early period. The copper coin is of doubtful character, but does not appear to be of great age; as, however, it may have been dropped into the loch at any time, its occurrence does not disturb any inference which may be drawn from the general character of the deposits. The coin was found near the third small island."

Of the industrial remains found in the course of all these investigations at Dowalton Loch the following articles were presented to the Society of Antiquaries of Scotland by Sir William Maxwell, and they are now deposited in the National Museum, Edinburgh. When collecting materials for my recent work on the *Scottish Lake-Dwellings*, I carefully inspected these relics, and had a few of the more important of them engraved. These illustrations are now given, along with the following description of the articles, which is taken from the *Proceedings of the Society*, vol. vi. p. 109.

Square-shaped stone, 5 inches in length, 1 inch in breadth, and $\frac{5}{8}$ inch in thickness, and tapering to a point $\frac{5}{8}$ inch square; probably a whetstone.

Three bronze basins: one measures 10 inches in diameter and 4 inches

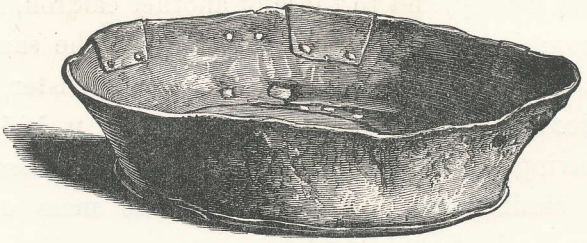


FIG. 3.—Bronze Basin. Height 4 in.

in depth. It is formed of sheet metal, fastened by rivets, with portions of an iron handle. This pot or basin shows several patches or mendings (Fig. 3).

Another vessel of bronze measures 12 inches in diameter and 4 inches

in depth. It appears to have been made by hammering it into shape out of one piece of metal.

The third vessel measures 12 inches in diameter and 3 inches in depth,

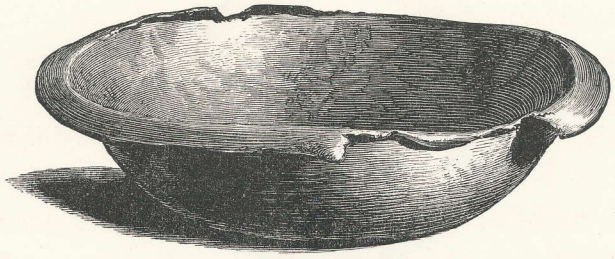


Fig. 4.—Bronze Basin. Height 3 in.

and is also formed out of one piece of metal. On its upper edge is a turned-over or projecting rim 1 inch in breadth (Fig. 4).

Pot or patella of yellowish-coloured bronze, with a handle springing from the upper edge, 7 inches in length, on which are stamped the letters CIPIPOLIBI. At the farther extremity is a circular opening. The bottom is ornamented by five projecting rings, and measures in diameter 6 inches; it is 8 inches in diameter across the mouth; the inside appears to be coated

Fig. 5.—Bronze Pot. Height 5½ inches.

with tin, and has a series of incised lines at various distances. The vessel is ornamented on the outside opposite to the handle by a human face in relief, surrounded by a moveable ring, which could be used in lifting the pot (Fig. 5).

Bronze ring, measuring 3½ inches in diameter, which passes through a loop fastened to a portion of broken bronze, apparently part of the upper

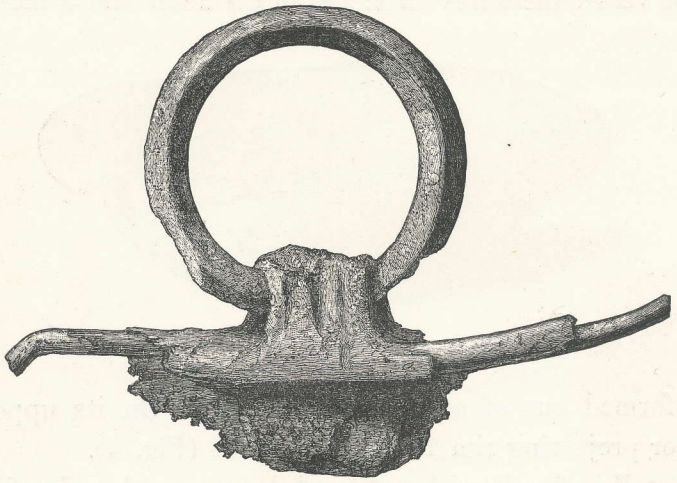


Fig. 6.—Bronze Ring. Scale ½.

edge of a large bronze vessel, the ring having formed one of the handles (Fig. 6).

Small very rude clay cup or crucible, 2 inches in height (Fig. 7).

Bronze implement, being a short tube 1 inch in length, with a project-

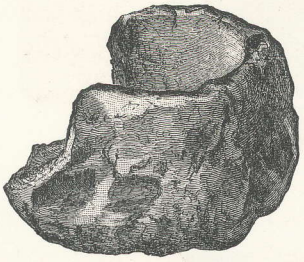


Fig. 7.—Crucible. Scale ½.

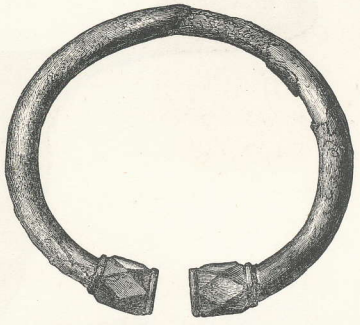


Fig. 8.—Bronze Penannular Brooch. Scale ¼.

ing rim at one extremity, which is 2 inches in diameter. It is not unlike in shape to the socket portion of a modern candlestick.

Bronze penannular ring or brooch, 1¾ inch in diameter, with bulbous extremities (Fig. 8).

Small plain bronze ring, 1 inch in diameter.

Small portion of bronze, probably portion of a vessel.

Small bronze plate or ornament, 1 inch in length, having a projecting

tongue at three of its corners, each projecting portion being pierced with a hole through in its centre.

Two iron axe-heads: one with a square-shaped head, which tapers to a sharp cutting face, and measures 6½ inches long; it has a large perforation

Fig. 9.—Iron Axe. Scale ½.

Fig. 10.—Iron Axe. Scale ½.

Fig. 11.—Iron Hammer. Scale ½.

close to the square head for receiving the handle (Fig. 9). The other measures 6 inches in length. The perforation for the handle is near the centre; and one end has a sharp cutting face, the other a blunt rounded extremity, or head (Fig. 10).

Iron hammer-head, 8½ inches in length, with hole in the centre for handle; the head is square, and tapers slightly to a blunt face (Fig. 11).

Several masses of iron slag.

Wooden boat paddle (from Ravenstone moss): the blade measures 2 feet 4 inches in length, by 10 inches in breadth and 1 inch in thickness. It has a short rounded handle, measuring 7 inches in length.

Half of a ring, 3 inches in diameter, formed of white glass or vitreous paste, and streaked with blue (Fig. 12).

Half of a similar ring, formed of yellow-coloured glass, or vitreous paste.

Large bead, measuring 1½ inch in diameter. The centre portion is

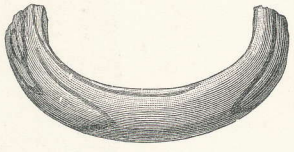


Fig. 12.—Portion of Ring of Glass.
Scale ½.

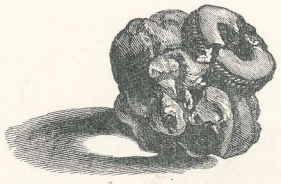


Fig. 13.—Bead.
Length 1 in., height 1¼ in.

formed of blue glass, of a ribbed pattern. The central perforation or opening is formed of a tube of bronze, and the edge of both sides of the perforation is ornamented by three minute bands of twisted yellow glass (Fig. 13).

Bead of earthenware, ¾ inch in diameter, of a ribbed pattern, and showing traces of green glaze (Fig. 14).

Fig. 14.—Bead. Fig. 15.—Bead. Fig. 16.—Bead.
All actual size.

Small bead of vitreous paste, of a white colour with red spots, and measuring ½ inch in diameter (Fig. 15).

Amber bead, ¾ inch in diameter.

Half of a small bead, measuring ¾ of an inch in diameter, of white glass streaked with blue (Fig. 16).

Small portion of blue glass.

Portion of a leather shoe, measuring seven inches in length and 3½ inches in its greatest breadth, nearly covered with ornamental stamped patterns (Fig. 17).

On the 14th of March 1881, R. Vans Agnew, Esq., of Barnbarroch, presented to the Museum of the Society of Antiquaries of Scotland a brooch

or ornamental mounting of bronze, found in Dowalton Loch, Wigtonshire, of which Fig. 18 is a representation. It is ornamented with trumpet-shaped spaces, probably filled with enamel, and measures 2 inches in diameter.

Fig. 17.—Portion of Shoe. Length 7 in.

Fig. 18.—Bronze Ornament. Diam. 2 in.

Mr. Vans Agnew gives the following account of the circumstances in which it was discovered:—"The bronze ornament or brooch was found last summer in the bed of the Loch of Dowalton by Master Alexander Gibson, grandson of Mr. Alexander Cumming, the venerable tenant of the farm of Stonehouse, on the shore of the lake. It was then seventeen years since the lake was drained. I have not been able to ascertain the exact spot where it was found, but it was not far from the site of some of the crannogs."[1]

Notwithstanding the important advance in the knowledge of crannogs made by these investigations at Dowalton, the real significance of the discovery, as opening up a new and pregnant source of materials for illustrating early Scottish history, does not appear to have been fully apprehended by Archaeologists, till similar finds in Ayrshire, made within the last few years, attracted general attention. It then occurred to Sir Herbert Maxwell, already an experienced explorer of crannogs in other parts of Wigtonshire, that it would be advisable to subject the Dowalton group to some further examination before publishing a general account of the numerous lake-dwellings in this county. This resolution having been adopted, it was subsequently arranged with Lord Borthwick, to whom that portion of the bed of the late loch containing most of the crannogs now belonged, that a gang of workmen, kindly supplied by his lordship, would be in readiness to begin work on the 22d August 1884. Along with Mr. Cochran-Patrick, M.P., and other gentlemen interested in such operations, I was invited to be present.

[1] *Proceedings Soc. Antiq. Scot.*, vol. iii. New Series, p. 155.

During the 21 years that have elapsed since the previous explorations, a great change has been effected in the bed of the loch, then described as an extensive sheet of quaking mud, with bare rock here and there protruding. "Since that time," to use the words of a correspondent of the *Times*, "a rank growth of rushes, coarse grass, and willows, has overspread the lower end of the lake. On the islands themselves the yellow ragwort (Scotticé *boulock*) and nettles (sure indication of a soil rich in organic remains) waved in wild luxuriance. A great part of the bed of the lake is solid rock, of the lower Silurian formation, rising here and there into dome-like *roches moutonnées*, beautifully striated and scraped by the ancient land-ice. Some of the crannogs are built against these masses of rock, projecting from them into the muddy alluvium around."

Selecting one of the crannogs (No. 2, Plate XVIII.) which seemed from its more compact and circular appearance to have been less disturbed by previous digging, we set the men to clear a broad trench right across its middle. Near its centre we came upon the remains of some upright posts which appeared to have been arranged in the form of a circle about 9 feet in diameter. Inside this circular area were ashes and charred stones, all of which, however, had been previously disturbed. It was among the debris here that the relics illustrated by Figs. 19 to 25 were found. In the course of two days it became evident that the entire mound had been formerly trenched over. By this time also a few of the farmers and labourers in the neighbourhood turned out to see what was going on, among whom were some who had witnessed the drainage and actually taken part in the first examination of the crannogs. Through them it transpired that the investigation started by Lord Lovaine had been continued by Sir William Maxwell after his lordship went away, and that the explorations were altogether of a more thorough character than had been suspected.

Further operations at the other mounds merely corroborated this opinion. It was therefore evident that no reliable information regarding the structure of these artificial islands was likely to be ascertained, and that the only result of a complete turn-over of the mounds (a most Herculean task) would be an addition to the stock of relics. However considerable this increase would have been, it is not probable that the chronological and ethnological inferences, already enunciated regarding their former occupiers, would have been overturned. Indeed, so far as these points were prejudged, the few industrial remains that turned up greatly strengthened the opinion that

the lake-dwellers of Dowalton had come largely in contact with Roman civilisation. One lucky find was a small portion of red Samian ware (Fig. 19) the only bit of pottery of any kind hitherto found on these crannogs. This fragment was much worn, and had its glaze partially rubbed off, but there was no mistake about its true character; and what is very remarkable, the original vessel corresponded both in shape and pattern, so far as could be made out from the faint traces of its decorative moulding, with another of the same ware of which a fragment was found on the crannog of Lochspouts, Ayrshire.

FIG. 19.
Portion of Bowl of red (Samian) pottery. Full size.

It may be also worth recording that the depth of relic-bearing debris on the Dowalton crannogs was not so great as in the Ayrshire examples; nor were there any indications of successive periods of occupancy, such, for example, as were observed at Lochlee, where no less than six well-constructed hearths were found superimposed one above the other. As an explanation of this, it has been suggested that the former were not inhabited for such a long period as the latter. Another peculiarity, which characterised the Dowalton group, was the quantity of large stones lying on the surface, but whether these were used as a surrounding wall or for some other buildings there was no evidence to show.

All the crannogs were located in a group near the eastern end of the loch, with the exception of the Miller's Cairn, which was situated about a mile farther west, near a projecting point of land on its southern shore. Here the tops of some oak piles, forming two rows a few feet apart and running landwards, still protruded through the grass, and indicated the remains of some sort of communication between the crannog and the shore. Around the island the bed of the loch was formed of fine silt, which lately yielded a rich crop of hay. Such being the case, it was rather singular that this crannog should have been the only one that remained up to recent times above water level, seeing that all the others had been totally submerged to a depth of several feet, some more or less, probably in proportion to the compressibility of the substance of the lake-bottom. While excavating along the lines of uprights leading to the shore, to determine if they were connected with buried woodwork, as at Lochlee and Lochspouts, the expla-

nation of this peculiarity in the Miller's Cairn became apparent. After digging through about 3 feet of the consolidated mud we came upon a stratum of fine blue clay, extremely tenacious, and certainly little liable to displacement by superincumbent pressure. The pointed stakes, which penetrated into this clay only a few inches, here met with a firm resistance, and could support a heavy weight without sinking any farther. Both at Lochlee and Lochspouts the piles of the supposed gangway were found to be embraced at their base by a network of transverse beams, which was buried from 3 to 7 feet beneath the surface of the bed of the lake. It is quite possible that this elaborate arrangement of beams was merely intended to keep the uprights from yielding under the weight which they must have occasionally borne had they been formerly used for the purpose of supporting an aerial gangway.[1] From Dr. Stuart's report of this crannog it appears to have been well constructed, and surrounded by rows of piles and mortised frames like hurdles. Some of the stockades still remain.

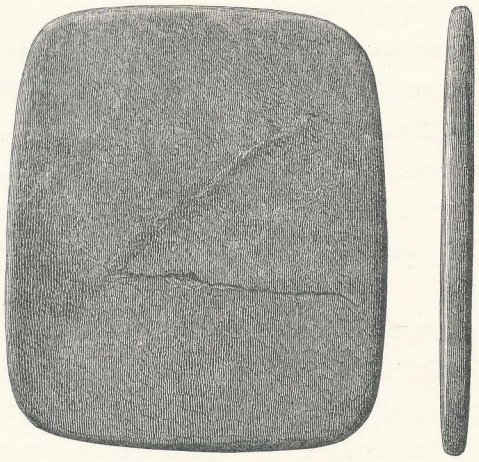


FIG. 20.—Polished Stone. Scale $\frac{2}{3}$.

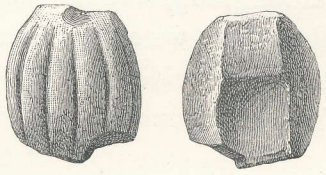


FIG. 21.
Portion of an Earthenware Bead. Natural size.

The island itself is one mass of luxuriant rhododendrons, and, from its dome-like appearance, forms an attractive feature in the landscape.

The relics picked up in the course of these investigations at the Dowalton crannogs were the following:—

1. Fragment of Samian ware, being portion of a bowl showing an everted rim, and a small part of a characteristic moulding which ran round the bowl about an inch from its margin (Fig. 19).

[1] See *Ancient Scottish Lake-Dwellings*, p. 166.

2. A rectangular piece of stone measuring $3\frac{1}{2}$ by 3 inches, and $\frac{1}{4}$ of an inch thick. Its corners are rounded off, and both surfaces bear evidence of having been polished (Fig. 20).

3. Portion of a ribbed bead of earthenware, with a bluish-green glaze, precisely similar to others found in the Ayrshire crannogs (Fig. 21).

4. Two small portions of enamelled glass rings, probably used as bracelets. The fragments, though of the same material, do not appear to belong to the same ring. They are of a dull white colour, and in this respect differ from

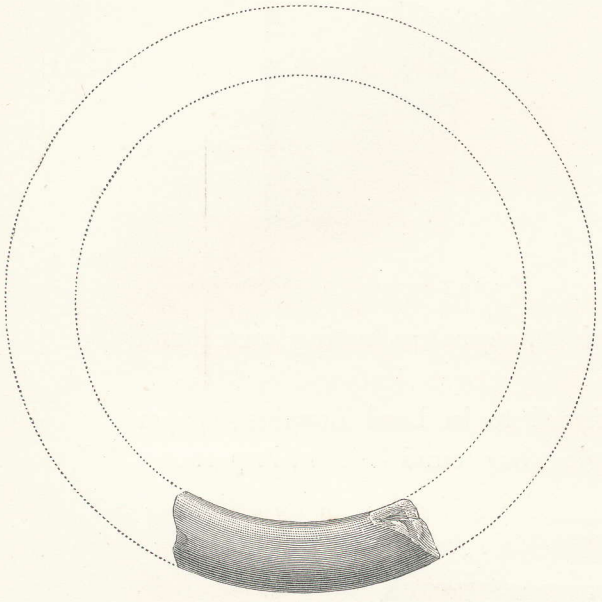


FIG. 22.—Portion of a Glass Armlet. Natural size.

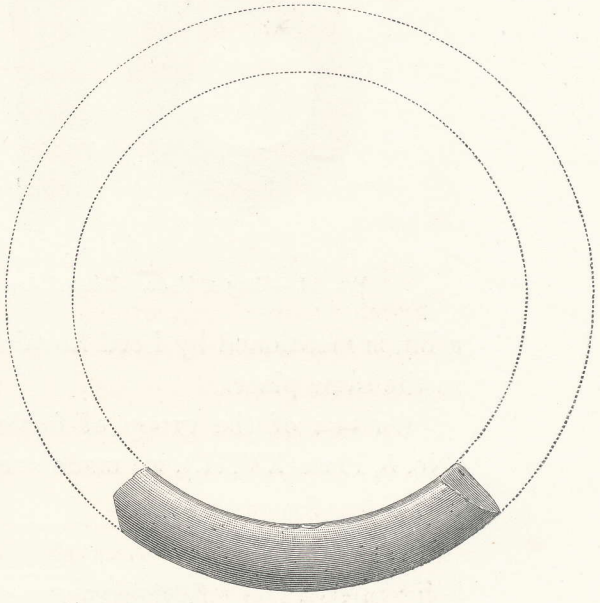


FIG. 23.—Portion of a Glass Armlet. Natural size.

a third portion found on the same crannog 21 years ago by Sir Herbert Maxwell, which is described as of a yellowish colour (Figs. 22 and 23).

5. A shale ring, coarsely made, and showing marks of a sharp cutting instrument: probably left off while in the process of being manufactured. External diameter $1\frac{1}{4}$ inch (Fig. 24).

6. A flat flake of yellow flint showing some fine secondary chippings round its margin (Fig. 25).

The above articles, along with a portion of a whetstone, were found on the crannog first examined by Lord Lovaine, and marked No. 3, Plate XVIII.

While digging on the crannog next the shore (No. 4, Plate XVIII.), a

wooden dish was found of the following dimensions, of which Fig. 26 is an engraving, after a sketch by Sir Herbert Maxwell, taken soon after its discovery, and before it became altered by exposure to the atmosphere. It

	Outside.	Inside.
Length	21 inches.	10 inches.
Width	16 „	10 „
Depth	10½ „	8 „

will be recollected that a somewhat similar vessel, or rather box, having

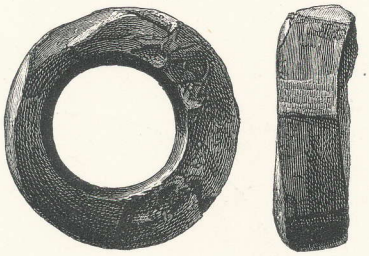


Fig. 24.—Ring of Shale. Natural size.

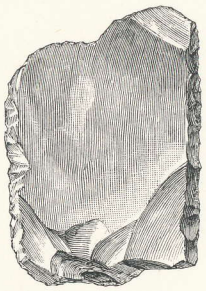


Fig. 25.—Flint Flake. Natural size.

a lid, is mentioned by Lord Lovaine (page 80, *supra*) as having been found in the same place.

On one of the group of fortlets, referred to in Lord Lovaine's paper (No. 5, Plate XVIII.), we made some digging, but found little of importance

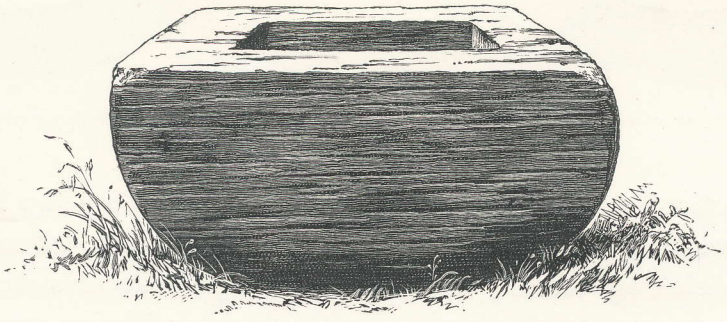


Fig. 26.—Wooden Vessel. From a Drawing by Sir Herbert Maxwell (reduced).

except ashes, decayed wood, and a round pebble of white quartz, roughened all over by use as a pounder. Its diameter is about three inches (Fig. 27). The result of two days' work on the largest mound (No. 2, Plate XVIII.) was also comparatively of little value beyond greatly impressing us with its magnitude, elaborate construction, and the quantity of large stones that

lay on its surface. In digging, stout logs of wood, some over 12 feet long, charred stones, and organic debris were exposed. The only relic found was here the half of a small blue bead. The refuse-heap lay at its eastern margin, and still contained large quantities of the bones of animals, among which those of swine, deer, and oxen, were readily recognised. One or two portions of stag's horns showed workmanship. The only relic of value found in the midden was portion of a wooden bowl. It was neatly manufactured, evidently with the assistance of a turning-lathe, as, towards its margin, there were several grooves running parallel with a neatly formed

FIG. 27.—Muller of White Quartz. Natural size.

and everted rim. Similar wooden vessels were found at Lochlee and Buston in Ayrshire.

This concluded our investigation of the celebrated Dowalton Crannogs, the general result of which was to strengthen the opinion that their occupation, if not actually proved to have been contemporary with, at least could not have been far from, that of the neighbourhood by the Romans. The fort at Dunhill, referred to by Dr. Stuart (page 92), and also probably by Lord Lovaine in a footnote appended to his paper (page 82), we concluded to be British and not Roman. Since then, Sir Herbert Maxwell supplies some additional evidence on the presence of the Romans in the locality. Writing on the 6th February 1885, he says :—" I have just made

an interesting discovery, not without a bearing upon the Dowalton group of crannogs. I found in my factor's office a quantity of maps (A.D. 1777), being the survey of this property, on the scale of 30 Scotch chains to 8 inches. The cairns, forts, etc., are carefully marked, many of which have now disappeared. Close to the south-west end of Dowalton Loch I have long known that a fort had been removed on a place called Annat Hill. Its traces are only apparent where a fence crosses the old enclosure. This fort is marked on the map so (Fig. 28). About a mile or a mile and a

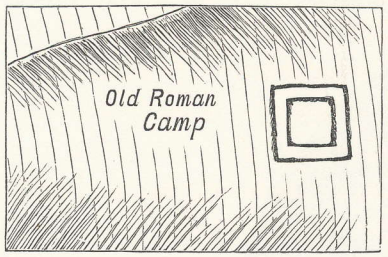


FIG. 28.

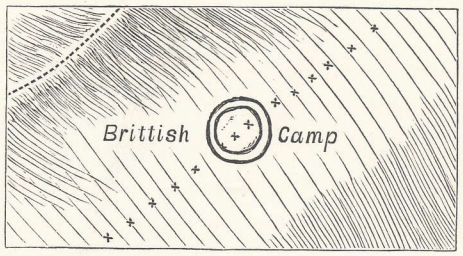


FIG. 29.

quarter to the S.W., on a ridge called Drumtroddan (*Druim trodain*, the hill of the quarrel, or strife hill), there is marked on the map another fort (Fig. 29), which has also disappeared.

"I think I took you to see the three large standing-stones close to this. Of course the important element in this discovery is the rectangular outline of the camp on Annat Hill. At Rispain, near Whithorn (probably the Leucopibia of the Romans), 5 or 6 miles to the south, is the only Roman camp I know of in Wigtonshire. But if this has been another, then the occurrence of Roman bronze and Samian ware in Dowalton is even more immediately accounted for. What a beautiful story might be elaborated about the two hostile camps and the hill of the combat. Between the two camps is a tract of forest land, with the roots of oak and Scots pine still *in situ*. Dr. Reeves says that Annat is the form assumed by *annoid*, old Irish for a church, and that it invariably means 'a mother church,' or original foundation. According to this derivation it may be here taken as to be equated with the word Kirkland, the name of the farm on which the hill stands. Near New Abbey, in Kirkcudbright, is a piece of land called Annat land."

2. *The Crannog in Loch Inch Cryndil.*

After the publication of the Articles of the Duke of Northumberland and

Dr. Stuart, the attention of Antiquaries could not fail to be more or less directed to analogous lacustrine abodes elsewhere in Scotland. That this was the case in Galloway generally we have evidence in the fact, which soon became apparent from a variety of sources, that formerly all its lakes were literally studded with these artificial island-dwellings. In 1871, the Rev. George Wilson, Glenluce, C.M.S.A. Scot., collected many of these scattered observations, and communicated them to the Society of Antiquaries of Scotland in two papers, which were duly published in its *Proceedings* (vols. ix. and x.) These papers are partly made up of the recollections of old people who happened to be conversant with some of the drainage schemes so extensively the fashion in Scotland during the earlier portion of this century, regarding the remains of wooden structures, etc., then indifferently observed, but now justly surmised to have been those of crannogs; and partly of a series of observations made by the author and others, during dry seasons, on the lochs, islands, and mosses of Wigtonshire. Mr. Wilson enumerates no less than ten lakes, each of which, on such unequivocal evidence as paved fords leading to artificial islands, mortised beams, etc., must have contained one or more crannogs. Since then he has greatly extended his observations, and it is to be hoped that before long some at least of the localities referred to will be definitely explored. The amended notes when published will be extremely valuable to future explorers, but, meantime, as those already published do not present final results nor embrace the additional observations of their author, I consider it inadvisable to bring them within the scope of the present article. To this statement, however, there is one important exception in the Crannog of Loch Inch Cryndil, which was most systematically examined in 1871. The results of this examination were laid before the Society of Antiquaries of Scotland by Charles E. Dalrymple, Esq., F.S.A. Scot., in a paper entitled, "Notes of the Examination of a Crannog in the Black Loch, anciently called 'Loch Inch Cryndil,' Wigtonshire."[1] The chief relics found in the course of this investigation were sent at the time to the National Museum, Edinburgh, as a donation from the Right Hon. the Earl of Stair, where they are now accessible to parties interested in such antiquities.[2] When in search of materials to illustrate my general work on the Scottish Lake-dwellings, I came upon a fragmentary comb, included among the articles from this crannog, and had it at once engraved. This engraving (Fig. 30) I have now the

[1] *Proceed. Soc. Antiq. Scot.*, vol. ix. p. 388. [2] *Ibid.*, p. 381.

pleasure of subjoining to Mr. Dalrymple's paper, which, by his kind permission, is here reprinted *in extenso*.

"The Black and the White Lochs, in the parish of Inch, Wigtonshire, lie near together, and parallel to each other, the former being about one and a half, the latter about one mile in length, and each about half-a-mile broad. Their general direction lengthways is from north-west to south-east. They are separated by a ridge three-quarters of a mile long and from one to two furlongs in width, on which is laid out the old and stately 'pleasance' of Castle Kennedy. At the south end of this ridge they are connected by a straight and formal canal, with terraced banks, running through a depression in the ground, where in former days there probably was a natural channel. Their only feeder is a burn running down into the Black Loch from the range of rocky hills which borders it on the north-east side, and their outfall is by another burn flowing from the northern end of the same loch into the sea at Loch Ryan. Both lochs are unusually free from peat moss, their shores and bottom being almost everywhere shingly, with blue clay underlying in many places.

"The western and smaller lake, now known as 'The White Loch,' was formerly called 'The Loch of the Inch,' from the single 'Inch,' or island, lying close to its western shore, near the churchyard and ruined parish church of Inch. This island is too high and too extensive to be likely to be artificial, and a pretty close examination has failed to discover signs of its being other than natural, but its position and some of its features suggest that it has been cut off from the shore by the formation of an artificial channel, turning a peninsula into an island. A house of the Earls of Cassillis stood upon it up to the beginning of the seventeenth century, when they built on the highest part of the ridge which divides the lochs the tower known as Castle Kennedy (now superseded by Lord Stair's modern mansion, named Lochinch); but it is supposed that at a still earlier period the first parish church of Inch stood here, as a burying-ground could be traced on the island within the last fifty years.

"A small canoe, dug out of a single oak tree, was lately found in this loch, close to the shore, and near the narrow channel which cuts off the island from the land.

"The larger, or 'Black Loch,' in which the crannog is situated, anciently bore the name of 'Loch Cryndil,' as given in Pont's map of the district, which also shows the island, and it was the fact that there is

still extant a Celtic patronymic, 'MacCrindle,' that suggested to the writer that it might be from this island, the only one on the loch of any importance, that it derived its name; and that, if so, the island might have been connected with some individual or tribe in Celtic times. This led to an application to Lord Stair for permission to examine it, which was most readily accorded and every assistance given.

"The island is oval in shape, 180 feet long and 135 feet broad in the widest part. It has tolerably deep water round it, excepting towards the nearest shore, a distance of about 100 yards, where in dry seasons it does not exceed 6 or 7 feet. It lies in the south-western part of the loch, near the entrance to the canal before mentioned.

"The writer, accompanied by Mr. Augustus Stephenson of the Treasury, whose quick eye for details proved of great value during two days of work, first carefully examined the shores of the island, seeking for traces of beams or piles, but without success, except at one spot on the north-west side, where the top of a single oak pile projected above the water, weathered and worn down to the appearance of an old tusk, or tooth, and surrounded by stones, of which a quantity had been brought, in the course of improvements at Castle Kennedy, and thrown down on the beach and in the water, to prevent, probably, the wash of the waves on this, the weather side, from wearing away the soil of the island.

In the middle of the island, which is thickly covered with trees of 30 or 40 years' growth, but with a few much older towards the south end, a circular mound appeared, resembling a low tumulus, 45 feet in diameter, rising in the centre to about $3\frac{1}{2}$ feet in height, round the edges of which there were, in some parts, traces of a low wall of three or four courses of small stones, like a miniature dyke. The island rises gradually from the water to the base of the mound, which at that season (the beginning of October) was about 18 inches above it, so that the top of the mound, which was the highest part of the island, was then about 5 feet above the loch. The appearance of the mound and the oak pile giving an archaic character to the island, an examination by digging was commenced; Mr. Fowler, superintendent of the pleasure-grounds at Loch Inch and Castle Kennedy, placing a force of from twelve to fifteen labourers at our disposal.

"Spacious cuttings were made in the centre, afterwards extended to the edge of the mound in various directions, with the following results:—The island proved to have been a crannog, formed apparently upon a shoal in

the lake, composed of shingle over blue clay, the object having obviously been to raise a platform which would be above the water even when the lake was at its fullest, as, even at the present time, there is a considerable rise in the wet months, although pains are taken to keep clear the outfall from the loch. The mound was found to be of earth and stones, mixed, extending beneath which, at a depth of 5 feet in the centre but decreasing in depth towards the edge, was found a flooring of trunks of trees, oak and alder, in two layers, crossing each other at right angles in some places, in others lying rather confusedly. These were, mostly, not more than 6 or 8 inches in diameter, but one solitary trunk of an oak, near the centre, lying at a higher level, and possibly the remains of a hut or other superstructure, was fully 2 feet in diameter, although much decayed. These layers of wood were traced as having covered a circular space about 50 feet in diameter, thus agreeing nearly with the size as well as the shape of the mound.

"At different levels, from that of a few inches above the timber flooring to 3 feet higher, and over the whole mound, were found many fireplaces, one or two covered over with two long stones leaning against each other lengthways, like the roof of a house, but most of them formed by placing two long narrow stones (fragments of the rock of the district, which breaks off easily in that form) parallel with each other, leaving a space between, which was paved with small stones and formed a hearth. Large quantities of bones of animals, mostly more or less burnt, and, whether flat or round bones, frequently split, were found mixed with the ashes and charcoal which lay in and around these hearths, in some places extending over wide spaces, which were marked, also, by masses of burnt yellow clay.

"At different levels, in different parts of the mound, were found the few objects exhibited. At one fireplace, near the centre, about 3 feet above the timbers, were the triangular piece of bronze and the fragment of iron, possibly the handle of a knife. At another, a little way off, 2 feet above the timbers, the fragment of a glass armlet. Again, about half-way between the centre and margin of the mound, only a few inches above the timber, with a great quantity of the burnt clay and many bones—one of them, a small jaw of a boar with the tusk still on it—was the fragment of a bone-comb. About 6 feet south of the centre, and 16 inches above the timbers, was found the small oblong object of bronze, perforated, and a few feet from it, 1 foot above the timbers, a portion of a small disk of stone with the

edge bevelled off. In other places, about 2 feet below the surface, two copper coins of the seventeenth century.

"From the difference of level of the various fireplaces, and their position towards each other, it would appear that the surface of the crannog had become gradually raised in the lapse of ages, the earlier deposits becoming buried under new layers of soil, partly composed of accumulated refuse, as in the kitchen middens; but the fact of the timbers which had originally floored the crannog having in many places entirely disappeared through decay, the soil above would consequently sink, which might account in some cases for the lower level of some of the remains. Enough, however, was left, evidently *in situ*, to show that they must have been deposited at different dates. It is known, too, that the island has been planted two or three times, and that considerable quantities of soil and stones have been added to it. The 2 feet of soil which covered the uppermost remains, and which so much raised the centre of the crannog, was probably added, in great part, about 1720, when Field-Marshal the Earl of Stair laid out the grounds of Castle Kennedy. Some of these operations may, to some extent, have disturbed the remains. They would, at all events, account for the modern coins found so far below the surface. The extent of the mound would appear to have been that of the crannog proper, but the existence of the solitary pile 50 feet from it, on the weather side of the island, makes it probable that either a breakwater had been placed there, as was also supposed to be the case in Dowalton Loch, or a 'chevaux de frise' of sharp-pointed stakes for defence.

"If, as we cannot doubt, Dr. Keller is right in saying that 'the crannogs appear to be strongholds—castles, belonging to *individuals*,' and that they 'served as places of refuge for single chieftains and their families and property,' we are justified in supposing that this crannog of Inch Cryndil was constructed, or at least occupied, by some chief or leader in Celtic times, bearing that Celtic name.

"The examination of the mound towards the outer edges was completed by Mr. Fowler and Mr. M'Ilwraith of Stranraer. The reports of those gentlemen are embodied in the foregoing notes. No further relics were found, but the extent and form of the crannog were satisfactorily verified."

The relics sent to the Museum are thus described:—[1]

"Double-margined comb of bone, imperfect, $2\frac{3}{4}$ inches across, formed of

[1] *Proceedings Soc. Antiq. Scot.*, vol. ix. p. 381.

separate pieces, enclosed between two transverse slips of bone fastened with three iron rivets, and ornamented with a central row of dots and circles, and two similar rows at the side of the cross piece, having a running

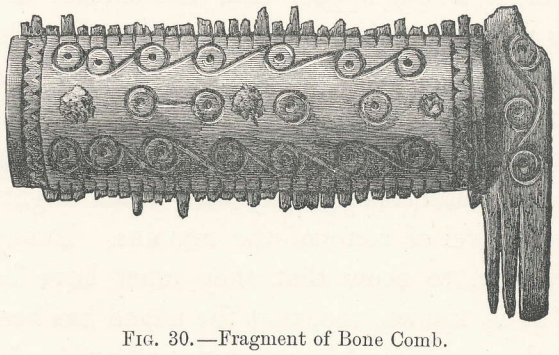


Fig. 30.—Fragment of Bone Comb.

scroll pattern connecting them. A zigzag ornament forms a band across the end (Fig. 30).

A flat leaf of bronze, $1\frac{1}{4}$ inch in length.

Part of the rim of a large vessel of cast bronze, 3 inches in length.

Portion of an armlet, of greenish glass, with a blue and white twisted cable ornament running round it.

Copper coin much defaced.

Copper bodle of Charles II.

Collection of bones of the ox, pig, sheep, etc., found with the foregoing articles during the excavation of an artificial mound on an island in Loch Inch Cryndil, Galloway."

3. *The Crannog of Airrieoulland.*

The crannog which now falls to be described, the true nature of which had only recently been surmised, was the first examined by the exploring party organised by Sir Herbert Maxwell during the autumn of 1884, for the purpose of investigating the lake-dwellings of Wigtonshire. The examination was commenced and carried on for a few days under the most favourable circumstances that foresight as to the preliminary arrangements and fine weather could command. The latter was a most essential element, owing to the situation of the mound in the centre of a marshy plain, which in wet weather always became an impassable bog. The result of our operations here has already been so adequately described by Sir Herbert Maxwell,

the original discoverer of the crannog, that nothing now remains but to adopt his *ipsissima verba.*

"The long drought of the present year having lowered the waters of the lochs, an investigation of some of the Wigtonshire crannogs was undertaken by some members of the Ayrshire and Wigtonshire Archæological Association. The first we selected for a visit is on the farm of Airrieoulland, in Mochrum parish. It is situated in the centre of a peat moss, formerly a lake, and still in most summers and all winters a quaking morass. Towards the centre of this moss, which is about 60 acres in area, there is a circular enclosure 54 feet in diameter, surrounded by a low wall. This is marked in the Ordnance Survey maps as a fort; but no fort, in the ordinary acceptation, could exist in the centre of what had been at no very great distance of time a lake. Although no timbers were visible at the time of our visit, the whole surface of the enclosure being green with grass, and the surrounding moss covered with heather and bog plants, its situation and character indicated its true character to those experienced in lake-dwellings, and a very slight excavation at once confirmed this view. Beginning in the centre the diggers exposed beneath the shallow layer of vegetable soil the familiar features of a fascine dwelling. The only novel and most interesting feature in this crannog is the surrounding fence, which, doubtless, was the usual mode of protecting the huts or wigwams of the interior, but which, in most crannogs hitherto examined, has been reduced by the action of the waves to a shapeless mound or beach of small boulders. Here, however, owing to flat flags having been used, the structure is perfect, surrounding the entire islet to a height of about 3 feet. The depth of the structure from the surface to

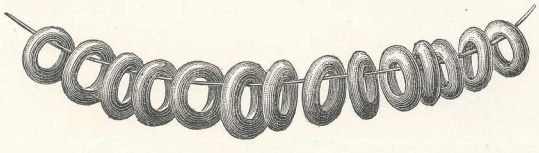


FIG. 31.—Beads of a scarlet-coloured glass. Natural size.

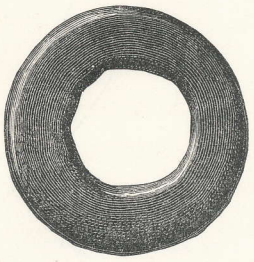


FIG. 32.—Shale Ring. Natural size.

the alluvial bed of the old lake was 4 feet. The lake bottom into which the piles were driven was soft peat 7 feet deep. The moss around the island

had grown since the structure was made to the level of the island, but no deductions could be made from that fact as to the age of the crannog, owing

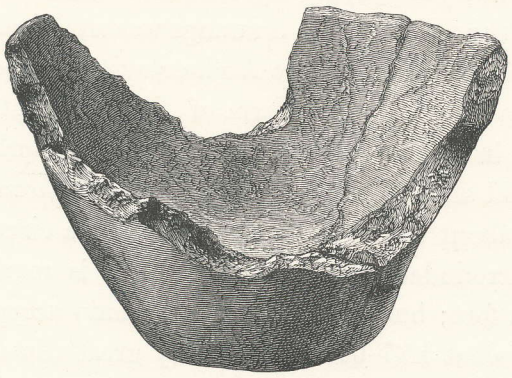


FIG. 33.
Portion of a Crucible. Natural size.

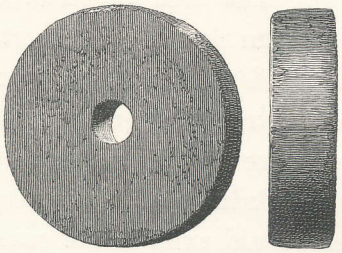


FIG. 34.
A Whorl of Bone or Horn. Natural size.

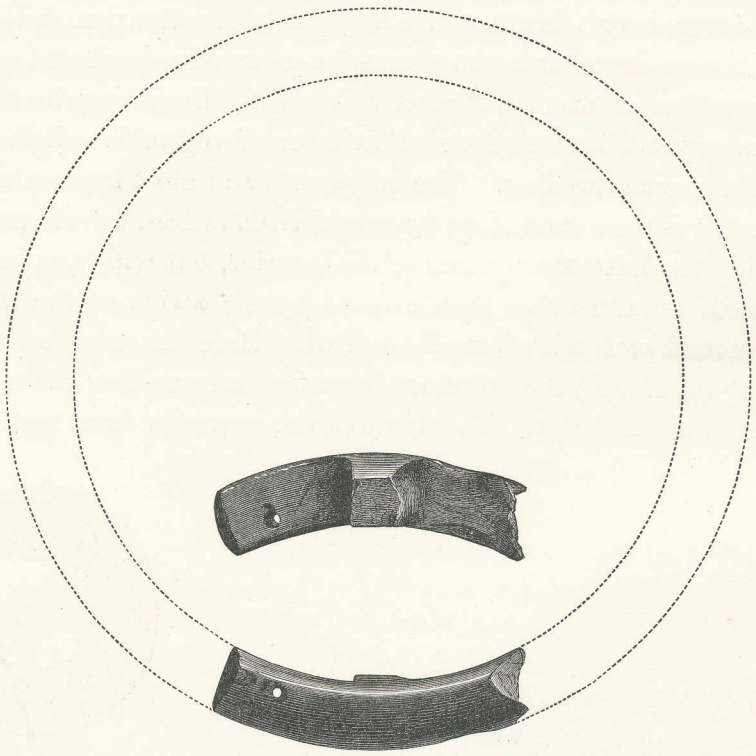


FIG. 35.—Fragment of a Jet Ornament, showing upper and lower sides. Natural size.

to the varying rate of the growth of moss, and to the uncertainty as to when the lake became filled up and moss ceased to grow. In the wonderfully accurate and laborious map of Timothy Pont, published in

1672, the present moss appears as a lake. Three days' labour sufficed to clear out the greater part of the contents of the enclosure. The chief relics disclosed, besides great quantities of bones of the usual kind, including the bones of the goat and the roe-deer, were seventeen small beads of scarlet vitreous slag (Fig. 31), forming a portion of a necklace, a rough shale ring (Fig. 32), several excellent hammer and grinding stones, many quartz pebbles which had been brought for some unknown reason (sling stones) from the seashore, distant about a mile, a broken crucible (Fig. 33), a spinning whorl of bone or horn, from a depth of 3 feet (Fig. 34), flint flakes, and a portion of a perforated jet ornament (Fig. 35)."

Since the above was written, Sir Herbert made some further examination, during which he came upon a rudely constructed fireplace near the east end of the enclosure. The only additional relics were two fragments of another crucible, a small jet ring (Fig. 36), and a remarkable button-like object of bronze. This latter is flat on one side but slightly dome-shaped on the other, and bears an incised equilateral triangle of curved

FIG. 36.—Jet Ring. Natural size.

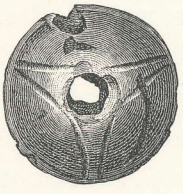


FIG. 37.—Bronze Object. Natural size.

lines, having their convex sides all looking to the centre, which is perforated by a round hole (Fig. 37). As these relics are all engraved full size, they require no further description. A selection of the bones was sent for examination to Professor John Cleland, M.D., LL.D., F.R.S., *Professor of Anatomy, University of Glasgow*, who kindly gives the following report of them :—

Bones from Airrieoulland.

Two packages of bones from this crannog have been sent for examination, and they are very different in character.

The first and larger collection contains bones of ox, sheep, and pig, together with one solitary phalanx of a dog's toe.

Besides a number of small fragments of limb bones, portions of ribs, and dorsal spines, probably belonging to the ox, are the following, certainly belonging to the ox: numerous

teeth, the fore parts of 3 right lower jaws, 3 condyles of jaw with coronoid process, viz., 2 right and 1 left, 1 left malar, parts of right and left scapula, lower end of right humerus, upper end of left radius, left unciform bone, 3 imperfect right metacarpals, 1 portion of metatarsal, 1 right os calcis, 1 left astragalus, part of axis, and articulary surface of another vertebra. The ox bones are very small, like those of Bos longifrons, and have belonged to at least three different individual animals.

The sheep bones are the following:—

Two right lower jaws, one of them a lamb, 2 broken shafts of metatarsals, 1 metacarpal of lamb, with upper epiphysis adherent and the lower absent.

The metatarsals and metacarpal indicate a variety with very slender legs, such as has been found in other places in the west of Scotland, as, for instance, the Rock Shelter at Hunterston, Ayrshire. See *Proc. Scot. Ant. Soc.*, 1879, p. 350.

The pig bones are partly adult, partly young. Like others found in similar circumstances, they fail to reach a large size. There are portions of a right upper jaw with 4 molars, the hindermost not begun to be used, and the next just begun to.

4. *Barhapple Crannog.*

On the 15th October 1880, the Earl of Stair, K.T., LL.D., and a large party of friends, visited Barhapple Loch for the purpose of examining a crannog which had recently become visible near its centre, in consequence of some drainage operations effected about 18 months previously. As an account of these proceedings has already been published among the Collections of this Association (Vol. III. p. 52 *et seq.*), it is unnecessary here to do more than refer my readers to this article, in which, in addition to the report of the excavations made on the crannog, they will find some interesting topographical and antiquarian notes on the surrounding district. As to the actual condition of the island, it turned out that its surface was too wet to permit of a careful search being made, and consequently the operations had to be discontinued. Hence, beyond taking its dimensions (which showed the island to be one of unusual size and almost entirely constructed of wood), the discovery of a shale ring (Fig. 38) and the exposure of a fireplace, there was really little to be recorded. During the dry summer of 1884, it was reported that the island had become much drier and more consolidated; and, altogether, that it was in a better condition than formerly for being subjected to such a thorough exploration as was contemplated. Accordingly, the Earl of Stair again made all the necessary arrangements for completing its investigation. As on the former occasion his lordship was assisted in these operations by the presence of Sir

BARHAPPLE CRANNOG. FROM A DRAWING BY SIR HERBERT MAXWELL.

Herbert Maxwell, M.P., Mr. R. W. Cochran-Patrick, M.P., and other members of the Ayrshire and Wigtonshire Archæological Association.

That the increased firmness and consolidation, which had taken place since 1880, was due to shrinkage, was very apparent from the appearance presented by the upright piles, which formerly barely projected above the spongy mud, but now showed some two or three feet above the surface; and even the amount of this shrinkage could be precisely measured owing to an alteration in colour which the recently exposed parts of the piles had

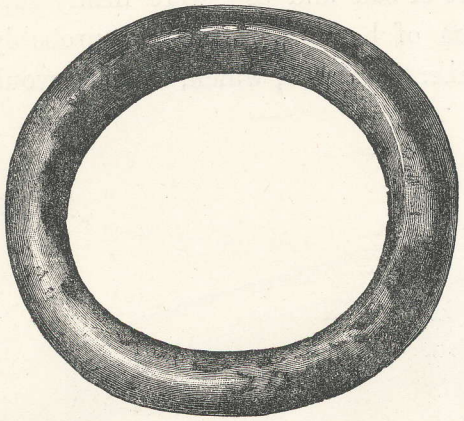


Fig. 38.—Shale Ring. Natural size.

undergone. Their number was also most remarkable, so much so, indeed, that it was resolved to have the whole island photographed, as the mere counting of such a forest of uprights, not to speak of a sketch which was also spoken of, was considered too formidable a business to be lightly undertaken. Mr. Wilson records that Mr. J. Pendarves Vivian, M.P., who was present during the first examination in 1880, had actually counted those then visible in the outer circle, and ascertained their number to be not less than 134. Moreover, they were not confined to the outer portion of the island, though perhaps more abundant as the margin was approached, hence the island had a most striking appearance, reminding one of a decayed forest with its stunted trunks still standing (Plate XX.) It was also observed that the shrinkage was not restricted to the artificial island, but extended equally all over the lake basin; and, as a consequence of this, the remains of two gangways to the shore became visible, one running northwards and the other eastwards. In both these so-called gangways the lines of piles were interrupted for a considerable space near the island. As to the exact use

of these appendages to the other artificial structures there was no evidence procured. Whether the double rows of piles were intended to support a wooden bridge, or merely to guide canoes to and fro, or to provide a secret but precarious means of access to the crannog in times of emergency, is still to me an unsolved problem. As to the structure of the island, it was remarked that not only the uprights, but the horizontal wood-work, was more methodically arranged and of a stronger character towards the margin. Here the uprights, especially those in the outer circle, many of which were made of young trees of oak and ash, were firmly supported by the intertwining among them of horizontal timbers; probably for the purpose of resisting superincumbent pressure, which, if great, would have a tendency to

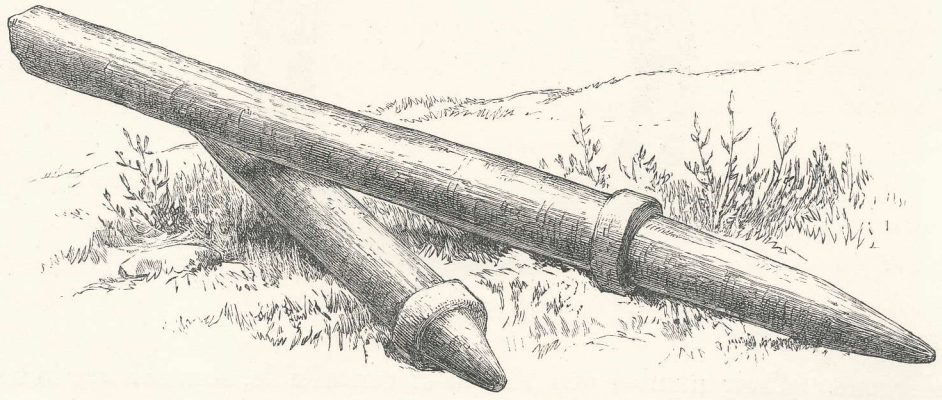


Fig. 39.—Prepared Wooden Beams. From a Drawing by Sir Herbert Maxwell.

make the island bulge outwards. On the north side, as if in continuation of the line of piles forming the gangway or jetty on this side, a distinct roadway of round beams was traced, running towards the dwelling-place, which, judging from the position of the fireplaces and other remains, was situated near the eastern margin of the crannog, and directly opposite the end of the other gangway. Two fireplaces were here distinctly recognised, one a little to the north of the other. Both were constructed of clay and stones, the whole resting on a thick bed of brackens and brushwood. A layer of charcoal, from 5 to 12 inches thick, consisting of the ends of small beams and what looked like the stems of heather and brushwood, occupied a considerable area around the fireplaces. From among these embers some large prepared beams were disinterred, two of which had a round projecting tenon, protected by a circular flange at each end, as shown in Fig. 39,

eing probably part of the first wooden dwelling which adorned the island. The most perfect of these beams measured 7 feet 10 inches in length, and 19 inches in circumference. The projecting tenon at one extremity was burnt, and only a small stump remained, sufficient to show that both ends had been alike. It would appear also that the building had been burnt to the ground soon after its erection, as there was no evidence from accumulated debris that the island had ever been long inhabited. It was also conjectured that this conflagration occurred during a strong north-west gale, from the fact that charcoal and burnt embers were largely found in the opposite direction from the building. On making a section of the island within the area of the supposed dwelling, we encountered several layers of different materials. First was a superficial deposit, about 1 foot in depth, of stones, roots of aquatic plants, fresh alluvium, etc., then a layer of burnt wood and cinders. Below this were the structural materials of the island, chiefly brushwood and ferns, forming a bed between 2 and 3 feet in thickness; beneath this again was the peaty substance of the lake bottom. On plunging an iron crowbar through this it struck, at a farther depth of 4 feet, on either rock or till. If this hard substance was the surface of the original glacial basin the entire accumulation of the sedimentary deposits in this lake has not exceeded 8 or 9 feet.

A correspondent of the *Times*,[1] practically well acquainted with all the details, thus sums up the general results of this investigation, which was continued for a period of three days:—"This crannoge, already referred to as having taken about 3000 trees in its construction, measures 157 yards in circumference. The present aspect of the surrounding country is bleak and treeless in the extreme. Low 'drums,' or sowbacks, so characteristic of a glacier-scraped country, rise out of vast tracts of peat-moss, the lakes themselves being probably but shallow basins scooped by the grounding of the land-ice of the later icefields out of the till or ground-moraine laid down in the earlier glacial period. Nevertheless, when these crannoges were formed a dense forest must have clothed the now desolate plain, consisting, as shown by the composition of the island, in this district principally of oak, birch, ash, hazel, and alder. The Scotch pine, largely employed in the construction of the Dowalton group, was not noticed in the Barhapple island. The structure of the wood is perfectly apparent, though all but the oak, which is very hard, cuts as soft now as Cheddar

[1] *Times*, September 16, 1884.

cheese. A strange feeling comes over the mind as by counting the year-rings made in the summer times of the long-forgotten past, the very age of the trees at the time they fell before the blows of prehistoric men can be accurately ascertained.

"Lord Stair, on whose property this lake is situated, kindly provided us with workers from his quarries at Glenluce; otherwise, owing to harvest operations, we should have been unable to proceed. His lordship, who is President of the Ayr and Wigtown Archæological Association, shows a keen interest in antiquarian research, and was present during our first day's operations.

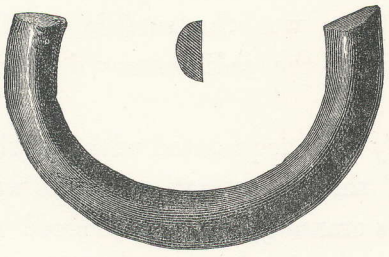


FIG. 40.
Portion of a Shale Ring, split longitudinally. Natural size.

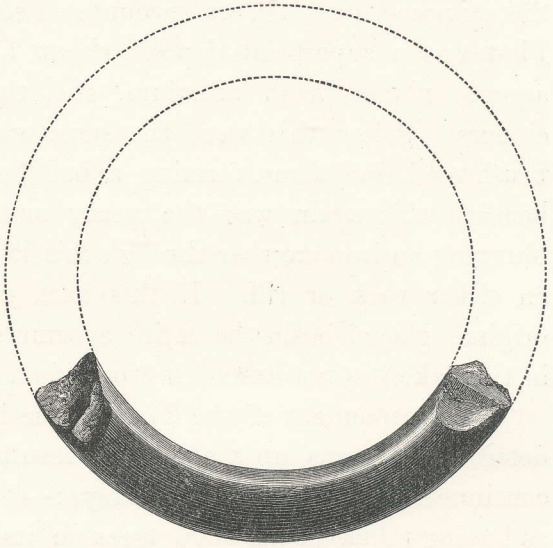


FIG. 41.
Portion of a Shale Ring. Natural size.

"Barhapple (old Gaelic for the Horse Hill) Loch is of small extent, some 500 yards long by 300 broad. Its crannoge, of which no trace was visible before the lake was drained, and of which we have now turned over a full third of the surface, did not prove rich in relics. Two broken rings of shale (Figs. 40 and 41), such as the country people to this day cut out of the lower Silurian beds in the neighbourhood, a broken canoe paddle and half a canoe, several good hammer and grinding stones, with a piece of wood shaped into the semblance of a spoon-like implement (Fig. 42), were all the portable objects that rewarded us. But most interesting evidence was obtained that the superstructure, of which huge planks, and pillars like beams (Fig. 39) remained, had been destroyed by fire. Whether accidental

or not, the island had not been inhabited since the catastrophe. The crannoge may have been looted and then burnt by the Roman soldiers, or by a hostile tribe—that can never be ascertained now. But there lie the

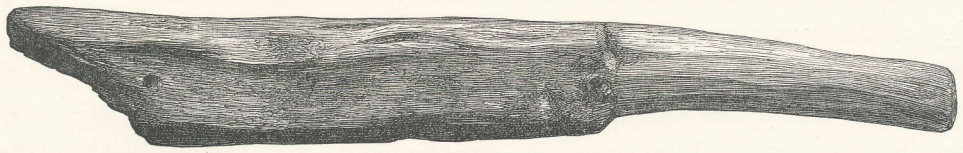


Fig. 42.—Portion of a Wooden Spoon-like Implement. Reduced.

charred ruins of what appears to have been much the most important dwelling of the kind as yet examined in Wigtownshire."

From Barhapple we visited the neighbouring loch of Dernaglaur[1] to see a small canoe that had been found near its margin, in consequence of a partial drainage of its waters which had recently been effected. At the same time an artificial island just showed above the water, but not sufficiently to admit of being investigated. The canoe is kept buried in mud within a sort of natural harbour of stones on the eastern shore of the lake. It is a single-tree dug-out, having four ribs which divide its interior into three compartments. It measured 11 feet long, 31 inches wide, and 11½ inches deep, and had a groove, about 9 inches from the end, for a stern board.

5. *Lake-dwelling in White Loch of Ravenstone.*

Another archaeological discovery, which can only be classified as a lake-dwelling presenting some features of an entirely novel character, was made in the White Loch of Ravenstone, the property of Lord Borthwick.

This small loch, which is within a few minutes' walk of Ravenstone Castle, is surrounded by a broad fringe of marsh and tall reeds. Within this marshy area, and just skirting the water's edge on its western side,

1 *Dur* is a frequent prefix to names of places in this (Old Luce) and Kirkcowan parish. It is obsolete Gaelic for water, and is the same word as *tobair*, a well: the central *b* is aspirated, becomes *v*, and drops out, as in abhuinn (aven), and becomes *an* or *awn*. An old Irish glossary, quoted by O'Reilly, also cited by Dr. Skene (*Celtic Scotland*, vol. i. p. 200 note), has the following:—"Bior is An agas Dobhar
Tri hanmann d'uisce an domhain,"
(*i.e.* Bior and An and Dobhar, three names for water in the world). *Bior* is also obsolete, though it survives in *Biolair*, watercress. In *an* the contraction from *abhuinn* has already taken place. The Rev. G. Wilson, in his description of this crannog in Vol. III. of these Collections, interprets the prefix *der* or *dir* as meaning trees, apparently having in his mind *darach*, an oak, or *doire* (derry), a wood of oaks, but the true meaning is undoubtedly given above.—*Editor.*

there is a flat mound, some 80 feet square and 6 or 7 feet high, having on its surface the ruins of drystone buildings. These ruins consist of the foundations of walls, a foot or so high, which clearly define the outline of a superstructure divided into five rectangular compartments. It would appear that a passage, 11 feet broad and 55 feet long, extended from east to west, *i.e.* in a direction pointing from the shore towards the middle of the loch, from which the compartments opened—three being on the north and two on the south. The mound is entirely composed of flags and boulders, many of which are so weighty as to require the utmost efforts of a strong man to turn over. Some seven or eight large trees—ash, elm, and plane—have taken possession of the mound, and no less than four of the apartments are now occupied each by the trunk of a venerable-looking ash. Like most of the lochs in this district that of Ravenstone is a rock-cut basin, scooped out by glacial agencies. About twenty years ago its outlet was deepened by cutting through the rock to the extent of 5 feet, an operation which, of course, correspondingly lessened the depth of the loch and greatly diminished its superficial area.[1] People in the neighbourhood who recollect its former condition describe the mound as a small wooded island which at no season of the year was accessible except by boat. This singular mound and its mysterious ruins had for some time excited the curiosity of Lord Borthwick, but to whatever source he turned for information he could find no ray of light regarding their antiquity or purpose. Neither written documents nor traditions could say to what people or race they were due—whether Celt or Saxon, Pagan or Christian. Untenanted, unhaunted, and forgotten, this fragment of the non-historic past justly claimed the attention of antiquaries. In these circumstances Lord Borthwick became desirous of subjecting it to some practical investigation, under the guidance of the exploring party from the Ayrshire and Wigtonshire Archæological Association, with whom his lordship, as one of the vice-presidents of the Society, had already come in contact during the Dowalton excavations. Accordingly, a gang of workmen being procured, a start was made on the 1st October 1884. At the preliminary inspection it was stated that Sir Herbert Maxwell, who had visited the mound on a previous occasion, had observed an oak pile near its base. This was considered an important clue,

[1] This loch is all that remains of a very extensive one which formerly must have filled the large basin now occupied by the surrounding moss. The paddle mentioned on page 83 was recovered from this moss. Ravenstone, formerly spelt Remistoun, was also called Clochtoun.—*Editor.*

and to its re-discovery all eyes and hands were now directed. This was by no means an easy task amidst a zone of fallen stones and rank nettles which skirted the mound between it and the surrounding marshy plantation.

At the outset the search was unsuccessful, and the occasional finding of the stumps of decayed trees gave rise to some despondency. At last, however, complete success rewarded the persevering efforts of a young lady whose sympathies were enlisted in this species of antiquarian research. There was this time no mistake about the matter. That a slender, black *stob*, which cropped up through the stones at the south-west angle of the mound, near its base, and only a few yards from the water's edge, was an artificial pile driven in for some special purpose before the stones were placed around it there could be no doubt whatever. Digging here, and guided by the upright pile, the workmen, after removing some large stones, came upon the edge of a network of upright and horizontal beams which projected from under the mound. Portion of a beam with a square mortised hole, and a stout slanting pile having its sides and lower extremity cut to the square, were removed and taken possession of by Lord Borthwick. A second excavation, a few yards farther along the south side, and in a line indicated by the three or four uprights already exposed, revealed a similar arrangement of beams. A shaft was then dug through the mound itself, in the only compartment of the superficial ruins which was not occupied by a tree, and at a depth of 6 feet 5 inches below the foundation of the walls a wooden flooring, formed of round beams lying in various directions, was reached. The shaft was at first large enough for two men to work together, but, owing to the irregularity of the size and position of the stones encountered, it gradually got so contracted that ultimately the area of woodwork exposed was not more than 2 square feet. In this space portions of not less than six beams became visible, lying in various directions, among which oak, ash, and birch were readily detected. Immediately above the beams there was a thin layer of charcoal, a portion of which was preserved, and on being afterwards more carefully scrutinised it was found to contain one whole hazel nut and a few broken shells of others. After this the men were directed to search on the north side of the mound in order to ascertain if the woodwork really extended under the whole island. Here also, after much labour in removing the stones, the ends of several of the oak beams were found to protrude from under the mass. The surface of the woodwork exposed in these four places was nearly on the same level and scarcely

elevated above that of the loch, as was satisfactorily determined by the oozing up of the water. The beams appeared to be imbedded in a peaty substance, similar to that deposited in the bed of the loch, and everywhere an iron rod could be easily passed downwards through their interstices, but in no place were stones or rock met with below the woodwork. This concluded the preliminary investigation, as it was thought advisable to delay further explorations till such time as Mr. Cochran-Patrick, M.P. (whose unavoidable absence was much regretted), and other experienced archæologists had an opportunity of deliberating over the novelty of the discovery.

It is not an unusual thing to find traces of stone-fencing and other kinds of buildings on the artificial islands, as, for example, on the Isle of the Loch of Banchory[1] and the crannog of Airrieoulland, recently discovered by Sir Herbert Maxwell, and already described in this paper. A small island in Lochrutton, Kirkcudbrightshire, is described in the *Old Statistical Account of Scotland*[2] as "a collection of large stones which have been founded on a frame of oak planks;" and, according to the same authority, another, similarly constructed, exists in Loch Kinder.[3] The peculiarity of the Lake-Dwelling in the White Loch of Ravenstone is the architectural neatness and skill displayed in its superstructural ruined building, and the quantity of stones composing the mound itself: and in both these respects this island is, as far as I know, unique in Scotland. It may be stated that the former did not occupy the whole surface of the island, as its total length was only 55 feet and breadth 47 feet. The walls were 2 feet 3 inches thick, and were built of small hammer-dressed stones, but without any clay or mortar. One compartment showed a recess in the middle of its western wall as if for a chimney. The north side of the island showed signs of having been roughly built up with large undressed flags, but the rest of its stony perimeter was quite dilapidated. That the wooden island was inhabited as a crannog before its level was raised to its present height (about 7 feet) by the addition of the enormous mass of stones underlying its final buildings, an idea suggested by the discovery of charcoal and the shells of hazel nuts over the woodwork, is an opinion that requires further proofs before it can be accepted as one well founded in fact.

ROBERT MUNRO.

[1] *Ancient Scottish Lake-Dwellings*, p. 27; also *Proceed. Soc. Antiq. Scot.*, vol. vi. p. 126.
[2] *Old Statistical Account*, vol. ii. p. 37. [3] *Ibid.*, p. 139.