III.

NOTICES OF (1) A BRONZE SOCKETED AXE FROM DAVIOT, ABERDEENSHIRE, AND (2) A STONE MOULD FOR CASTING WHORLS FROM INSCH, ABERDEENSHIRE, WITH (3) NOTES ON LEAD WHORLS, LEAD BROOCHES, AND BUTTON MOULDS.

By J. GRAHAM CALLANDER, *Curator of the Museum.*

1. Socketed Bronze Axe.

In the *Proceedings*, vol. xli. p. 128, I described a bronze sword which was found on the farm of Grassieslack, in the parish of Daviot, Aberdeenshire, during the harvest of 1906. About the middle of March of this year (1913) the finder of the sword, while engaged in sowing operations, picked up a socketed bronze axe within a few feet of the spot where he had found the sword, it having been turned up by the plough and shaken clear of the soil by the harrows. The axe, which is exhibited, is a well-preserved example of the socketed and looped variety: only, a triangular piece has been broken off one of the corners of the socket, the fracture extending for about one-third of its circumference and tapering down from the lip a distance of about $\frac{5}{8}$ inch. The axe (fig. 1) measures $3\frac{1}{8}$ inches in length and $1\frac{5}{8}$ inches

between the extremities of the cutting edge. The mouth of the socket, a rounded quadrilateral in shape, most flattened on the side bearing the loop, is $1\frac{1}{2}$ inches across each way externally and $1\frac{1}{8}$ inches internally, while the depth of the socket, which tapers regularly from the lip to the bottom, is $2\frac{9}{16}$ inches.

Quite an amount of care has been bestowed on the manufacture of the little implement, as it is encircled by two slightly raised mouldings, one round the mouth $\frac{1}{4}$ inch broad, and the other about $\frac{1}{8}$ inch from the first and $\frac{3}{16}$ inch in width. From the latter moulding, on either

Fig. 1. Socketed Bronze Axe, ploughed up at Grassieslack. ($\frac{2}{3}$.)

side of the axe, three straight flattened ridges of about the same breadth as the moulding extend towards the cutting edge, gradually attenuating into the sides of the tool. The axe contracts below the rim moulding till it is about $1\frac{3}{16}$ inches square, and then tapers regularly to within $\frac{1}{4}$ inch of the curved and expanded cutting face, where the bevel is slightly beaten in to form the edge. The loop is strong; springing from $\frac{7}{16}$ inch of the mouth of the socket, it is $\frac{3}{4}$ inch long, $\frac{11}{32}$ inch broad, and $\frac{5}{32}$ inch thick, having an oval aperture $\frac{5}{16}$ inch by $\frac{5}{32}$ inch in size. Along the middle of the top and bottom edges are seen

Fig. 2. Bronze Sword, wanting hilt, ploughed up at Grassieslack. ($\frac{1}{4}$.)

the remains of the ragged beading of metal formed at the junction of the two outer halves of the mould in which the object was cast, the beading having only been partially cleaned or filed off. The oxidation of the metal shows that the fracture is of ancient date, and practically the whole outer surface of the axe is covered with a fine, smooth, thick, light green patina.

It may safely be claimed, I think, that the sword (fig. 2) and axe were originally deposited together, although they were found at an interval of some six and a half years. It is practically impossible that two objects, not of common occurrence in Aberdeenshire, or even in any part of Scotland, could have been left or lost near the same spot at different times, especially as it is known that bronze swords and socketed bronze axes were contemporaries. Besides, the two relics are covered with a similar thick, smooth patina of the same light green tint, and it may be noted that both articles are slightly broken, the sword wanting the hilt and the axe a portion of the rim of the socket. Doubtless the objects had been lying together, and had been separated by some agricultural implement, perhaps a grubber, which penetrates deeply and is provided with broad fins that might easily have carried one of the specimens some distance away.

I may repeat that the sword, though wanting the hilt, is in a state of fine preservation, and measures $20\frac{1}{2}$ inches in length and $1\frac{1}{2}$ inches across the broadest part of the blade.

The list of Scottish bronze-age hoards in which a sword has been found associated with a socketed axe is very short. I have been able to trace only three such hoards.

Arthur's Seat, Edinburgh.	2 swords and 1 socketed axe.
Monmore, Killin, Perthshire.	1 broken sword, 2 socketed axes, 1 spearhead, 1 socketed gouge, and 11 rings.
Kilkerran, Ayrshire.	2 pieces of a sword, 3 socketed axes, and 2 large rings attached to staples.

2. Stone Mould for casting Whorls of Lead or Pewter.

This mould (fig. 3, No. 3) was found on a field on the farm of Greenlaw, in the parish of Insch, Aberdeenshire, in the spring of 1911, not associated with any other object, as it was discovered during agricultural operations. It is an irregularly shaped piece of sandstone, measuring 3½ inches at its greatest length, 3 inches at its greatest breadth, and from ¾ to ⅞ inch in thickness. Near the centre a hole $\frac{7}{16}$ inch in diameter has been drilled straight through the stone, round which is scooped out a circular matrix 1⅜ inches in diameter, tapering from the edge till it reaches a depth of $\frac{3}{16}$ inch at the inside. From the matrix to one of the sides of the stone, a distance of ⅝ inch, there is a small runner or channel, widening at the orifice through which the molten metal would be poured. The matrix bears an incised design which would produce a pattern in relief on the object cast in it. The scheme of ornamentation is made up of seven straight lines, not quite equidistant, radiating from the hole to the edge of the matrix, and a roughly circular medial line cut round the perforation at an average distance of ¼ inch, thus forming seven panels within, and the same number without, the medial line. In the centre of each inner panel, and in three of the outer panels, is a dot or punctulation $\frac{1}{16}$ inch in diameter, and in the four remaining outer panels are two similar punctulations.

It is evident that this is only half of the mould, although in all likelihood the more important half, seeing that the presence of the

duct shows that when in operation it was necessary to set the mould on edge and have a complementary cover stone, which would require to be clasped against it. At the moment, quite a good whorl could be cast in it by laying it on the flat, inserting a plug of wood through

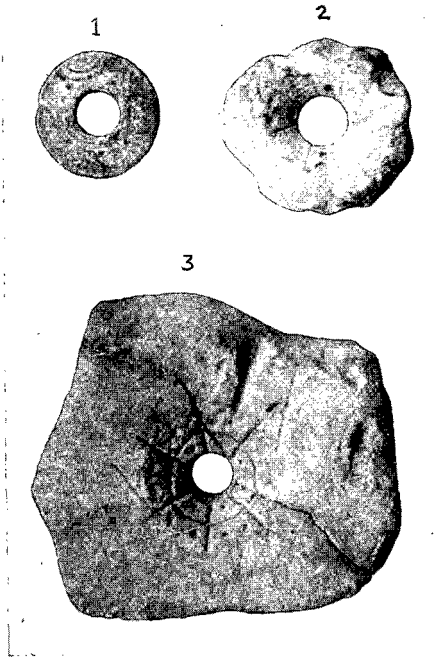

Fig. 3. Whorl of Lead and Whorl Moulds.

the perforation, and using it as an open mould. But if it had been intended to use in this position, instead of there being a hole in it there would likely have been cut on the mould a solid projecting cone to form the perforation in the whorl. However, as it was intended to be placed on edge with a cover when in use, this cover may either have been plain or may have borne a design; at all events

it would have a corresponding channel and central perforation, so that a plug of wood inserted through the holes would not only complete the whorl, but would tend to steady the component parts of the mould.

In the collection of Mr A. Henderson Bishop, F.S.A. Scot., there is a somewhat similar mould of felstone (fig. 3, No. 2), now badly damaged, which was found at Courthill, Hawick. It is roughly circular, being $1\frac{7}{8}$ inches across its greatest diameter and $\frac{11}{16}$ inch in thickness, and it is centrally perforated, the perforation being slightly conical and measuring $\frac{7}{16}$ inch in diameter in the bottom of the matrix and $\frac{17}{32}$ inch on the other side of the stone. The matrix is circular, $\frac{1}{4}$ inch deep and $\frac{31}{32}$ inch broad. It is divided into eight compartments by single radiating lines, four of these compartments being smaller than the other four. The small compartments each contain a group of three punctulations set triangularly with the apex towards the centre. The larger spaces, which alternate with the smaller, are divided by four or five lines more or less concentric to the perforation. Round one-third of the periphery of the mould it has been roughly ornamented, probably in an attempt to fashion it into a whorl. Three grooves set alternately on the opposite edges of the object, and extending about two-thirds across it, form a wavy pattern. An oblique groove from the matrix to the edge of the mould may have been the duct through which the metal was poured.

Though whorls were often home-made, they also formed articles of trade. In the old Scots ballad *The Gaberlunzie Man*, there is the following reference to them in the first half of the last stanza :—

> Wi' kauk and keel, I'll win zour bread,
> And spindles and whorles for them wha need,
> Whilk is a gentle trade indeed
> The gaberlunzie to carrie, O.

From this we can imagine that several centuries ago whorls would often be found among the various odds and ends hawked about the

country by packmen. In an old account-book kept by a small Banffshire farmer, which I have been allowed to copy, is the following entry, dated 25th June 1765:—"By cash for a spindle and two forles, 2d."[1] The spindle probably sold at a penny and the whorls at two a penny.

3. Notes of Lead Whorls, Lead Brooches, and Button Moulds.

Lead Whorls.—I am able to exhibit a leaden whorl (fig. 3, No. 1) from Torries, in the parish of Oyne, adjoining the parish of Insch, where the first-described mould was found, measuring $1\frac{1}{4}$ inches in diameter, $\frac{3}{16}$ inch at thickest part, and $\frac{1}{2}$ inch across the perforation, which may have been cast in a mould somewhat similar to those just described. It is convex on the upper side, and very slightly so on the under side. The top side has a slight raised moulding encircling the hole, and six groups of four concentric semicircles are placed at regular intervals round the edge. Apparently a similar design had occupied the under side, though only one group of concentric semicircles is now visible.

Whorls of lead are not of common occurrence relatively to those of stone. In a collection of about one hundred whorls from Aberdeenshire which I have accumulated, the specimen described is the only one of lead, the others being of stone.

Although this whorl is probably of comparatively late date, some lead whorls boast of a considerable antiquity. Besides a number picked up not associated with other objects on the Glenluce and Culbin Sands and elsewhere, we have in our National Scottish Collec-

[1] The word *forles* for *whorls* shows the Aberdeenshire peculiarity of changing *wh* at the beginning of a word into *f*, which exists to the present day. This is seen in the words *fa* = who, *fan* = when, *far* = where, *fite* = white, *fusky* = whisky, *fulp* (a pup) = whelp, *fussle* = whistle, *fuskers* = whiskers, *fie* = whey, *files* = whiles, *funs* = whins, and *futtrit* (a weasel) = old Scots *quhittrit* or *whittrit*. It is also seen in place-names, such as Pulwhite pronounced *Pu'fite*, Whinbrae pronounced *Funbrae*, Baldyquhash pronounced *Badyfash*, and Torquhandallochy pronounced *Torfunlochy*.

tion examples from inhabited sites—from brochs, earth-houses, and crannogs—whose association with other relics proclaims their period. Two from the Culbin Sands are of conical section, the sides being slightly concave, and they are oval in plan, the longest diameter being $\frac{7}{8}$ inch; while from the Glenluce Sands there are several discoid whorls 1 inch in diameter, and a number of spherical shape $\frac{5}{8}$ inch in diameter. One discoid specimen, $\frac{7}{8}$ inch in diameter and $\frac{3}{32}$ inch thick, is ornamented by straight incised lines radiating from the hole.

From the broch of Cinn-Trolla, Kintradwell, Sutherlandshire, there is an example $1\frac{3}{4}$ inches in diameter, with a hole $\frac{3}{4}$ inch broad; two spherical whorls, $\frac{7}{8}$ inch in diameter, with a perforation $\frac{3}{16}$ inch wide, were found in the weem or earth-house at Cairnconan, Forfarshire; and another specimen, $1\frac{3}{8}$ inches in diameter, was recovered from the crannog in Dowalton Loch, Wigtownshire.

In the preceding paper by Professor Bryce there is noted an example, flat on the under side and domed on the top, which was found with a Viking weighing balance, scales, and weights in the island of Gigha, in the Hebrides. Mr Bishop recovered another of similar shape and size in a Viking mound in the island of Oransay. Mr Ludovic M'L. Mann has a third specimen of this type which was found in a site on the Glenluce Sands. It was associated with stone whorls of similar shape, a number of bronze pins with ornamental heads, a gilded bronze plate with interlaced ornamentation,[1] bronze belt mountings also ornamented with interlaced designs, a flattened oval pebble of quartz with an oblique groove on either side, thick circular rings of red baked clay, and coins of Northumbria of the middle of the ninth century.

None of these examples, however, except my own specimen from the parish of Oyne, bear any resemblance to the matrices on the two whorl moulds described, which are doubtless of much more recent date.

Brooches of Lead or Pewter.—Several examples of flat ring brooches

[1] *Proceedings*, vol. xxxvii. p. 22, fig. 3.

of lead, which may have been cast in moulds somewhat resembling the whorl moulds, have been found. While the brooch mould may have been a simple open mould, the ornamentation on the brooches so resembles the design on the whorl moulds that it is not unlikely that they may have been in use about the same period. I have two of these leaden brooches which I picked up on the Culbin Sands (fig. 4). They measure $1\frac{1}{8}$ inches and $1\frac{1}{4}$ inches in diameter respectively, and the

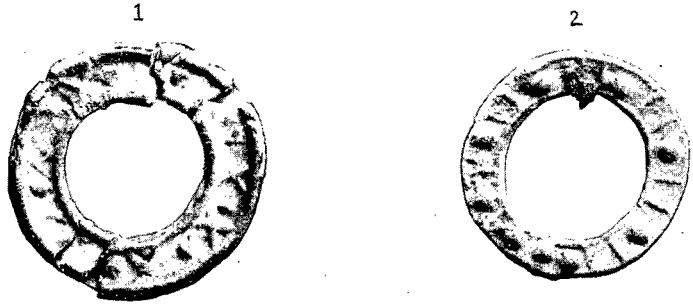

Fig. 4. Brooches of Lead from the Culbin Sands.

flat ring of each brooch is $\frac{1}{4}$ inch and $\frac{5}{16}$ inch broad, while their thickness is a little over $\frac{1}{16}$ inch. The smaller example has still a fragment of the iron tongue, a small mass of rust, attached to it. The ornamentation on it is composed of a series of irregularly placed transverse or radiating raised lines, a beading running round the outer and inner edge of the flat ring, with a pellet in the centre of a number of the panels. The design on the other brooch differs only in having crossed instead of radiating lines. In the Museum there is another example of this class of brooch, also from the Culbins, with a diameter of $1\frac{1}{8}$ inches. It has the iron tongue intact, and has six flat rounded pro-

jections springing $\frac{3}{16}$ inch from the edge of the brooch. The ornamental design resembles that on the first-described brooch.

Button Moulds.—Small moulds, for casting buttons of lead or pewter, have been found in Aberdeenshire, which may belong to the same period as the whorl moulds and brooches described, although I believe the brooches, from their ornamental motif, may be earlier. In the Museum is a pewter button, $1\frac{1}{4}$ inches in diameter, which was found in Edinburgh. Judging from the pewter loop at the back, it was probably cast in a stone mould which was fitted with a cover stone. Six of these moulds in my collection are exhibited, of which five bear matrices on both sides, and one on one face only. The obverse of these moulds is shown on fig. 5 and the reverse on fig. 6. They are made of slate, which is a favourite stone for bullet moulds also. Three are open moulds, and three have been used as closed moulds, the covering half being lost. Two of the latter have stud holes drilled through the object, and the third is provided with a square notch near the middle of each side for guiding and fixing the absent component part, the cover. The first open mould (No. 1), found at Barrack, Fintray, in 1900, is a squarish oval disc, $1\frac{1}{2}$ inches by $1\frac{3}{8}$ inches, with a finely cut matrix in the centre of each side; the second (No. 6), from Bourtrie, is square, measuring $1\frac{3}{8}$ inches across, with five matrices on each face, one in each of the four corners and one in the centre; and the third (No. 2), from Smithston, Rhynie, an oblong with rounded ends, now $2\frac{1}{4}$ inches in length by $1\frac{3}{8}$ inches in breadth, which is incomplete, a bit of one end having been broken off, shows three matrices on each face. Of the three closed moulds, the first (No. 5) from Fornet, Skene, an irregular oblong, measuring $3\frac{1}{2}$ inches by $1\frac{3}{8}$ inches, shows a stud hole through each end, and two matrices on one side and one on the other; the second (No. 3), an irregular pentagon, $2\frac{3}{4}$ inches by $2\frac{1}{2}$ inches, is supplied with two stud holes which penetrate through the stone, and a third which is carried only about half through, and it contains only one matrix on one side; the third (No. 4), found at Brooms,

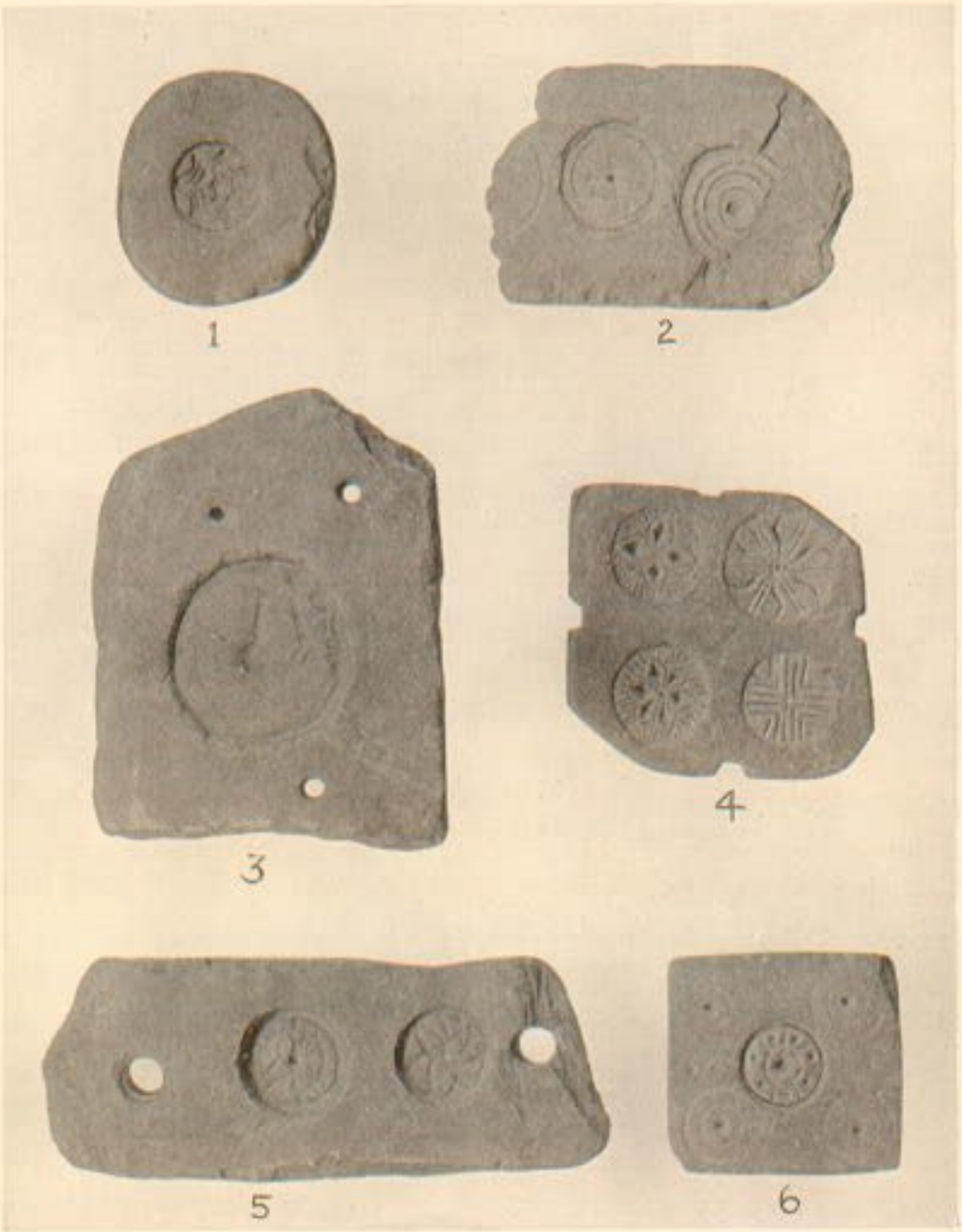

Fig. 5. Button Moulds from Aberdeenshire (Obverse).

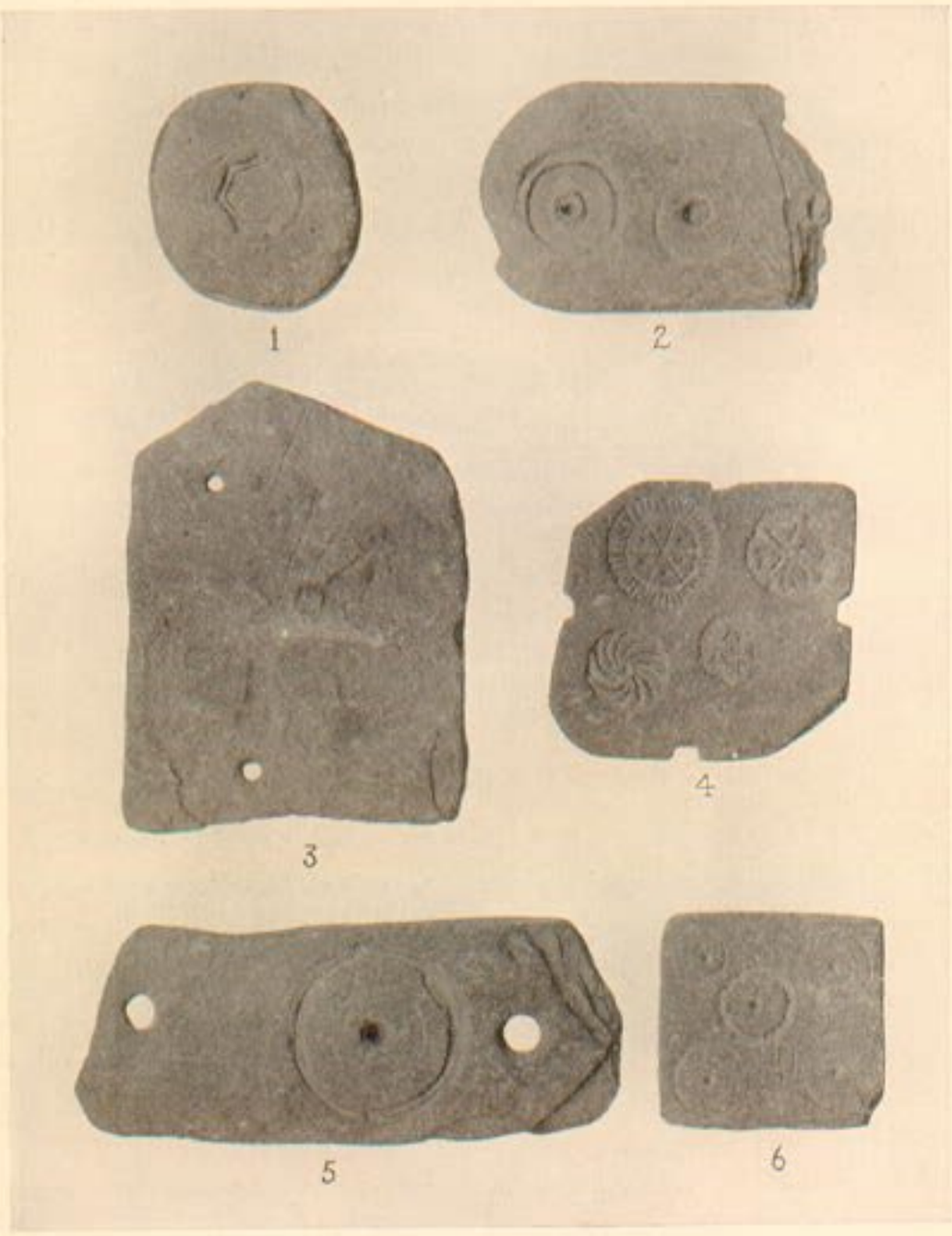

Fig. 6. Button Moulds from Aberdeenshire (Reverse).

Lethenty, near Inverurie, in 1905, a very finely cut example, is somewhat rhomboidal in shape, measuring $1\frac{7}{8}$ inches by $1\frac{3}{4}$ inches, and having four matrices on either face, of which seven are finely engraved and of elaborate design. The edges of the mould are ornamented by incised straight lines forming a hatched pattern.

In the Royal Scottish Museum there is a very fine button mould, measuring 3 inches by 2 inches by $\frac{5}{8}$ inch, believed to have been found in Aberdeenshire. On the face are two matrices beautifully cut with intricate designs, $1\frac{7}{16}$ inches and $1\frac{3}{16}$ inches in diameter respectively. On the back is the following inscription :—

WILIAM · LYEL · THE
SAME · MAD · AND
THEY · THAT · TAKS · OR
STEALS · IT · I · WI[L]
THEY · MAY · DIE · [AND]
[BE] · DEAD SO · BE · IT
JOHN ROLAND

On one edge it runs—

16 · DAY · OF · IVN · THE
YEAR · OF · GOD · 1659

while the opposite edge bears the word DAY, with ornamentation following it. The ends are ornamented as well, and one also has the initials V L cut on it. Apparently John Roland was the owner of the object. In each of the four corners a stud hole is drilled through the mould.

The date 1659 may be taken as a fair indication of the period to which we can assign the button moulds, and we know that the brooches had been made previous to 1695, about which date the Culbin Sands were finally overwhelmed with sand, as they were found on a part of the Culbins where ploughed rigs and furs have been laid bare by the blowing away of the sand, and are now themselves being worn away.