

## I.

NOTICE OF THE DISCOVERY OF TWO VESSELS OF CLAY ON THE CULBIN SANDS, THE FIRST CONTAINING WHEAT AND THE SECOND FROM A KITCHEN-MIDDEN, WITH A COMPARISON OF THE CULBIN SANDS AND THE GLENLUCE SANDS AND OF THE RELICS FOUND ON THEM. BY J. GRAHAM CALLANDER, *Curator of the Museum.*

## A VESSEL OF CLAY CONTAINING WHEAT.

At many places round the Scottish coast and on the islands large areas are to be seen covered with huge deposits of sand, blown up from the sea-shore at different periods, some long before the Christian era and others very much later. Many portions of these barren wastes were once fertile, cultivated lands, occupied in prehistoric and in comparatively modern times by a numerous population, as is testified by the exposure of large numbers of relics when the wind blows away the covering sand. Two of the largest areas of this description are the Culbin Sands, in Morayshire, and the Glenluce Sands, in Wigtonshire; and as both places for many years have yielded a rich harvest of relics, dating from neolithic up to recent times, much attention has been bestowed on them by Scottish archæologists.

At one period these districts stood at a lower level than at present, during which their entire surface became covered with a bed of shingle, thrown up in parallel ridges following the coast-line of the time when they were being formed. Subsequently a rise in the land took place, and the shingle, now known as one of the raised beaches, gradually was covered by sand driven up from the sea-shore by the wind. On this bed of sand vegetation began to grow, and in time formed a dark coloured layer of light sandy soil, varying from a few inches to more than a foot in thickness. This layer of soil, or old land surface, like

the raised beach underneath, was at a later period overwhelmed by sand blown on to it from the shore and from places on the raised beach where its protecting crust of soil had been broken. These occurrences happened so often at Glenluce that in some places as many as three and four old land surfaces were formed, and can yet be seen outcropping at different parts along the face of crumbling sand-hills. On the Culbins, however, I have never seen more than two distinct layers of soil, and in most places there is only one. These dark-coloured layers of soil conform neither to each other nor to the raised beach beneath, and show that the old land surfaces must have presented an irregular and undulating stretch of country. Had the formation of these sand-hills been a regular, gradual process, the amount of sand drifted up in one year varying very little from the quantity in other years, there would have been no opportunity for the layers of soil to form, as the regularly accumulating and shifting sand would have checked any growth of vegetation. It would almost appear that there had been long periods when small quantities of sand were blown up, or, what is very improbable, there had been times of a more vigorous growth of vegetation, during which the layers of soil were allowed to form. These periods had been followed by times when great quantities of sand were drifted up, overwhelming and killing the plant life, and covering it to a depth of several feet in many places. It is conceivable that sand brought down by the adjacent rivers, and drifted in by sea currents, may have gone on accumulating on the shore during a considerable period of time, until a great gale or succession of gales from an unusual direction arose and blew this accumulation inland on to the adjoining land. The soil would form during the period of accumulation or quiescence, which would extend over a long stretch of years, while the time during which it was being overwhelmed would not necessarily last so long. That at least one layer of soil has been formed and covered by sand since prehistoric times, at Glenluce, seems evident, as I have never

known prehistoric relics to have been found in the upper layer of soil when there are more than two.

On the 11th June 1910, Mr Ludovic M<sup>c</sup>L. Mann, F.S.A. Scot., and I visited the Culbin Sands, chiefly to note wherein they resembled or differed from those at Glenluce. Starting near the Farm of Wellhill, in the vicinity of the western end of the Sands, a plantation of trees growing on the raised beach and two low ridges of sand are crossed, when a large stretch of bare shingle appears. To the east and north is a great hill of sand, rising to a height of over fifty feet, with not a blade of vegetation growing on its surface, as it is in continual motion, the drift of sand being in an easterly direction. Towards the west the area is broken up into sand-dunes covered with a vigorous growth of bent. Two flat-topped ridges, about twenty yards broad, and rising in places to a height of at least ten feet above the underlying raised beach, run out in a southerly direction from the sand-hill on the north, at the western boundary of the large stretch of bare shingle just mentioned. On the summit of the eastern ridge, about fifty yards from where it emerges from the sand-hill, at a spot from which not only the covering of sand, but the greater part of the old land surface has been denuded away, a fragment of what we took to be a cinerary urn was found peeping out of the layer of soil, while burnt wood lay scattered about, over an area almost twenty feet square. Digging into this soil with our knives, several other potsherds were unearthed, but no particles of burnt bone, which one expects to find associated with a cinerary urn, were to be seen, and we were discussing whether the pottery might not be domestic instead of sepulchral, when a closer examination of the soil revealed the presence of grains of carbonised wheat. As some of the fragments of pottery had grain adhering to the inside as well as the outside in a matrix of blackened soil, it seemed extremely probable that the vessel had contained grain and not the remains of a cremated body. A space about eighteen inches square was turned over to a depth of about five inches, when the

yellow underlying sand appeared. Two or three handfuls of grain were recovered by this slight excavation, and a perfect hammer-stone or grain pounder was found a short distance north-west of the deposit of wheat. We then left the place for further examination, when a sieve could be had with which to riddle the soil.

I returned to the site on the 14th July to sift the whole wheat-bearing

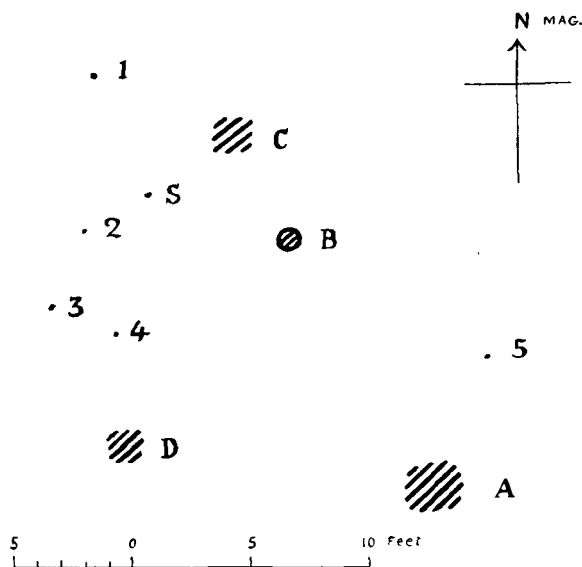


Fig. 1. Plan of the site.

area, in the hope that some other relics would be unearthed, which would definitely fix the period when the deposit was formed. Very little excavation was necessary to show that only at four places, A, B, C, and D on the plan (fig. 1), was there any part of the old land surface left, as nearly the whole of the layer of soil had been blown off by the wind. Each of the portions remaining measured from about one foot to two feet square, the largest and first discovered, A, having a depth

of five inches, while the others were only from two to three inches in depth. At B there was a circular patch of clay, one foot in diameter, and one inch thick, which was rather soft, as the weather immediately before my visit had been wet. Beside this lay a piece of burnt clay, not a potsherd, but having the appearance of the burnt edge of a clay hearth. At C two small conglomerations of grain the size of a walnut and a hazel-nut respectively were found. The hammer-stone found on the previous visit lay at 1 ; at 2, 3, and 4 three broken specimens were picked up ; and at 5 a second perfect example was recovered. A calcined scraper of flint was found at S, while numerous fragments of the urn lay scattered about to the south-west of 3 and 4, having apparently been blown down the slope by the wind. Except two small fragments of calcined bone, about the size of a split pea, no other remains, such as shells or bones of animals, were found, thus differing from the other old inhabited sites, the kitchen-middens, which are to be seen in quite large numbers scattered over the Culbins. The grain and burnt wood, as well as the other relics, were confined within the space mapped out, and, though careful search was made in the immediate neighbourhood, no further evidence of human occupation was to be seen.

Fragments of the clay vessel, grain, and charred wood were found throughout the layer of soil, being quite mixed up with it. Although the grain was found scattered about, it is evident that it had originally been in a mass, as shown by the two small lumps recovered, and it may be noted that it had been threshed, as no ears of grain were seen. It is not easy to explain how the grain, burnt wood, and fragments of pottery got so thoroughly mixed up with the soil, unless the site had been turned over at a period subsequent to its destruction, perhaps during cultivation. But although we can see that many portions of the old land surface on the Culbins have been cultivated, the rigs and furs being yet plainly discernible, there is no sign of cultivation at this spot or in the vicinity of it. Besides, if it had

been turned over by the plough or spade the circular deposit of clay would have been broken up and scattered.

Very few fragments of the vessel were recovered, the other portions in all probability having been removed by collectors who never dreamt of making a scientific examination of the site. One of the largest pieces recovered is a portion of the rim, less than two inches square, and it shows that the pot had been a plain, unornamented vessel, having a mouth about twelve inches in diameter, and the wall seven-sixteenths of an inch thick. It is of a yellow stone colour, and of a soft rough texture, with an admixture of broken stones in the clay. It seems to belong to the same class of ware as the cinerary urn of the Bronze Age: the various authorities to whom I submitted the pottery agreed with me on this point.

The hammer-stones seem to have been used as grain crushers or pounders. That these objects were not hammer-stones for working flint is evident from the practical absence of flint flakes, only two small unworked pieces being recovered, and that they had not been used for pulverising or splitting bones is shown by the absence of kitchen-midden refuse. Similar objects have been found in large numbers on sites inhabited later than the Bronze Age, such as the Lochlee Crannog. They have been found with Bronze Age burials in England; and though it has been suggested that they may have been used for mashing other food-stuffs, they have also been claimed as grain pounders. The scraper of flint is not incongruous, as certain types of flint tools or weapons were used throughout the Bronze Age in Scotland. Though it might have been dropped at this spot at an earlier period, yet, judging from its calcined state, it is quite likely that it was used contemporaneously with the vessel of clay and stone pounders, and was burnt at the same time as the grain and wood. I do not think that the carbonisation of the wheat is the natural carbonisation seen in grain from the Egyptian tombs, but it must have been caused by fire, as otherwise had the grain been scattered about when

fresh it would have germinated and disappeared. The largest piece of wood, one inch thick, is burnt jet black to the core. Several of the fragments have been identified as oak.

The vessel of clay, the stone pounders, and the flint scraper form a group of relics quite consistent with a Bronze Age date. It is not improbable that this may have been the site of a Bronze Age hut of wattle-work, which, with its hearth of clay, pot of grain, and stone tools, had been consigned to the flames. Many apparently fire-fractured stones were seen scattered about. These stones may have been cracked when the place was burnt or through use as pot-boilers by being heated and dropped into a pot of liquid to warm it. It is very difficult to determine whether a stone has been cracked in this way or whether the fracture is the result of natural weathering; but I am familiar with a number of anciently inhabited sites, covered with and surrounded by large numbers of cracked stones, for whose condition it is difficult to account, save on the former theory, as there are no other similar stones in the immediate neighbourhood.

About two pints of burnt wheat were recovered. The seeds are well developed, but rather smaller than modern grain. Wheat has often been found on the sites of Roman encampments both in Scotland and in England, and I have seen wheat which was recovered from the ancient native camp on Camphill, Glasgow. Charred wheat was found in the Borness Cave in Kirkcudbright and in the crannog in Barhapple Loch, Wigtownshire. Carbonised, unthreshed ears of barley and many other seeds were recovered from the crannog or pile structure at Erskine Ferry, Old Kilpatrick, in 1906. So far as I can ascertain, only three grains of wheat which can definitely be assigned to the Bronze Age have been found in Great Britain, and these were discovered by Mr J. R. Mortimer embedded in the wall of a Bronze Age food-vessel urn found in the Hanging Grimston group of barrows, East Yorkshire.<sup>1</sup> In the spring of 1907

<sup>1</sup> *Forty Years' Diggings*, p. 111.

Mr James E. Cree, F.S.A. Scot., discovered many fragments of urns, apparently of the cinerary and drinking-cup types, at Tusculum, North Berwick.<sup>1</sup> One of the pot-sherds bore the imprints of two grains of wheat which had adhered to the soft clay before the vessel was fired.

It may be unwise definitely to ascribe this deposit of wheat on the Culbins to the Bronze Age, but all the evidence in our present state of knowledge is not inconsistent with this date. However, very little is known about the domestic pottery of the Scottish Bronze and Early Iron Ages, and future discoveries may show that certain classes of pottery closely resembling some of the sepulchral cinerary urns of the former age were manufactured and used during the latter period, in which case an Early Iron Age date might be claimed for this discovery.

#### A VESSEL OF CLAY FOUND IN A KITCHEN-MIDDEN.

In the summer of 1908 I recovered some fragments of a vessel of clay from a kitchen-midden on the Culbin Sands. The potsherds were embedded in a sandy matrix along with oyster, cockle, and periwinkle shells, and the bones of animals and birds, some of the animal bones being calcined. About half of the rim, the greater part of the base, and a section of the wall of the vessel from the lip to the base were recovered, and it has been possible to restore the vessel so as to show its original form and size. It had been of a quite unusual shape (fig. 2), cylindrical, with the diameter of the base equal to that of the mouth, and it was devoid of ornamentation. It measured  $5\frac{3}{4}$  inches in height,  $5\frac{1}{4}$  inches in diameter, and the wall was  $\frac{5}{8}$  inch thick. The clay is harder, better fired, and contains fewer broken stones in its composition than the generality of the prehistoric hand-made pottery of the country. Its fracture is peculiar, as some fragments have split

<sup>1</sup> *Proceedings*, vol. xlii. p. 289, fig. 20.



up the middle, so that in some portions the inner half of the wall is left, while in others it is the outer half. The colour of the exterior of the vessel is yellow, with a tinge of red in places, while the greater part of the interior is black, a small portion towards the bottom being red and yellow. In no way does it resemble any of the recognised types of Scottish Bronze Age *ficilia*, and it may belong to a somewhat later period.

The kitchen-midden where the vessel was found, like nearly every



Fig. 2. Can-shaped Vessel of Clay from a Kitchen-Midden on Culbin Sands.

other refuse heap exposed on the Culbin Sands, had the top layers turned over by collectors before I saw it, and thus this record must be considered incomplete. Two pieces of dark grey flint showing slight secondary working were also discovered among the shells, apparently having been deposited there along with the other refuse, and not having been turned up from the sandy layer underlying the kitchen-midden. Consequently, they may be considered to have been contemporary with the clay vessel.

Kitchen-middens of more recent date than this example are to be found in many parts of the Culbin Sands. One of these, situated at some height on a sand-dune, was excavated by Mr G. F. Black, and yielded much wheel-turned pottery. The position of these high level deposits points to a later date than many of those that are found at a lower level on the old land surface. The kitchen-midden yielding the pottery recovered by me lies just on the old layer of soil, and there are quite a number more in the immediate vicinity, deposited on much the same level. Of course, if this special area had never been covered with sand, but for some reason had been left bare, the lower level deposits left on it might have been contemporary with the higher deposits, but, judging from the denudation that has taken, and is taking, place at the nearest sand-hills, there is little doubt that the entire area had been buried under sand at a comparatively recent date.

From several of the shell-heaps on the lower level close to that under discussion, I have recovered stray potsherds bearing a greater resemblance in texture and size to recognised Bronze Age types than the vessel just described, and on the surface of one of these heaps I picked up a very fine large scraper of dark grey flint. Many animal bones, oyster, cockle, and periwinkle shells were also found at the same place.

All the evidence, the situation, the potsherds, and the flints, suggests quite an early date for this group of kitchen-middens, the bulk of the pottery bearing a greater resemblance to Bronze Age than later types; but, as already remarked, so little is known of Scottish Early Iron Age pottery and domestic Bronze Age ware that it is impossible to assign these refuse heaps to any definite period.

It is to be regretted that this fine series of early kitchen-middens has been so ruthlessly destroyed by irresponsible collectors. A careful examination of the group when they were first exposed would probably have resulted in the recovery of some interesting early domestic pottery

and other relics, by which it might have been possible to discover the period when the deposits were made.

The potsherds from the wheat site and from this group of kitchen-middens show that in Scotland there are to be found domestic vessels of clay bearing a strong resemblance to vessels which have hitherto been classed as sepulchral—as cinerary urns of the Bronze Age, and the question is whether some of these supposed cinerary urns were not really domestic vessels. At least one vessel resembling some of the varieties of cinerary urns has been found in Scotland which is not described as having been found with cremated remains. Cremated bones are almost indestructible, and as they are white in colour their presence can scarcely be overlooked by the most careless discoverer. This vessel was found in the sands at Balavullin, Tiree, by Mr L. M.L. Mann. It is a tall, bucket-shaped vessel, 18 inches high, and 12 inches in diameter across the mouth, with a plain rim and one moulding or cordon encircling it  $4\frac{3}{4}$  inches from the lip. “Broken bones of the lower animals” were found closely associated with it.<sup>1</sup> The fragments of the vessel from the wheat site are so scanty that nothing can be said about it further than that it resembles these two vessels in the texture of the clay, the diameter of the mouth, the thickness of the wall, and the plainness of the rim.

Undoubted domestic pottery has been found in close association with numerous Bronze Age weapons, tools, and ornaments, in the Heathery Burn Cave, in the County of Durham. Canon Greenwell, in describing it, remarks that the pottery had “the same admixture of broken stones in its composition as the sepulchral ware, but none of it bore any ornamentation, being plain and strong.”<sup>2</sup> This description may well be applied to the potsherds found along with the wheat.

<sup>1</sup> *Proceedings*, vol. xlii. p. 328, fig. 3.

<sup>2</sup> *British Barrows*, p. 108.

A COMPARISON OF THE CULBIN AND GLENLUCE SANDS  
AND OF THE RELICS FOUND ON THEM.

No detailed comparison of these two areas, or of the relics recovered from them, seems as yet to have been attempted, though Dr Anderson has remarked that "the close correspondence in general character of the two collections (in the National Museum) from Glenluce Sands in the south-west and from the Culbin Sands in the north-east of Scotland is very remarkable, but the differences in detail are even more striking."<sup>1</sup> In a lesser degree the same may be said about the natural phenomena seen at these places. As I have visited both districts a good many times, and have often traversed the Glenluce Sands in the company of Mr Mann, who, after ten years' close observation, has an unrivalled knowledge of the locality, I may venture to give a short account of the resemblances and differences of the two areas. If the collections in our Museum from these places were exhaustive, it would be a simple matter to make a scientifically correct comparison of the relics, but this is not possible, as a very large number of specimens have been removed by private collectors. Still, knowing not only the National Collections, but several of the larger private collections, it is possible to arrive at a fair idea of the peculiarities of the two districts. While the Culbin collection in the Museum is the larger of the two, it is certain that Glenluce has yielded up far more specimens; and as there is a much greater extent of undisturbed old land surfaces remaining at the latter place, it will doubtlessly continue to produce a richer harvest for a long time to come.

The Culbin Sands occupy an oblong tract of country on the Morayshire coast immediately to the west of the mouth of the River Findhorn, stretching a distance of about four miles westwards from the river, and about two miles inland from the sea-shore, the southern portion being covered with plantations of trees. Prior to 1695 the Findhorn

<sup>1</sup> *Museum Catalogue*, p. 88.

entered the sea four or five miles further west than it does now, the lands of Muirtown occupying the space between the river and the sea, with the barony of Culbin lying to the south. About that date a terrible gale is said to have sprung up, overwhelming the barony of Culbin with sand, and causing the river to break through into the sea at its present mouth. The manor-house of Culbin was occupied in 1682, and a rental roll of the estate was produced before the Court of Session, in February 1694, showing that sixteen farms were then paying rent. In 1695 a Scots Act of Parliament was passed to prohibit the pulling of bent on Sandhills, and runs thus: "Act for Preservation of Meadows Lands and Pasturages lying adjacent to Sand Hills July 16 1695. Our Sovereign Lord Considering that many Lands Meadows and Pasturages lying on the Sea Coasts have been ruined and overspread in many places of this Kingdom, by Sand driven from adjacent Sand-hills the which has been mainly occasioned by the pulling up by the Root of Bent Juniper and Broom Bushes, which did loose and break the Surface and Scroof of the said Hills; and particularly considering that the Barony of Cowbin<sup>1</sup> and House and Yeards thereof, lying within the Sheriffdom of Elgin, is quite ruined and overspread with Sand, the which was occasioned by the bad practice of pulling the Bent and Juniper. Therefore his Majesty with Advice and Consent of the Estates of Parliament, for preventing of the like prejudices in time coming; Does strictly Prohibit and Discharge the pulling of Bent, Broom or Juniper off Sandhills for hereafter either by the Proprietors themselves or any other whatsoever, the same being the natural Fences of the adjacent Countries to the said Hills; Certifying such as shall contravean this Act, they shall not only be lyable for the damages that shall there through ensue, but shall likewise be lyable in the Sum of Ten Pounds of Penalty, the one half thereof to belong to the Informer,

<sup>1</sup> It is interesting to note that the ancient spelling of the word Cowbin approximates more closely the modern local pronunciation *Coo-bin* than the modern spelling *Culbin*.

and the other half to the Judge within whose Jurisdiction the said Contravention shall be committed.”

According to local tradition, the catastrophe happened one night during the autumn, when the wheat was ready for the harvest, and not only the fields of grain, but the mansion-house itself, were completely buried under sand before morning. But I think the drifting up of the sand must have been a gradual process, although one furious gale may have been the culminating point in the utter destruction of the estate. Evidence that an unlooked-for catastrophe did take place, probably about the end of the year or in the spring, is still to be seen on the sands. Rigs and furs show up distinctly at several places where the covering of sand has been blown away, proving that those parts had been ploughed preparatory to sowing, but had been overwhelmed before the seed could be put in. I am informed by the Rev. John M'Ewan, F.S.A. Scot., minister of the parish of Dyke, that there is no mention of this calamity in the Kirk Session Records, which tends to bear out the argument that the destruction had been gradual and not quite so sudden as tradition would have us to believe.

The Glenluce Sands lie round the north-western corner of Luce Bay, in Wigtonshire, covering a narrow triangular strip of country, the acute apex being to the south. They stretch from about the Piltanton Burn southwards to near Sandhead, a distance of about five miles, while they measure nearly two miles across the widest part.

An explanation of the more recent geological features of both localities has been attempted in my note on the wheat discovery. At the two places ancient coast-lines can easily be traced, the shingle being piled up in long parallel ridges. Here and there on the Culbins a second series of shingly ridges are seen running into the higher ridges at an acute angle and at a lower level, exhibiting at least two distinct raised beaches, and showing that these two ancient coast-lines had run in slightly different directions from one another and from the

present high-water mark. Again, it may be stated that places where two, three, and four old land surfaces are to be seen on the Glenluce Sands are quite numerous, but I am aware of only one small area on the Culbin Sands where two are to be found, and I have never seen three distinct super-imposed layers of soil on them.

The masses of sand on the Culbins are of very much greater magnitude than those at Glenluce. At the former locality the whole central area is occupied by a range of sand-hills rising to over ninety feet in height, with one or two gullies running through them, where the sand has been so much blown away as to expose the underlying stratum of soil and in places the pebbles of the raised beach. In two of these gullies the ploughed furrows are to be seen, and, as late coins are found at these places, it shows that these huge sand-hills have been piled up during the last two or three centuries. Portions of the old bed of the Findhorn, which ran through the sands, are entirely uncovered, and the space between the central range of dunes and the edges of the sands is more broken up. At Glenluce the hills, or torrs as the local people call them, are neither so extensive nor so high, and partly from the fact that the burrowing operations of numerous rabbits allow the wind to penetrate into and disintegrate the hills, the surface is more broken than on the northern area. It would seem that in early times greater changes in the surface of the sands had taken place at Glenluce than on the Culbins. At least two old land surfaces had been occupied in prehistoric times, and in places one other has since been formed at the former locality, while great stretches of old land surface at the latter had existed and had been occupied from very early times till the final catastrophe in the end of the seventeenth century. In both localities there is a considerable extent of bare shingle, but the area of such places is much larger on the Culbins. These bare raised beaches once had their covering of sand and soil, in the latter of which many relics of ancient times became embedded. As the soil and sand were swept away a heterogeneous lot of antiquities were left lying among the

pebbles. Very few of these relics have escaped the eyes of collectors, and consequently such areas are now hardly worth troubling about. An occasional stone axe or a flint arrow-head and some hammer-stones may be recovered, but objects of metal, glass, and flint are rarely to be found. On the evidently cultivated portions of the Culbins many relics are still brought to light, as the soil is gradually swept away by the wind; objects of prehistoric times often appear close to a coin of comparatively recent date, the operations of the ancient plough accounting for the mingling of periods. I have picked up on one of these areas beads of the Early Iron Age, a coin of Mary, Queen of Scots, whorls of stone and broken glazed wheel-turned pottery, a brooch of pewter, bronze tongues of brooches probably of late date, and pins with twisted wire heads, while late green and yellow glazed potsherds lay scattered about in profusion. The most important places for archæological research on both areas are where old surfaces outcrop on the side of a sand-hill or where the covering of sand has been of so little depth as to allow a considerable portion of the old soil layer to be laid bare by the winds. A systematic examination of these places would yield surprising results.

With regard to the relics found at the two localities, we shall understand their peculiarities and relative occurrence better by grouping them under three heads. (1) Relics and remains commonly found on both areas; (2) relics and remains usually found on both areas, but preponderating at the Culbin Sands; and (3) relics and remains usually found on both areas, but preponderating at the Glenluce Sands.

1. *Relics common to both Areas.*—Arrow-heads, scrapers, saws, knives, borers, drills, cores, and other worked objects of flint; stone axes; hammer- or pounding-stones; anvil stones; saddle querns; whorls of stone, broken pottery, and lead; rings, armllets, and beads of jet; small beads of blue glass and of yellow vitreous paste; segmented or polyglobular beads of bluish green vitreous paste; beads of stone and of amber; mediæval pins of bronze, with ornamental heads;



miscellaneous articles of bronze belonging to different periods, including brooches, buckles, rings, needles, and fragments of other indeterminate objects; penannular brooches of bronze; harp-shaped fibulæ of bronze of La Tène type; knives, keys, and other objects of iron; coins of Sicily;<sup>1</sup> and brass pins with wired heads.

2. *Relics and Remains preponderating at the Culbin Sands.*—Discs of quartzite; barbed and stemmed arrow-heads and small scrapers of flint; rubbing stones for saddle querns; beads of jet; two stone moulds for casting flat bronze axes; relics bearing typical Late Celtic ornamentation, including a massive armlet, three harness mountings, a penannular brooch, and the head of an enamelled pin, all of bronze; bronze tweezers; bronze needles; bronze ring brooches; bronze buckles; flat circular bronze brooches usually of small size; two octagonal bronze brooches; pewter brooches; rivets of bronze resembling modern brass paper fasteners; loops of brass wire with ends intertwined; clippings and fragments of thin sheet bronze; variegated beads of glass, of two or more colours; whorls made from broken pottery; Scottish coins dating from James IV. to Charles II.; socketed iron axe; mediæval or later wheel-turned glazed potsherds; shell heaps and kitchen-middens.

3. *Relics and Remains preponderating at the Glenluce Sands.*—Pre-historic pottery—urns of the Bronze Age cinerary type, and many fragments of thin, string-marked vessels resembling drinking-cup types; hollow-based arrow-heads, hollow scrapers, and thin needle-like implements of flint; large flint knives; flakes and unworked fragments of flint; stone axes; fragments of hematite; whetstones of quartzite and sandstone; flakes of pitch-stone; star-shaped beads of bluish-green vitreous paste; amber beads; jet buttons; small bi-globular objects of jet and of glass; a hollow penannular ring of gold of triangular section; bronze chisels; bronze fish-hooks; portion of a

<sup>1</sup> There is some doubt whether these are coins of Sicily or Nuremberg tokens.

bronze bell ; a bronze plate, gilded, and bearing an interlaced design ; crucibles of clay, with jets of bronze slag still adhering ; large circular discs of burnt clay resembling those found in London ; Anglo-Saxon and early Scottish and English silver coins ; small iron shears ; heaps of iron slag on sites of ancient bloomeries.

The striking general resemblance of the relics from these two localities, two hundred miles apart, shows how universal had been the manufacture and use of many classes of implements, weapons, utensils, and ornaments in Scotland, and that there had been a system of intercommunication and regular trade throughout the country from very early times. It is only to be expected that objects of every-day use, such as arrow-heads, stone axes, hammer- and anvil-stones, saddle querns, and whorls, should be recovered from all parts of the country, but it is of more than passing interest that rarer classes of articles should have found their way into localities far apart. Under this latter category may be mentioned rings, armlets, and beads of jet, ornamental bronze pins, harp-shaped fibulæ, small beads of blue glass and of yellow vitreous paste, polyglobular beads of bluish-green vitreous paste, and star-shaped beads of the same material.

The rarer occurrence of certain remains and relics on one of the localities apparently suggests that certain customs had been more prevalent, or that there had been a larger population, there at certain specified times, also that this locality had been, or had been nearer, the seat of manufacture of certain articles. Bronze Age hand-made pottery, and late, wheel-turned, glazed potsherds are found on both areas, but Bronze Age pottery and interments are far more common at Glenluce, while late, wheel-turned pottery is found in greater abundance on the Culbins, from which it may be deduced that a larger population lived on the former locality in the Bronze Age, and at the latter place in late mediæval and historical times. In further support of this theory I would draw attention to two series of relics, each containing articles which are more numerous, or have been found

only, in one of the localities. The greater number of stone axes, and of star-shaped beads, the crucibles with bronze slag adhering, the small bronze chisels, the quartz whetstones, the fragments of hematite showing evidence of having been used as a pigment, and the penannular gold ornament, from Glenluce, form a set of relics which may all belong to the Bronze and Early Iron Ages; the ring brooches and the small, flat, circular brooches of bronze, the pewter brooches, the two octagonal brooches, and the larger number of whorls made from wheel-turned potsherds from the Culbins, bespeak a very much later date.

At Glenluce a number of bronze fish-hooks, with barbed point, have been found. They are very similar in shape and size to the iron variety at present in use. In Mr M'Ewan's collection from the Culbins there is an interesting hook of bronze; it has no barb at the point, but has a hole at the end of the shank for attachment to the line.

Kitchen-middens and shell-heaps of different periods are of more frequent occurrence on the northern area, and the mysterious discs of quartzite may still be considered peculiar to it. The sites of ancient bloomeries where iron was smelted are to be seen at different places in the southern locality, and it is interesting to note that Mr John Smith discovered clay tuyeres, or tubes for the entrance of the air-blast, in one of the heaps of slag.<sup>1</sup> The presence of Anglo-Saxon stycæ there is accounted for by its proximity to England.

One of the most striking peculiarities of the Glenluce Sands is the quantity of chips and flakes of flint lying about. Handfuls of this commodity can be picked up off a very small area, while one may search a hundred acres on the Culbin Sands without getting a score of pieces. The colour of the southern flint is as a rule grey, and consequently a collection from this part of the country has not the same appearance as one from the north-east of Scotland, with its lovely shades of yellows, browns, and reds. More large implements, hollow-

<sup>1</sup> *Annals of the Andersonian Nat. Soc.*, vol. iii. p. 52.

based arrow-heads, hollow scrapers, and saws, of flint are found at Glenluce, while small sized scrapers and barbed and stemmed arrow-heads are more common on the Culbins. Quite a goodly number of finely wrought, thin, needle-like flint tools, about one inch long, have been recovered from Glenluce. The hollow-based arrow-head and the hollow scraper no doubt betray an Irish influence; in Ireland such objects are found in greater numbers than in Scotland. This same influence is also seen in some of the glass beads.

It has been stated that flint implements have not been found within several hundred yards of the sea-shore at Glenluce.<sup>1</sup> I have seen flint implements discovered by Mr Mann well within one hundred yards of the high-water mark and a very few feet above it.

These two localities furnish exceptional opportunities for the recovery of the so-called pigmy flints; but, so far, neither of them can be claimed as a place of manufacture of such tools like Scunthorpe, in Lincolnshire, or the districts in Belgium and India, where they have been found in large numbers. A few miniature flint tools have been found, but not in such numbers as to justify the theory that they were made by a pigmy race. However, I know a small area on the Shewalton Sands, near Irvine, in Ayrshire, where a definite class of very small prickers and scrapers of flint were fashioned and are to be found. And it is interesting to note that, as a rule, a very fine whitish-grey flint, almost translucent, was used in the manufacture of these interesting little tools. I have no doubt that these objects were made by the people who fashioned the arrow-heads and flint scrapers. From one locality in Aberdeenshire I have over one hundred cores, some being exceedingly small. The smallest cores show that minute flakes were required for certain purposes, and were doubtless made by the workers who left the larger cores.

A few broken pieces of the larger Bronze Age implements have been found on both places, but it is surprising that no finds of complete

<sup>1</sup> Munro, *Prehistoric Scotland*, p. 73.

axes, spears, or swords have been recorded from Glenluce, and only four bronze axes from the Culbins.

A distinct difference is seen in the jet and glass ornaments from the two localities. Beads of glass and vitreous paste exhibiting two or more colours are much more plentiful on the Culbin Sands, and I believe that time will show that such beads are more numerous in the north-east than in the south of Scotland. Buttons of jet are more common at Glenluce, and the rings and armlets are more massive. If the fine jet necklace discovered at Glenluce, belonging to Mr Mann, is left out of account, I think it will be found that more beads of this material have been recovered from the Culbins. Two bi-globular ornaments of glass without a hole, and two similar objects of jet, should be noted from Glenluce. It is a moot point whether these articles were used as buttons, or simply as ornaments, because one of the glass objects seems rather small to have been used as a button. It would not have been surprising if jet ornaments had been much more common on the latter area, seeing it is so near Portpatrick, where it is certain there was the seat of an ancient factory of jet ornaments, as waste pieces are found there in considerable numbers.

One of the most interesting relics from the Culbin Sands is a socketed axe of iron resembling a socketed bronze axe without a loop. It may be mentioned that another iron axe of this type was discovered a few years ago in a crannog on the east side of the Bishop's Loch, a few miles east of Glasgow.

Areas like the Glenluce Sands and Culbin Sands offer special facilities for the recovery of relics of bygone times. A plentiful supply of flat fish and of shell fish, besides a dry site for dwellings, would attract a primitive people, probably struggling for a bare existence, and this may, to a certain extent, account for the wealth of relics at these places. Ancient fire-places and burial deposits amongst sand are readily detected long before they are fully exposed. The presence of the former may be betrayed by the exposure of the edge of a setting of

stones, of a clay hearth, of a deposit of charred material, or of a dark discoloration of the sand, while the latter may be anticipated by the difference in colour between the "filling-in" and the enveloping material. Both on the Culbins and at Glenluce small sand-hills covered with stones, many of them cracked, are to be seen, while the immediate neighbourhood is either nearly devoid of stones, or when they do occur few are split or cracked. In the former locality there is one small stone-covered dune with a deposit of food refuse, shells, and bones, on the summit; and at the latter place a site covered with cracked stones has yielded a number of bronze and other relics. When one encounters such isolated patches of stones among the sands their presence can be ascribed only to human agency; and if a large proportion of them are split and cracked, the probability is that they were used as pot-boilers, especially when they surround a kitchen-midden. When the site was first occupied there was no mound; the people fixed their dwelling on the level, carried the stones to their home, and after they had deserted the spot the remaining stones were really the cause of the mound being formed, or rather left, because without their protection the heap of sand would likely have been blown away along with the surrounding material. In other parts of Scotland there occur somewhat similar mounds, which have been formed simply by a small inhabited area having been consolidated through occupation and trampling, and so having better resisted the denuding action of the wind which swept away the sand round about it. Small and fragile objects, as well as those of large size, are brought to light without injury by the denuding action of the wind. No human hand can sift an old layer like the elements; and as every breath of wind removes some particles of sand, a continuous careful examination of a district like Glenluce would in time result in the recovery of every specimen deposited there. On cultivated land this is impossible, as many small fragile objects which would be exposed unbroken on sand are not only difficult to see

amongst soil, but are smashed to fragments before they can be brought to light. I have seen the remains of a skeleton laid bare on the Glenluce Sands which could never have been recognised among soil, even though its presence had been suspected and it had been searched for. The body had been placed in an extended position, thin streaks of white dust showing the position of the limbs, vertebræ, and head. The largest piece of bone left was a bit of the skull, the size of a shilling, which showed the sutures; it crumbled into dust on being handled, and a day or two later every trace of the skeleton had been dissipated by the wind. There is no doubt that many classes of relics, which, so far, have been recovered only from sandy areas, exist in large numbers in many parts of the country, and, prolific as the two districts under review have proved, I am confident that many inland districts are nearly as rich in ancient relics, although it is difficult, and often impossible, to detect many small and fragile specimens. From an area of less than three hundred acres in Central Aberdeenshire, by a systematic search extending over fifteen years, I have recovered one hundred and thirty arrow-heads, and nearly one thousand worked objects of flint, a dozen stone axes, and other relics in stone, glass, and jet.

Seeing that these sand-covered districts offer such favourable opportunities for the recovery of ancient relics, it is unfortunate that they should not be scientifically exploited. This can be done by carefully mapping the district under review, and marking on the map where each specimen is found. In time it would be seen that certain well-defined areas were yielding up certain types of relics which could be grouped together, and it would be possible to assign special sites to definite periods, and perhaps also to date relics whose chronology is doubtful. The objection may be made to this, that many areas may have been occupied over a very long stretch of time, or at different ages, and so would produce a mixed lot of objects belonging to many different periods. This is seen at the anciently cultivated

parts on the Culbin Sands. But while this objection may hold good over the greater portion of the districts under observation, still, experience has proved that certain restricted areas produce groups of relics which are certainly contemporary, and include objects which otherwise it would be difficult to assign to their correct periods.

Although I have dealt only with the Glenluce and Culbin Sands, there are very many sand-covered districts round the Scottish coast rich in archæological remains, which would well repay a lengthened, careful, and systematic research.