

## I.

## PRIMITIVE AGRICULTURE IN SCOTLAND: WITH PARTICULAR REFERENCE TO UNRECORDED CELTIC LYNCHETS AT TORWOODLEE, GALASHIELS, SELKIRKSHIRE. BY H. E. KILBRIDE-JONES AND M. E. CRICHTON MITCHELL.

It is not so very long since prehistorians turned their attention seriously to the study of primitive agriculture; and it is only in recent years that the domestic habits of prehistoric man have compelled the attention that they deserve. It is a great pity that some attention was not given to the matter of agriculture at an earlier date; for a great deal seems to depend upon the relation of settlement to the finding of suitable tilling ground. The distribution of ancient habitation sites, and even of sepulchres, which may be usually considered as not having been far removed from the village, may be due almost entirely to the necessity of finding suitable ground for cultivation and for cattle breeding. Dr Nordman, of Helsingfors, proffered that explanation for the distribution of Megalithic tombs in Sealand;<sup>1</sup> for the people of the Megalithic culture in Denmark were obviously great agriculturists, cultivating three species of grain. Indeed, all three species of grain were known in Denmark as early as the thin-butted axe period.

Turning now to the evidence provided by our own country, we find that the cultivation of cereals enjoys a high antiquity. Just as we have evidence of cultivation from the Neolithic settlement at Windmill Hill, near Avebury, so has Mr Ludovic Mann noted the presence of grain, associated with characteristic pottery and saddle querns, in a Neolithic habitation site at Rothesay, Bute.<sup>2</sup> A further discovery of grains of wheat was made by Mr James E. Cree on the base of a coarse domestic vessel, allied to the C variety of Beaker, and of early Bronze Age date, in the kitchen-midden at Tusculum, North Berwick.<sup>3</sup> Dr Graham Callander recovered about two pints of charred wheat beside fragments of an urn, which seems to belong to the same class of ware as the cinerary urn of the late Bronze Age, on the Culbin Sands, Morayshire.<sup>4</sup> In the Kelvingrove Museum, at Glasgow, is a type B Food Vessel,<sup>5</sup>

<sup>1</sup> Rhind Lectures, Edinburgh, 1932.

<sup>2</sup> Originally mentioned in an article printed in the *Glasgow Herald* of 1st August 1919. Referred to by Dr Callander in *Proc. Soc. Ant. Scot.*, vol. lxiii. p. 33.

<sup>3</sup> *Proc. Soc. Ant. Scot.*, vol. xlii. p. 288.

<sup>4</sup> *Ibid.*, vol. xlv. p. 158.

<sup>5</sup> According to Miss Crichton Mitchell's nomenclature: Abercromby Type 2, grooved shoulder.

which was discovered in a cist at Greenoakhill, Mount Vernon, Glasgow. Adhering to the inside of the vessel were traces of oats and of rye. In the third occupation level at Jarlshof, Shetland, Mr Alexander O. Curle discovered traces of grain, which, upon examination, were found to belong to one of the races of barley, possibly that known as "bere."<sup>1</sup> This grain was associated with late Bronze Age sword moulds. Recently, grain was discovered in an urn field at Leuchars, Fife.<sup>2</sup> When we turn our attention to the Iron Age, evidence is much more plentiful. Of the early Iron Age are discoveries of carbonised wheat in a cave at Borness;<sup>3</sup> while carbonised, unthreshed ears of barley and many other seeds were recovered from the crannog at Erskine Ferry, Old Kilpatrick, in 1906.<sup>4</sup> Sir J. Y. Simpson also found the microscopic remains of cereals in a cave at Wemyss, Fife, but no date has been assigned to the discovery.<sup>5</sup> Finally, charred grain was found associated with saddle and rotary querns at the Road Broch, Keiss, Caithness.<sup>6</sup>

Other evidences of the early cultivation of cereals is provided by the finding of sickles and of querns. In the National Museum of Antiquities, Edinburgh, are three bronze sickles, all doubtless belonging to the late Bronze Age. One comes from Edengerach, Aberdeenshire; another from Dores, Inverness; and the third was found in the river Tay near Errol, Perth. Then there are the two iron sickles from Traprain Law, belonging to the early Iron Age.<sup>7</sup> Querns, both of the saddle and rotary varieties, are so numerous as to preclude any individual reference. They form a typical relic of the broch period. We have seen, from the discovery at Rothesay, that saddle querns were known in Neolithic times in Scotland.

It would be interesting to learn of the manner in which Neolithic and Bronze Age man tilled the ground. It is possible that the population, especially in the early and middle Bronze Age, practised what is known as Garden Cultivation, which would necessitate a constant changing of ground, if not of habitation; and it would not be until the idea of rotation of crops and of manuring became the general practice that the same field could be utilised year after year. In any case, whether this hypothesis be correct or not, it is all too evident that traces of cultivation, other than that provided by the actual grain and the finding of sickles and querns, is completely lacking. It is not until the early

<sup>1</sup> Information kindly supplied by Mr A. O. Curle.

<sup>2</sup> Information kindly supplied by Dr Callander.

<sup>3</sup> *Proc. Soc. Ant. Scot.*, vol. x. p. 490.

<sup>4</sup> *Ibid.*, vol. xlv. p. 164.

<sup>5</sup> *Ibid.*, vol. x. p. 477.

<sup>6</sup> *Royal Commission's Third Report of Monuments in Caithness*, p. 157.

<sup>7</sup> *Proc. Soc. Ant. Scot.*, vol. lvi. p. 218.

Iron Age that we meet with any really definite evidence of primitive field-systems; and the first system with which we are concerned is that known as the Celtic field-system, characterised by the Celtic lynchet.

Broadly speaking, there are three prehistoric field-systems, namely, the Celtic lynchet, the strip lynchet, and the cultivation terrace. Lynchets are formed of the custom of allowing a strip of grass to remain round the edge of each plot; which strip, as cultivation proceeded, served as a check for earth and stones which tended to travel downhill due to the forces of gravity. The action of wind and of rain also played no small part in this downward trend. Large stones, turned up by the cultivators in the course of preparing the ground, would also be dumped along the base and sides of the plot; the combined effect of all the foregoing being, in time, to produce a bank at the base, and a slight ridge along the sides. This bank tended to be both greater and steeper on sharply inclined ground, and it was less evident on gently sloping ground. The top of this bank is known as the positive lynchet, being due to accumulation; whereas the ground at the base of the bank is termed the negative lynchet, since it has been subjected to a certain denudation, owing to the aforementioned downward trend of the soil.

There are at least two distinct types of Celtic Lynchets. There are those which are arranged in long strips one above the other, following, as nearly as possible, the contours of the ground, and transversely divided into square or rectangular areas; and there are those which are arranged in long strips, but, instead of following the contours of the ground, are now at right angles thereto, and again transversely divided into square or rectangular areas.

There are obvious differences between Celtic and strip Lynchets. They are both formed more or less by natural forces, but whereas the Celtic lynchet is decidedly irregular, strip Lynchets are co-terminous, *i.e.* their ends terminate in a row. Moreover, the strip lynchet was a late introduction, since it does not occur until the arrival of the Saxons, and then only in England. For that reason we can dismiss the strip lynchet as not coming within the range of this paper, since Scotland was never subjected to a Saxon conquest. On the other hand, there is very little comparison between a Celtic lynchet and a cultivation terrace. The cultivation terrace is entirely artificial, and was purposely built up with loose stones, roughly placed one above the other, with an admixture of mould. In other words, the cultivation terrace existed before there was ever a crop grown upon the site, whereas the lynchet was only formed during the process of time.

The first person to satisfy himself upon the artificiality of terraces

was Robert Chambers, a native of Peebles, and amongst those which he considered were the examples near Newlands Church, at Romanno Bridge.<sup>1</sup> A good deal more pioneer work might have been attempted had there not been a theory in existence that these terraces were the remnants of ancient lake margins. That theory is, of course, quite untenable. On the Continent, perhaps the greatest pioneer was Sophus Müller. We are glad to take this opportunity of acknowledging his foresight in regard to what is termed in these islands "the Celtic lynchet"; for it was he who first noted and summed up their main characteristics.<sup>2</sup> Sophus Müller chose as his example the balks (or lynchets) on a large heather-grown area in Lerup, Hjørring. It was he who first recognised that lynchets are formed by the strips between the fields serving as checks for the soil and loose stones which tended to travel downhill, by force of gravity, during the cultivation of the field—a phenomenon already explained in this present paper. This enunciation of Sophus Müller has been adopted by archæologists of other countries, notably those in England.

Celtic lynchets abound in England; but only one example has been noted so far in Scotland, and that is the group at Torwoodlee, to be described presently. The remaining cultivation sites are all terraces.<sup>3</sup> We have not been so fortunate in the matter of dating these terraces as foreign and English archæologists have been in regard to the examples of their own respective countries. In England, particularly, some of these prehistoric field-systems have been overlaid by subsequent earth-works, thus providing a clue to their antiquity. In Scotland, on the

<sup>1</sup> *Proc. Soc. Ant. Scot.*, vol. i. p. 127.

<sup>2</sup> Sophus Müller, *Vendsyssel-Studier, Aarbøger for nordisk Oldkyndighed og Histoire*, 1911, pp. 255-9, quoted by Gudmund Hatt in *Acta Archaeologica*, vol. ii. pp. 123-4. Dr Hatt also gives an excellent résumé of Sophus Müller's pioneer work. The reader is encouraged to read Dr Hatt's excellent contribution to the study of Prehistoric Agriculture, since his contribution not only forms a complete survey of the primitive field-systems of Jutland, but also forms a model upon which archæologists might base all subsequent research elsewhere.

<sup>3</sup> According to Mr Eckford (*Proc. Soc. Ant. Scot.*, vol. lxii. p. 107). Dr Cecil Curwen, the English archæologist, has other notions, for he groups all the known Scottish examples under the designation "strip lynchets" (see *Antiquity*, 1932, p. 402). Yet, upon proceeding, he gradually reverts to the designation by which they have been known ever since they have become the object of serious consideration, and describes them as "terraces." He thus becomes entangled in an ambiguity of terminology, which it seems difficult to justify in the circumstances; for, although he states that some of the Scottish groups may "have been built up (at least partly) of stone," he has failed to recognise them as terraces. But there is a preconceived motive in describing all the Scottish examples as "strip lynchets," for we discover on p. 404 (*Antiquity*, 1932) that "these terraces are extremely unlikely to antedate the Anglican conquest." That, of course, implies that the Angles introduced the strip lynchet into Scotland when the Saxons were doing likewise in England. Apparently the term "Anglican conquest" is meant to apply to Scotland; in which case Dr Curwen is only following the example of imaginative historians, whose claims are unsubstantiated by archæology. In any case, he has obviously overlooked the fact that four groups of terraces occur in association with Iron Age forts.

other hand, we have not been so fortunate as that, and the real age of the Scottish terraces must remain a matter for conjecture.

In comparison with the number of groups of all varieties of field-systems in England, the number in Scotland is comparatively few. This does not indicate, however, that agriculture was carried on to any less extent in this country than in England. Whereas the English hillsides were deserted for the valleys upon the arrival of the Saxons, the Scottish hillsides have been extensively cultivated down to modern times; and in this respect any prehistoric field-system would be gradually obliterated with the passing of years. In primitive times in Scotland the average height for cultivation seems to have been in the neighbourhood of 800 feet above Ordnance datum; and it is only within comparatively recent times that these high altitudes have been abandoned in preference for the valleys. Apparently it was the presence of a deal of water, and of numerous mosses, at lower levels that discouraged the Scottish agriculturists from quitting their hillsides—a custom which, according to Professor P. Hume Brown,<sup>1</sup> seems to have excited the curiosity of the mediæval Englishman. In Sussex, before the arrival of the Saxons, the lynchet areas would appear to have all been about 400 feet above Ordnance datum.<sup>2</sup>

Mr Eckford mentions twelve groups of terraces as occurring in Scotland.<sup>3</sup> They are not found farther to the west than the two groups at Dunsyre Hill, and at Culter in Lanarkshire. Both these groups are near old trackways connected with Tweeddale. The greatest number occurs in Peeblesshire, there being groups at Kilbucho, Purves Hill, Romanno, Moat Wood, and at Venlaw. Those at Kilbucho are situated below the fort of Mitchelhill. The group below Dunsapie on Arthur's Seat provides the sole example from Midlothian; while there are two examples from Roxburgh—those situated near the hill fort at Calroust, and those at Hounam Law—and two groups in Berwick, one being situated on the left bank of the Whitadder at Hutton, and the other at Primrose Hill, below Staneshiel Fort, near Duns.

To this list of terraces we have now to add the group of Celtic lynchets at Torwoodlee.

#### CELTIC LYNCHETS AT TORWOODLEE.

One and a half miles north-west of Galashiels, and 300 yards south-west of the Gala Water, is the prehistoric fort and broch of Torwoodlee,

<sup>1</sup> *Scotland in the Time of Queen Mary.*

<sup>2</sup> E. Cecil Curwen, *Prehistoric Sussex.*

<sup>3</sup> *Proc. Soc. Ant. Scot.*, vol. lxii. p. 107.

crowning the crest of an upland ridge rather more than 800 feet above Ordnance datum. The site is well known, and is adjacent to an earth-work which was at one time thought to form a continuation of the Catrail. On the south-east side of this upland ridge, and situated almost entirely between the 700 and 800 feet contours, are the remains

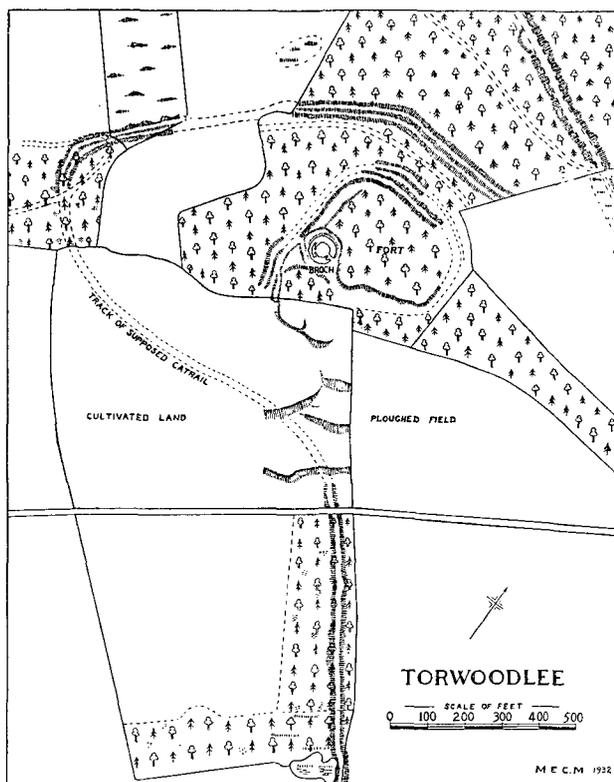


Fig. 1. General Plan of Lynchets and Fort at Torwoodlee.

of several Celtic lynchets, and they form a most interesting study in primitive agricultural methods.

These remains of Celtic lynchets at Torwoodlee represent but a portion of the area that was originally cultivated by the inhabitants of the upland ridge. To the east they end abruptly in a modern dyke, the ground on the far side of which is now a ploughed field; while to the west they merge into a hay-field. However, distinct traces of their having been originally carried the complete width of the field still remain. In November 1932 the author again visited the site in company

with Dr Graham Callander, and it was discovered that the lynchets had also continued across the adjoining cornfield to the west of this last-mentioned hay-field (figs. 1 to 4), this fact now being discernible owing to the corn having been cut. When the area of the ploughed field to the east of the lynchets is taken into consideration, it will be seen that the area under cultivation in primitive times was very large. All this area is now under regular cultivation, and it is apparently merely the steepness of the lynchets below the fort that has preserved



Fig. 2. View showing Remnants of Lynchets at Torwoodlee.

them for our inspection, the extra declivity of the hill at this point being an added disadvantage from the ploughman's point of view.

Unfortunately, it was not possible to undertake a sectional excavation; but, from the evidence provided by a large number of rabbit-burrows, the lynchets are formed of loose soil intermixed with a fairly large number of loose stones, both big and small, many of which still remain near the surface. The banks are very wide, attaining a width in some places of nearly 40 feet. This "spread" is, of course, accounted for by the slope of the hillside; moreover, it appears to be a natural "spread," and owes nothing to human design. In places, the height between negative and positive is as much as 7 feet (figs. 5 and 6). No

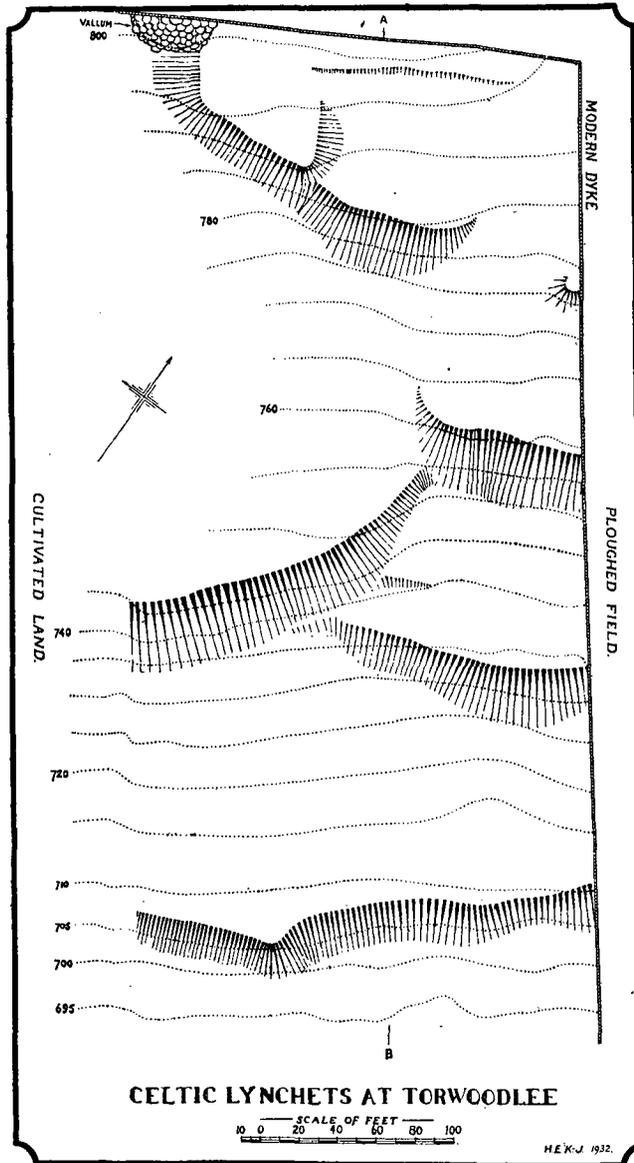


Fig. 3. Plan of Celtic Lynchets at Torwoodlee.

transverse divisions are visible in the small area of land preserved for examination, so that it is quite impossible to hazard a guess as to the original size of the fields.

The two small lynchets situated between the 775 and 800 feet contours would appear to need additional consideration. It will be noticed that, of the two, that to the west commences where a rampart of the fort ends abruptly. These two lynchets are marked as a continuation of the rampart in both the original plan prepared by Mr James Curle



Fig. 4. Celtic Lynchets at Torwoodlee.

in 1891,<sup>1</sup> and also upon the six-inch Ordnance map. However, upon close examination it would appear that they in no part ever formed a continuation of the defences of the fort; for not only are they composed of soil intermixed with loose stones, as in the case of the larger lynchets below, but there is no suggestion that they ever formed a vallum. Moreover, the defences of the fort are composed almost entirely of loose stones; and the fact that upwards of two thousand cartloads of stones were removed from the site within the last hundred years, precludes the structure from ever having been an earth-work. The rough vallum of stones definitely terminates as soon as

<sup>1</sup> *Proc. Soc. Ant. Scot.*, vol. xxvi. p. 68.

it comes into contact with the lynchet—a fact which suggests the possibility of the ground having been cleared of stones by the cultivators.

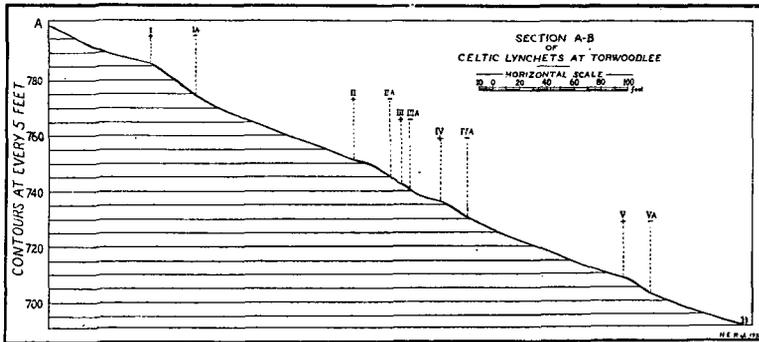


Fig. 5. Section of Lynchets through A-B at Torwoodlee.



Fig. 6. Side View of the Two Lower Lynchets at Torwoodlee.

There is one other alternative, however: there is a bank running from west to east above these two lynchets, and this same bank may possibly have been the continuation of the vallum. This bank is also in line

with the somewhat mangled remains of a vallum on the far side of the modern dyke. If either of the foregoing facts is not assumed, it is difficult to explain the sudden termination of an otherwise strong line of defence. In addition, it will be noticed that the small lynchet to the west is roughly 9 inches to 1 foot above the level of its neighbour.

It now remains to discover a probable dating for the Celtic lynchets at Torwoodlee. As hitherto explained, they are in close association with the fort and broch situated at the crest of the upland ridge. The fort, now sadly dilapidated, must have originally been very strong. Along the west and north sides there are the remains of two massive stone ramparts, but the exact measurements of the fort are now only conjectural. Towards the south-east the ramparts have been almost entirely erased. According to Dr Christison, the diameter must have been 490 feet from north to south, and 430 feet from east to west.<sup>1</sup> No excavation has been attempted, and, apart from testifying to its being native, no date can be assigned to it. The broch stands at the west side and upper end of the slightly sloping site on which the fort was built, and it is surrounded for about two-thirds of its diameter by a fosse. This fosse, which surrounds the broch very closely, opens into the inner ditch between the two valla of the fort. Moreover, the small vallum, which partly surrounds the broch, is carried across the inner vallum of the fort. It will thus be observed that the inner vallum of the fort is rendered completely useless—a fact which would seem to imply that the broch is a later structure, and was built after the fort had gone out of use.

Brochs, as an essentially northern product, were always exotic in the south of Scotland. A study of their contents definitely establishes the fact that their chief period of occupancy was during the Roman invasion of Scotland.<sup>2</sup> The most significant relics are the fragments of Roman pottery, including Samian ware.

The broch at Torwoodlee produced Roman relics of the first century.<sup>3</sup> There were fragments of two or three bowls of terra sigillata, of a type found at Newstead; there were fragments of vessels of thick light brown clay, unglazed; of vessels of soft buff-coloured clay, and

<sup>1</sup> D. Christison, *ibid.*, vol. xxix. p. 123.

<sup>2</sup> A. O. Curle, "Scottish Brochs," *Antiquity*, vol. i. p. 297.

<sup>3</sup> It was at one time thought (*cf.* A. O. Curle, "Scottish Brochs," *Antiquity*, vol. i. p. 297) that the Roman ware from the southern brochs suggested a second-century date for its manufacture. However, recently Mr James Curle has reconsidered the date of manufacture of the pottery from the broch at Torwoodlee in the light of modern knowledge, so that it is now clear that a first-century date is the correct one. See Dr James Curle, "Objects of Roman and Provincial Roman Origin on Sites in Scotland," *Proc. Soc. Ant. Scot.*, vol. lxvi. p. 368.

of Romano-British ware, all similar to specimens from Newstead. In addition, fragments of Roman glass were numerous. The general character of the ware suggested a first-century date for its manufacture, and it must almost certainly have been in use during the same century, especially since the relic bed was shallow.

It is difficult to determine the extent of the period of occupancy of the broch at Torwoodlee. Its builders were familiar with the broch in its fully developed form; and from the shallowness of the relic bed, and from the evidence provided by the relics themselves, the occupation of the broch seems to have been late, and the period of occupancy of short duration.

Upon a consideration of the foregoing data, it would appear that the lynchets were cultivated by the inhabitants of both the fort and the broch. We know that the broch builders were agriculturists; but the shallowness of the relic bed at the broch at Torwoodlee would preclude its builders from being solely responsible for the Celtic lynchets situated below, owing to the dimensions which the latter have attained—a magnitude which can only be the result of continuous cultivation by many generations of peoples. When it is remembered that the forts at Kilbucho, Calroust, and Primrose Hill are all in close association with cultivation terraces, it would be only natural to assume that the lynchets at Torwoodlee were cultivated in the first place by the inhabitants of the fort, and were again put under cultivation upon the arrival of the broch builders. In any case, cultivation is almost certain to have been in progress until the beginning of the second century A.D., and may have continued into later times.

In conclusion, the authors desire to express their thanks to Professor V. Gordon Childe for having drawn their attention to this interesting site, and to Captain James Pringle, the owner of Torwoodlee, for permission to survey the ground and publish this report.