

ARCHAEOLOGY OF MALHAM MOOR

By ARTHUR RAISTRICK and PAUL F. HOLMES

THIS paper describes some of the results obtained during the courses on Field Archaeology which have been held for one week each year at the Malham Tarn Field Centre from 1949 to 1960. The results of this work have been more than were expected and it is hoped that a brief account of them and of some of the problems raised will be of use both to archaeologists and to students of all kinds who visit Malham Moor. It has not been possible in this account to give a full excavation report even for one site, and we feel that the most useful treatment is a much condensed description of a selection of the sites excavated, sufficient to show their probable nature and date. A list of all the sites excavated is given in Appendix A, but it must be realized that this represents only a small portion of the sites that have been examined on the ground and of which some field survey or sketch has been made. Excavation in the sense in which the word is applied in the lowland zones of Britain is a misnomer for the techniques that have had to be evolved for this area, where soil is notably absent from hundreds of acres, and when present is seldom more than one sod thick. The normal method of the study of a stratigraphical section is thus denied us and much reliance has to be placed on a wide knowledge of scores of comparable sites in most of the limestone areas of north-west England, from which analogies can be drawn which make the very sparse remains of pottery and other artifacts intelligible. It is perhaps reassuring that it has been possible to combine teaching and exploration with advantage and the difficulty and poverty of sites has encouraged much profitable discussion and thought.

DESCRIPTION OF THE AREA

Malham Moor is an area of limestone upland in Northwest Yorkshire, mainly between 1,000 and 1,500 feet, and situated between the valleys of the Ribble and the Wharfe, between the head of Airedale to the south and Littondale to the north. Strictly Malham Moor is a township of 10,973 acres, but it is logical for most purposes to include with it those parts of the township of Malham (2,560 acres) which are over 1,000 feet and adjoin it. This makes a total of about 21 square miles which is the area dealt with in this paper and referred to as the Moor. It is composed mainly of the upper beds of the Carboniferous Limestone, usually called Great Scar or Mountain Limestone, and it is this rock which gives the special character to the plateau. Younger Carboniferous rocks of the Yoredale series overlie the Great Scar Limestone particularly in the northern part, where the fells of Fountains and Darnbrook rise to just over 2,000 feet; here most of the Yoredales are obscured by thick deposits of glacial drift on which blanket bog has developed. Malham Tarn lies in the middle of this upland at 1,229 feet on a small inlier of impervious Silurian slates, and the moraines which have dammed up the Tarn form part of a morainic belt just south of it. Highly characteristic of the Moor are the extensive areas of bare

limestone pavement and innumerable limestone scars, with small dry valley features and hollows associated with them. On all sides there is a steep descent from the plateau which is deeply cut into by the Dry Valley leading south from the Tarn and by Gordale and Cowside Becks. Apart from the two latter streams the drainage is almost completely underground on the Great Scar Limestone, making the ground surprisingly dry in spite of high rainfall. It is entirely grassland which has been intensively grazed by sheep for many centuries, so that today there are no trees or bushes except on vertical cliffs or where they have been planted and protected. The climate is somewhat severe owing to the height and exposure, with an annual average rainfall of 58 inches, strong winds, low temperatures and often prolonged snow cover in winter (Manley, 1957). Indeed the modern visitor to the Moor finds it difficult to understand why prehistoric man should have chosen such an exposed place to live, and especially why there should have been such continued occupation since Mesolithic times. Some discussion of this, and of changes in climate and vegetation since late glacial times, is given in Appendix B.

This, then, is an area of erosion, high rainfall and shallow soils, like much of the Highland Zone of Britain, and unlike the lowlands where deposition and deep soils are the rule. On Malham Moor soils are very thin over the limestone and completely absent over large areas of pavement at the present day. The only deep soils are where a thickness of glacial drift has been deposited or has accumulated, and on the whole prehistoric man has avoided these places of inferior drainage. In contrast the modern scattered farms are mostly sited on or near considerable areas of drift, giving deeper soils for permanent meadows.

GENERAL NATURE OF THE REMAINS

Under such conditions it is not surprising that the remains of man over many centuries are usually condensed into a few inches under the turf. Indeed the heavy rainfall, long continued frosts, exceedingly porous ground and its alkalinity have combined to destroy most of these remains. It also seems that most of the people who lived up here were poor and without many possessions, so that tiny fragments of pottery, whetstones, worked flints and a very occasional piece of worked bone are all that can be expected from a living site. For example, the well built Bronze Age hut shown in Fig. 2 yielded only four small pieces of thick pottery, a few fragments of charcoal, a small flint scraper and two other worked flints.

Flint of some sort is the most commonly found remnant of man in all the older sites up to the end of the Iron Age and is thus a useful indicator of his presence, since no flint occurs locally. The nearest chalk bearing flint is many miles to the east across the Vale of York, and often the type of flint suggests a much more distant origin. Chert was also used as an inferior substitute when flint was scarce, but this material occurs locally in the limestone and so is a less sure indicator unless it has obviously been worked. The frequency of flint and chert in Bronze and Iron Age sites, and the rarity of metal objects, confirms the impression that these were people living in poverty under harsh conditions and far removed in culture and wealth from their contemporaries in Lowland Britain.

It is in fact the structural remains associated with man that must be the main study in areas such as this. The majority of these structures are essentially dry stone walls, made up of roughly rounded or irregular boulders of limestone, and the tradition of dry stone walling has of course continued to the present day, giving the modern pattern of enclosures. The walls of the early enclosures were not high and would probably carry some sort of stockade against marauding animals; the stone wall of a hut or other building was also in most cases only the solid base for a less durable superstructure, and would be turf-covered. Post holes have been demonstrated in the walls of Iron Age hut circles (Fig. 6) and also in monastic buildings (Fig. 15). The modern walls by contrast were built to be sufficient of themselves to contain stock and are therefore higher. Many centuries of soil leaching, frost action on snow pack and continual sheep grazing have caused extensive collapse of the old structures, reducing them all to a broad spread of boulders which the turf now covers. In this state they have become difficult to see and distinguish from limestone outcrops except to the practised eye, and one of the first tasks on an Archaeology course is to train people to see and trace them.

Most "excavation" of dry stone wall structures consists of stripping off the turf and nettles from amongst the stones to reveal the plan of the enclosure or building, which can then be surveyed. Sections of the wall are analysed by finding the core and tracing its original face—a procedure which sounds simple, but which may take hours of patient work and much discussion before deciding in what ways the wall has collapsed. Perhaps the most valuable achievement which has emerged from the series of courses held at the Field Centre has been the building up of a body of experience on the reaction of different types of walls and structures to this universal collapse; so that now, in preliminary field mapping, one can recognize with some confidence most of the varied collapsed structures on the Moor. The early "walls" of Bronze or Iron Age people were built with a strong core, using quantities of large and medium sized boulders, sometimes roughly coursed and usually with strong gravel backing to give support. Mediaeval structures were commonly built with a double facing of large flat-sided boulders (up to 4 ft. by 3 ft.), set on edge and carefully packed in between with smaller boulders and stone filling; the upper parts of such walls have usually burst outwards by frost action. Modern wallers of the last three or four centuries have also made walls with a double face and packing in between, but they have used smaller boulders and stones carefully coursed and graded from the base, and latterly have added rigidity with "throughs" and capstones.

SUMMARY OF SETTLEMENT

Malham Moor was first visited by Mesolithic hunters and fishers (Tardenoisians), to whom the Tarn surrounded by dry limestone country would be an obvious attraction. Their visits were probably seasonal but extending over very long periods of time. There is an abundance of the characteristic "pygmy" flints, or microliths, both in general scatter and in a few small areas where the number picked up has amounted to a few thousand; among these are a wide range of types of implement, such as knives, scrapers, points and harpoon barbs, though "tranchets" and the so-called "gravers" have not been recognized. The Neolithic is also represented only by flint implements, though Peterborough Ware has

been found on the verges of the plateau in Elbolton Cave near Linton, and in Sewell's and Kinsey caves near Settle (Newbiggin, 1937). A good number of large flint flakes and scrapers, and several leaf-shaped arrowheads have been found especially round Tarn House, and a flint axe with polished edge from beneath blanket bog peat on the slopes of Fountains Fell.

The Bronze Age occupation is authenticated by a series of barbed and tanged arrow points, by scrapers and other typical worked flints, by a polished and perforated axe hammer of stone from Black Hill, by two burial mounds and several domestic sites. One mile east of the Moor, but still on the upland is the remains of a stone circle near Bordley (Raistrick, 1929). The Iron Age occupation is represented by numerous hut circles, settlements, enclosures and field systems, and is well authenticated also by fragments of early Native and later Romano-British pottery, by burials on top of Great Close and Seaty Hill, by iron knives and a sickle. It is not possible, however, to make clear-cut separations between periods of occupation. In the Highland Zone old populations continued to absorb or mingle with the newer incomers—what Dalesfolk would call “offcomers”—and old traditions and constructions lingered on in an almost continuous sequence of slow and slight change. Thus it is often impossible in the absence of pottery to suggest a date for some of our sites, beyond saying that they may be Iron Age continuing a Bronze Age tradition. Bound by the same basic material of limestone boulders, and the same topography of small scars and hollows, similar structures were built over a very long period. The mode of life, also, cannot have changed much, being dictated by the type of country; it must have been mainly pastoral with flocks of sheep and some cattle, and a limited amount of agriculture probably by the simple technique of hoe cultivation. This type of economy has recently been suggested by Stuart Piggott (1958) for most of the Highland Zone in early Iron Age times, whereas it has previously been assumed by most authors that the whole of Britain was corn growing in the first century, from the evidence of the south-east. There is a possibility also that some of our sites were only occupied seasonally, especially if cattle were bred as well as sheep; today a great many cattle are summered on the Moor, but few can be wintered.

The Iron Age infiltration and later occupation of the Moor was probably continuous from the second century B.C. until the end of the Roman occupation in the early fifth century A.D. By the time of the Roman conquest of the north they formed part of the Brigantes, a hill tribe of the central and north Pennines which suffered a major defeat by the Romans at Stanwick Park in 74 A.D. The Craven Highlands, which include Malham Moor, were never occupied by Romans and the greatest expansion of Iron Age settlements probably occurred there after this defeat. On the edges of the upland are several well known caves, such as Victoria, Attermire and Sewell's near Settle, or Dowkerbottom above Hawkswick, which have yielded a remarkable suite of Romano-British objects of the second century (Raistrick, 1939), mostly to be seen in the Pig Yard Museum, Townhead, Settle, in the care of Mr. T. Lord. The whole assemblage probably represents a group of skilled craftsmen taking refuge in the caves and keeping alive their artistic traditions and skills, but no such wealth of material is found on any site on the Moor, where the impression is one of poverty and lack of possessions.

In the Dark Ages, Anglian and later Danish settlers penetrated up all the Dales, made clearings and settled in places that have become our modern villages and hamlets. They did not, however, occupy the higher ground and the Moor may well have been uninhabited for long periods, though it is not known how long the Brigantean remnants lingered on there. The period is represented by the isolated "Priest's House" (Fig. 11) and by two coins of the ninth century from Prior Rakes, which were identified at the British Museum as Northumbrian stycas, coins of King Eanred (807-841). The upland was again occupied in the tenth and eleventh centuries by Norsemen, probably coming here from the west at the time of their short-lived Dublin-York kingdom. These were essentially sheep farmers who must have found the unoccupied Moor very much to their liking. They established a typical settlement of scattered farms, many of which have persisted to the present day with their Norse names, and indeed the majority of the place names and much of the local Dales dialect belong to this period. There are foundations of several Norse farmsteads on the Moor and one of these above Tarn House has been excavated (Fig. 13). The land was granted to Norman nobles after the Conquest and subsequently, in the twelfth century, given to the monasteries of Fountains and Bolton under whom the Norse inhabitants continued to farm. Soon the monasteries developed an efficient and extremely profitable system of sheep-ranching on the upland (Raistrick, 1953 and 1954) and this monastic ownership and organization continued until the time of the Dissolution in 1535. There were a number of farms and sheep granges, and to serve these many other structures were built: shepherds' huts, sheepfolds, and the sheephouses on Prior Rakes (Fig. 15 and 16). These were built mainly without destroying earlier structures, and finds of mediaeval pottery suggest that some of the earlier sites were in fact reoccupied also at this time.

Several ancient trackways converge on the moor, some of which may be prehistoric while others are drove roads. One very ancient way, Mastiles Lane, was used by the monasteries and is marked along its course by the bases of crosses, three of which come within the area of our map, on which they are Nos. 13, 14 and 15. Two other named monastic crosses are just on the verge of the map, Nappa Cross and Weets Cross, and others like Ulkil Cross are within a very few miles.

This sequence of archaeological sites covering a long range in time might suggest either that Malham Moor is exceptionally rich or that it has been worked to exhaustion. Neither assumption would be correct. Much of the limestone upland area of Craven is equally rich where it is free from a boulder clay cover. The nature of the soil and vegetation has ensured that for many centuries its prime use has been as permanent sheep run, a use which does not call for undue clearance of the ground or for building efforts which could turn any of the remains into a valuable quarry for building materials. Careful survey over many years and a really intimate knowledge of the Pennines shows that Malham Moor can be taken as typical, particularly of the areas occupied by the Great Scar Limestone or by some of the thicker limestones of the Yoredale Series.

In the clearance of sites only a meagre amount of dateable material has been found, but it has been sufficient to establish the main succession in time, and by continued experience, here and on other areas, the structural features associated

with different periods are now becoming familiar. It has been very encouraging to encounter, in the course of this rather modest programme, the material with which to fill in a great deal of detail in our picture of the history of the area. Such discoveries as the Malham Pipe, the recognition of "wall passages" and the Bolton Priory Sheephhouse are only a few of the many rewards which have come without expectation.

A selection of the pottery and other relevant remains is permanently displayed, with drawings and explanatory text, in the Field Centre at Malham Tarn House, where they have proved to be of great interest to all students. The remaining material (except that from the Priest's House, which is in the Pig Yard Museum, Settle) is stored in such a way as to be available on request for study or consultation. The Malham Pipe was placed in Leeds City Museum as it needed treatment and care such as could not be given at the Field Centre; but plaster casts of it have been made and are to be seen in most of our local museums, and at the Centre, where the cast can be studied along with a record of the playing of the pipe and a critical musical appreciation of it, made by Mr. Eric Todd.

DETAILS OF ARCHAEOLOGICAL REMAINS

The archaeological sites are so numerous that only the principal ones can be shown on the map (Fig. 1); on this the numbered sites refer to the descriptions given below except for numbers 12-15 which are referred to in the text. Almost every area which is free from boulder clay carries a complex of remains varying from field walls and isolated huts with a small enclosure to a complex of huts, fields and other structures, of a few acres in extent. In the account which follows, a brief description of a selection of these sites will indicate the nature of the monuments ranging from early Bronze Age to the fourteenth century in date.

1. *SEATTY HILL, SD 907654*. This is a small conical hill at the north end of New Close Pasture. The hill rises to 1,370 feet OD and its top is surrounded by a shallow ditch and bank enclosing a low mound 66 feet diameter, rising about 4 feet above the ditch bottoms. In the original surface of the hill top there had been dug two holes, circular and partly impinging on one another, both 3 ft. 6 ins. deep. In the north-westerly one of these a skeleton had been carefully placed in a sitting position, with knees drawn well up, and was facing the second hole which is to the south-east. This hole was almost filled by a carefully built cairn of limestone boulders, but nothing was found either in or beneath it. No artifact of any kind was found with the skeleton. Both holes had been filled in with fine sandy and gravelly loam to the natural ground level then covered with a low mound, 15 feet diameter and 1 foot high, of coarser gravel and small boulders. The second mound, 66 feet diameter, of limestone rubble and boulder clay and 3 feet high above ground level, was put over this and provided with a kerb of large limestone boulders buried in the toe of the mound. A shallow ditch was then dug and its spoil thrown outwards to form a shallow bank.

In the surface of the large mound there were not less than 13 secondary burials of early Iron Age, each in a small saucer-shaped depression filled in

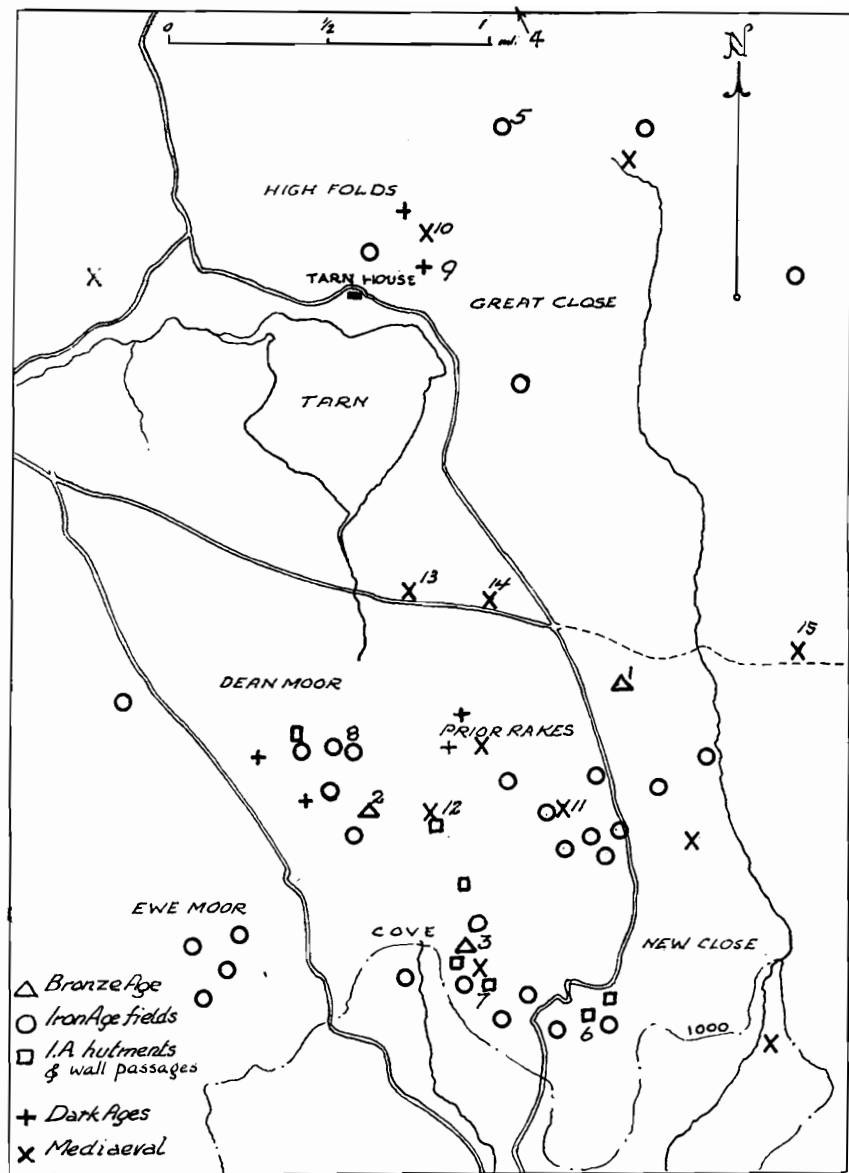


FIG. 1.

Principal archaeological sites on Malham Moor: 1. Seaty Hill burial mound; 2. Comb Scar house; 3. Sheriff Hill burial mound; 4. Dewbottoms (beyond the map edge); 5. Middle House Pasture; 6. Stridebut Edge; 7. Complex near Sheriff Hill; 8. Complex west of Trougate; 9. Priest's House; 10. Mediaeval farm; 11. Sheephouse; 12. Trougate; 13, 14, 15. Cross bases.

with gravelly loam. These burials are extremely fragmentary and are more like token burials than complete ones. In three of them beads were found, one of jet, one of blue glass and one of carved limonite. In a burial nearly over the central older burial, a skeleton was arranged with a bone pipe between the knees, where also there were several small bones of hand and wrist and part of an iron knife. The pipe was made from the tibia of a sheep, perforated with three finger holes, with a well-shaped speaking lip and mouthpiece. The pipe was playable and Mr. Todd has described and recorded its musical range and qualities (Fig. 12, 6). A full account of this unique instrument has been published elsewhere (Raistrick, Spaul and Todd, 1952). In two of the burials there were recognizable fragments of iron knives, and in two others pieces of iron of unrecognized use, all in positions which could have been under the knee of a more complete skeleton. By analogy and style the primary burial has been assigned to the Early Bronze Age, and the Iron Age burials to the period first century B.C. to first century A.D.

2. *BRONZE AGE HOUSE*, SD 894648, near Comb Scar. At the north end of a small limestone terrace sheltered on three sides by limestone crags about 40 feet high, and looking south along the grassy terrace which itself is 100 feet up on the east side of the Dry Valley. The house was almost covered by scree from three sides, but a faint bank and a growth of nettles had for some years been noted, and prompted the excavation. The site was completely stripped down to old ground level and a pit dug in the floor, with check pits at two points well away from the site to prove the nature of the undisturbed valley floor.

The house (Fig. 2) is sub-rectangular, 19 ft. by 18 ft. inside the walls, with a wall between 5 and 6 feet thick and 3 feet high. It is built of boulders, some of them 5 ft. by 3 ft. by 3 ft. placed radially across the wall. Other large boulders are built into a dry stone wall with the larger stones on the two faces and with boulder packing of all sizes, apparently carefully placed. The many large boulders on the wall would provide excellent footing for roof timbers if needed. On the east side advantage was taken of a row of very large slipped rocks in the foot of the scree, the north wall of the house being turned in front of these to form a passage entrance which was 12 feet long, paved with slabby limestone. At the approximate centre of the house there is a post hole 15 inches deep and 9 inches diameter filled with a rich black humic loam in a floor which was otherwise a uniform buff coloured sandy loam, 3 feet deep, the accumulation from ages of washing and leaching of boulder clay on the area surrounding the hollow. The wall of the house at the south seems to cut across a small circle of stones, the inner part of which is utilized to make a paved compartment within the house. The only finds were fragments of flint, two of them beautifully worked in typical Bronze Age fashion, and a few fragments of dark brown pottery of local Bronze Age type.

3. *SHERIFF HILL*, SD 899641. A burial mound three-quarters removed at the time of the enclosures (about 1845) when the mound was dug as a quarry for walling stones. The remaining fragment was trenched right through and was found to be built entirely of stone with a kerb of large flaggy stone laid

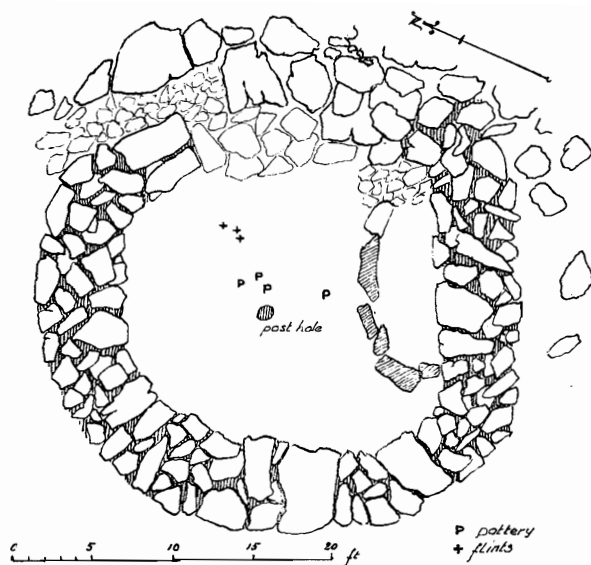


FIG. 2.
Bronze Age house, Comb Scar.

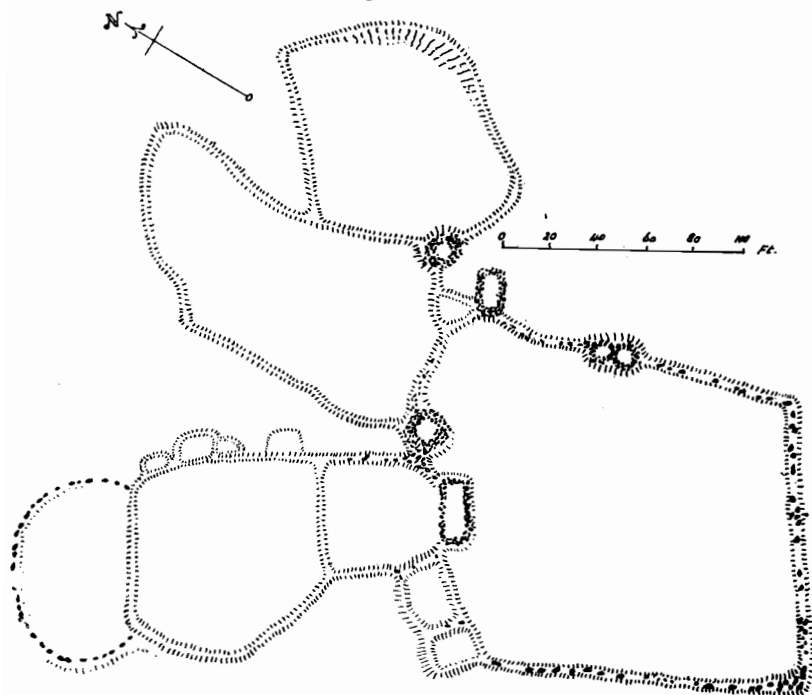


FIG. 3.
Bronze Age farm, Dewbottoms.

on the slope at the foot of the mound. Many fragments of decorated pottery were found under the turf cover and were associated with what appeared to be discarded gravel from the original quarrying, so may have come from the centre. At the inner edge of the kerb, and under a carefully placed cover stone, a small oval vessel (Fig. 4, 1) was got. This is of thick bluey-grey paste, red outside and very flaky so that part of the surface is lost on the two thirds of the vessel which remains. Professor Stuart Piggott has reported on the pottery. Of this vessel he says—"an oval cup of the so-called 'Incense Cup' class: one sherd is of the wall and base of one end, the other a piece spalled off from the inside of the base. I only know of one parallel to this remarkable pot, another oval incense-cup from Far Fields, Lockton, N.R. Yorks. in the York Museum. A very odd little oval 'cup' of sandstone from Defford, Bredon, Worcs., in the Hastings Museum at Worcester is a stray find and might be of any age, and anyway only provides a vague parallel."

Another "vessel is represented by sherds of what appears to be a small cinerary urn of collared or overhanging-rim type with the yellow-brown surface characteristic of so many pots of this class. The decoration appears to be in alternating panels of vertical and horizontal lines of uncertain width, the whole forming the so-called 'hurdle' pattern. The ornament is made of double lines of twisted cord, one with a right-hand and the other with a left-hand twist (Fig. 4, 2-4): such ornament is widely distributed on such vessels and it is discussed in *Man*, XXXVI (1936), 100".

A third "vessel is represented by a few sherds with purple-red exterior, decorated with impressed cord, whipped cord and grooving. It is difficult to say what sort of pot is represented, but I suspect something within the food vessel class" (Fig. 4, 9-10). "The whole assemblage could well be contemporary and would fall within the middle Bronze Age of conventional nomenclature, somewhere in the middle of the second millenium B.C."

4. *DEWBOTTOMS, SD 912692* (Fig. 3). A hill promontory overlooking Cowside Beck enclosed in fields with huts. Many separate and isolated huts and fields occur among the limestone outcrops round about. The principal site is a farm closely similar in plan to those figured by Griffiths (1951) and a remarkable parallel to his plan of Huts and Enclosures on Mynydd Du, Llanllechid, Caernarvonshire (his Fig. 1), which he suggests may be of Neolithic or Early Bronze Age. In our area this culture may have lingered on as late as the early Iron Age or even into the Roman times.

The principal field is approximately 120 feet square, enclosed by a massive boulder and gravel bank, probably the foundation of a substantial stockade. The field is now mostly bare limestone pavement. Four smaller fields adjoin it on the north and west. Circular huts with dry stone walls still about 3 feet 6 inches high before excavation, covered by collapsed material suggesting an original height of 5 feet, are placed, two of them in the course of the field wall and two in the junction of three field walls. The huts are about 10 feet internal diameter, the walls about 3 feet thick. A very fine quartzite hone was the only find in the huts. There are two rectangular stone built enclosures 20 ft. by 10 ft., and 15 ft. by 8 ft., and several small rectangular enclosures, probably buildings, with walls of boulders and turf, using one

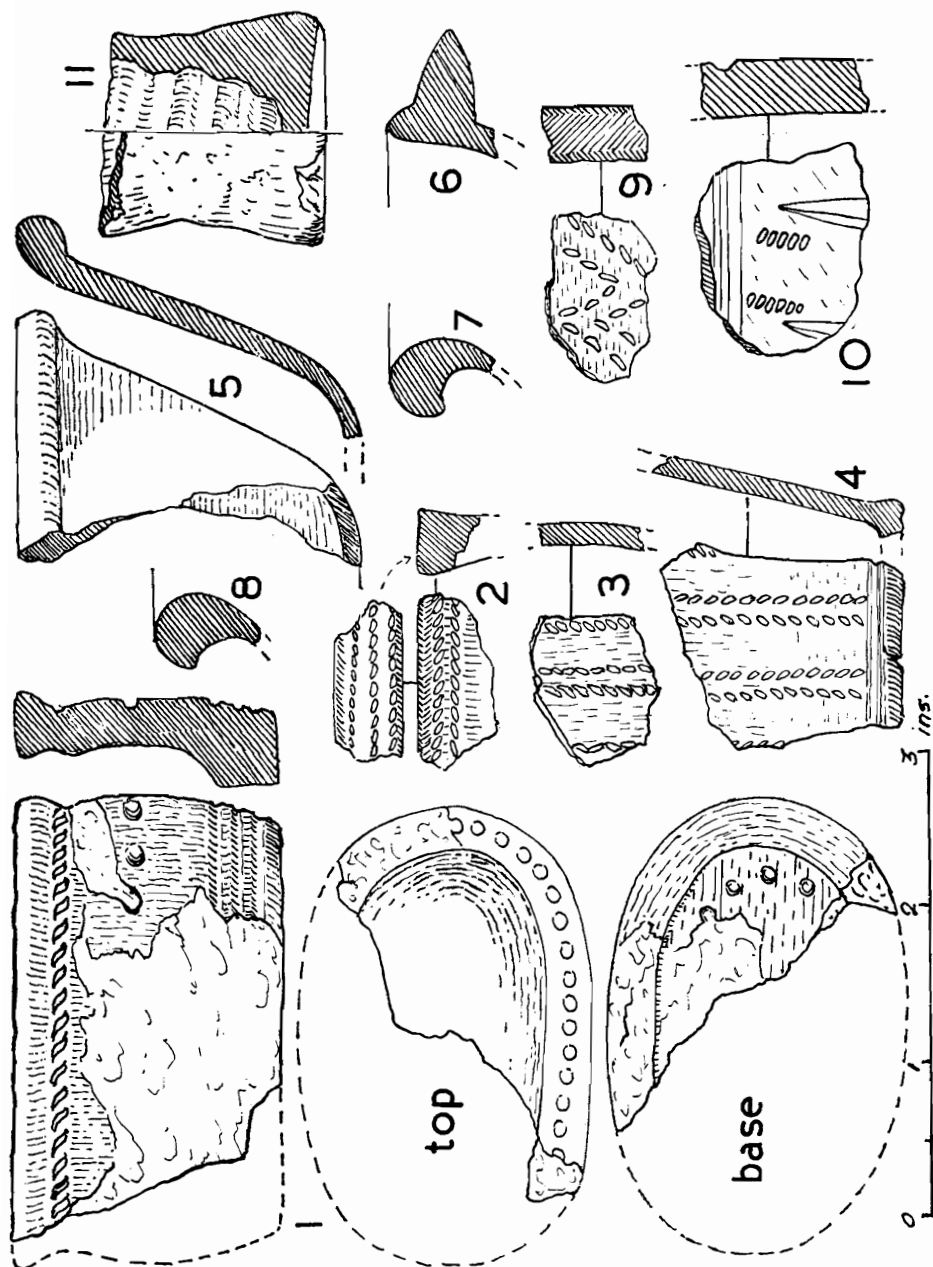


FIG. 4.

Pottery; 1-4, 9 & 10, Bronze Age burials, Sheriff Hill; 5-8, 11, Iron Age sites.

wall of a field as a common back wall. The whole site suggests a compact family farm, but no reliable date can be given to it.

5. *MIDDLE HOUSE PASTURE, SD 901681* (Fig. 5). A complex of huts enclosed on a limestone promontory by strong stone walls. Eight circular huts of 25 ft. to 35 ft. diameter are enclosed on a limestone terrace on three sides by a wall 1,300 feet long in which wall are incorporated nine more huts. Five smaller huts are within the enclosure, three of them attached to the side of one of the large circles. One of the isolated large circles was uncovered and a smaller one completely excavated. The large circle was made with a bank consisting of a core of large limestone slabs leaning together and forming the centre of a heavy gravel bank. There was every appearance that the larger stones had held the feet of stockade posts and it seemed possible to differentiate between this type of bank and that of a few of the huts where more regularly laid stone was used. In the case of the smaller hut, the structure was clearly shown (Fig. 6). On a low mound of gravel the wall of the hut, 9 feet internal diameter and 4 feet thick, was made with large limestone boulders set on edge for a clear inner face, 2 feet high. The wall behind this was built of slightly smaller boulders very carefully placed. In this wall there was a ring of post holes, each framed with three or four large stones enclosing it and competent to give good support to a post placed in it. These holes were approximately a yard apart, twelve very clear ones being found and two that were collapsed. The arrangement of the holes would leave a bench 18 inches wide inside the walls of the hut, and this, covered with ling or bracken could have been used as a sleeping bench. The floor of the hut was of compacted calcareous loam and to one side there was an area rich in charcoal with a few burned stones near it, certainly the hearth for the hut. The entrance was paved with good flaggy limestone. This hut structure is associated, in an example on Trougate (Fig. 10), with 2nd-3rd century pottery, iron sickle, etc. and seems to be a Romano-British type of building. As is common on all the Malham Moor sites, a number of nondescript flint flakes and fragments were got, and from the mole hills on the site a small piece of native pottery, probably Iron Age.

6. *STRIDEBUT EDGE, SD 907638* (Fig. 7). On a high limestone terrace, backed by low crags to the north this site has an uninterrupted view down Airedale. Close under the crag there are two rectangular enclosures about 50 ft. by 50 ft. and 35 ft. by 40 ft., each having a south wall about 10 feet thick, the crag as a north wall and the other sides formed by a row of large boulders and gravel fill. The massive south wall in each case has a "trench" in the middle of it of the type we have provisionally called a "wall passage", to be described later. Connected by a heavy gravel bank to one of these enclosures there is a smaller rectangular earthwork and, to the other, two circular huts, 30 feet and 25 feet in diameter. At the west end of the group there are two more circular huts in contact, 30 feet and 18 feet diameter. These four huts have the same structure—a massive wall of large boulders forming a double ring, but not in contact with one another, packed with gravel and small boulders between and around them. The inside of the hut

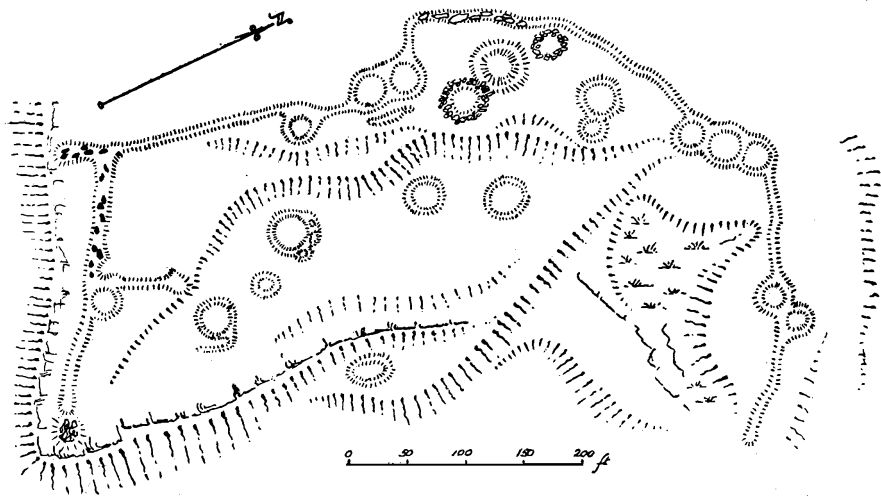


FIG. 5.
Middle House Pasture, Iron Age complex.

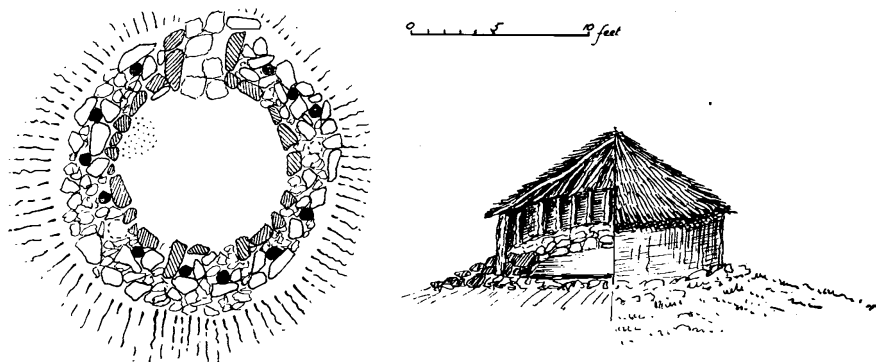


FIG. 6.
Hut on Middle House Pasture; plan and possible restoration.

has a saucer-shaped floor about 18 inches lower at the centre than at the rim, "paved" with gravel and a calcareous loam. There is a well formed entrance through the bank into each hut. A line of very large boulders and two gravel banks lead to a central feature of the whole site. A bank forming about half of a 60 feet diameter circle carries a double row of stones set on edge like half a stone circle. A gravel bank along the chord of this arc incorporates three small circular huts, and a larger one of 30 feet diameter lies on the outer side of the curve between the ends of the two gravel banks. One bank continues a further 150 feet to the south and joins a strong bank on the edge of the scarp. In the western pair of huts near the crag, part of an iron knife and other scraps of iron were found, along with small fragments of pottery of Iron Age texture and type, and a fine blue slate hone, all comparable with remains from Iron Age sites in West Yorkshire. A hone was also got, with fragments of iron, in one of the "wall passages" adjacent to this site. Near the site and linked to it by sunk road and gravel banks there are several acres of rectangular fields without huts; it is suggested that these belong with the site just described and form a group of small Iron Age farms, possibly of second or third century A.D.

7. *WALL PASSAGE near Sheriff Hill, SD 902640.* This wall passage is in the north wall of a large enclosure with sides 90 feet, 81 feet and 60 feet, with 87 feet of a high limestone cliff as the fourth side. Except for 40 feet of the north side adjoining the cliff the structure is well built with roughly coursed limestone boulders often of large size, forming a wall 4 feet thick and about 2 feet high, with an entrance in the south wall, flanked by two large limestone boulders set on edge. A small amount of Iron Age pottery was found within the enclosure. As at Stridebut, gravel banks connect the large enclosure with a complex of banks and four circular huts comparable in every way with Stridebut, and having an area of rectangular fields adjoining on the north. The feature we have distinguished as a "wall passage" (Fig. 8), for lack of any better name, is a slightly curved trench 4 feet wide and 38 feet long with a sharp turn where a restricted portion only 2 feet wide leads into the large enclosure. The floor of the trench is paved with slabby limestone and the walls, often built onto the paving slabs, are usually two courses of rough walling which include large boulders up to 5 feet in length. These walls, about 2 feet high, are backed by a mound of boulders and gravel giving an overall width of about 10 to 15 feet. The inner end of the wall passage is a dead end against the limestone cliff. Nothing was found in this passage but in the associated enclosure some small pieces of Iron Age pottery were got which included small rims of black paste, but with a reddish brown outside (Fig. 4, 7). Inside the large enclosure rectangular foundations were uncovered belonging to a rather slender building, which contained a quantity of fourteenth century pottery; it is likely that this building and the large rectangular walled enclosure belong to the time when Bolton Priory had the Sheephouse (to be described later) and leased this part of the Moor for a sheep run. Another Iron Age site in Trougate (Fig. 1, 12) with a wall passage and enclosure, was partly altered to make a sheep fold in the fourteenth century (excavated in 1959, but not described in this paper).

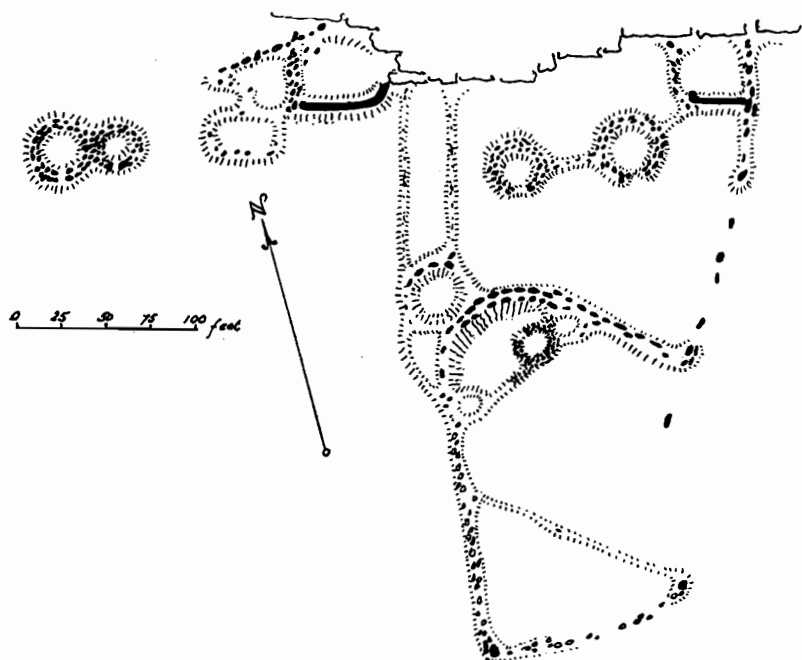


FIG. 7.
Stridebut complex with two "wall passages".

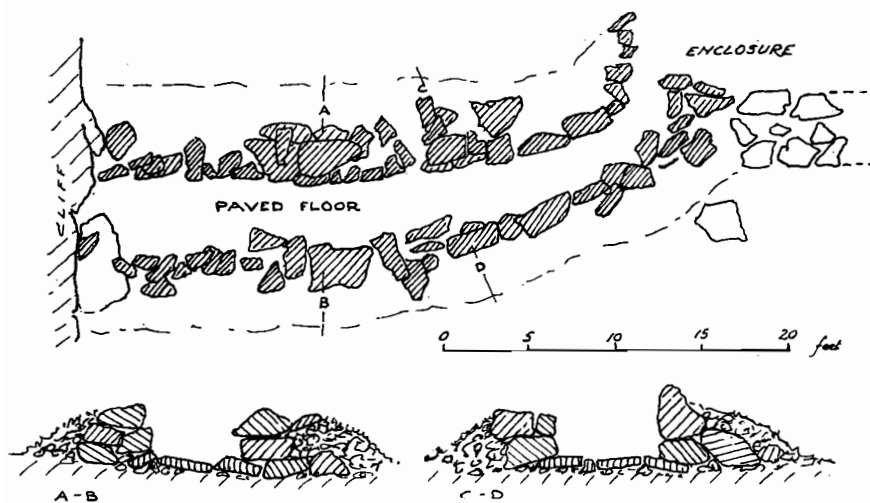


FIG. 8.
"Wall passage" near Sheriff Hill.

WALL PASSAGE near Stridebut, SD 907638 (Fig. 9). This is another wall passage, identical in structure except that it has utilized a limestone crag as part of one wall. The trench is 4 feet wide, 2 feet 6 inches deep and 45 feet long, the last 10 feet being curved to enter an enclosure formed by the limestone cliff and two boulder walls each about 35 feet long. The inner end of the trench is blocked off with very large limestone rocks. In the trench a particularly fine quartzite hone was found on the paving stones, but nothing else.

Since the first wall passage was recognized in the Stridebut complex, eight have been recognized and surveyed on Malham Moor and six of them completely excavated, and five have been surveyed in Wharfedale. They form a group of structures which is remarkably constant in all major features; trench about 40 feet long and paved, one end closed by a limestone crag, the other making a curve to enter a small but massive enclosure, and all of them associated with a complex of gravel banks which generally includes a few circular huts and links with an area of Iron Age fields. They are certainly of Iron Age date, but we have no suggestion to make of their purpose except that possibly they could be used for storage, covered when in use by timber and turf rather than by stones.

8. *SITE ON PRIOR RAKES west of Troughtate, SD 895652*. It is difficult to put a name to this site either from its position or nature. The main feature is an enclosure 100 feet long and 50 feet wide under the north side of a small limestone scar. On the edge of the limestone there is a row of very large limestone boulders wedged up on edge, forming an effective fence from the limestone pavements. The enclosure (Fig. 10) is made by a massive limestone wall, and is not rectangular, but has the long wall parallel to the scar and the end walls bent outward at the middle. At the north east corner there is a large hut incorporated in the structure and at the north west end a detached hut and some poorly defined enclosures which may be remains of other huts. The enclosing wall of the main enclosure appeared as a boulder bank 8 feet wide, but on excavation of a portion of it, it became clear that it was a well built boulder wall 4 feet wide and now 18 inches high, frequently using very large stones roughly coursed and at some points taking advantage of a small limestone outcrop. The wall was disrupted by frost and the tread of sheep and cattle and had spread into a wide mound, but at all points tested the central remaining portion was alike and well built. The north east hut made a projecting corner to the enclosure. Its walls were more widely spread by collapse and generally of smaller stone and had probably been higher originally than those of the main enclosure. The hut floor was natural limestone pavement. Portions of a large dish of grey pottery (Fig. 4, 5) were got and were sufficient to determine it as being of $7\frac{1}{4}$ inches diameter and $2\frac{1}{4}$ inches deep, of paste and pattern matched by second century ware. Small portions of the rims of two other vessels were also of a common second or third century type, well known in the area. In the detached north west hut an iron sickle and some pottery fragments agree also with this dating. This hut is 19 feet internal diameter with a rough boulder and gravel wall in which there are twenty well formed post holes on the crest of the bank. There is a

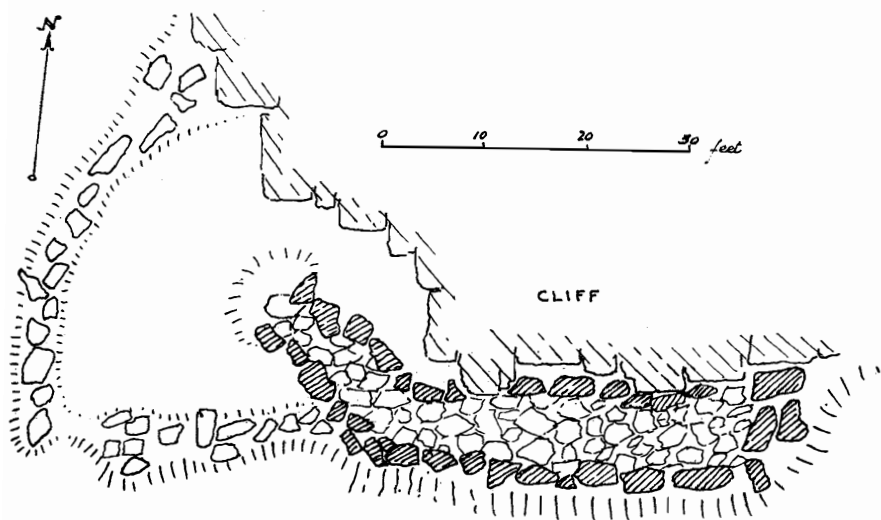


FIG. 9.
"Wall passage" at Stridebut Edge.

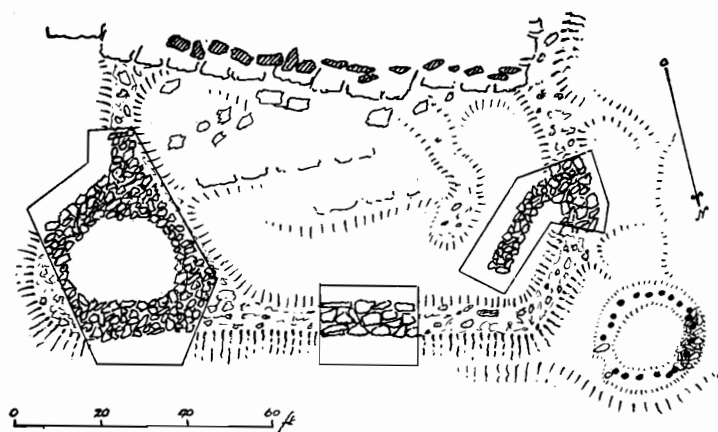


FIG. 10.
Iron Age site, west of Troughtate.

clear entrance through the bank, and the whole hut is very like the one already described (Fig. 6) on Middle House Pasture. An internal partition wall enclosing a short paved area in the main enclosure remains a puzzle, unless it is an early or less developed form of wall passage. Two finely made flint thumb scrapers, probably of Bronze Age, were found on the site but these may have predated any structures which are recognizable today.

9. *PRIEST'S HOUSE, Great Close, SD 897674*. A massive rectangular house, 15 ft. by 9 ft. inside, with two slender partition walls, one cutting off a room at the south end, 8 ft. by 9 ft. into which there is an entry from outside at the south east corner. The narrower northern room is subdivided by cutting off a 3 feet wide portion at the front (Fig. 11). The walls of the building are made by a double row of large limestone boulders, up to 6 ft. by 4 ft. by 3 ft., set on edge giving inner and outer faces to the walls, 5 to 6 feet apart. The space between these two faces is carefully packed with limestone boulders but unlike the earlier structures there seems to be no use of gravel or smaller stone fillings. The floor is limestone pavement levelled up with small stones and covered with a layer of calcareous marl probably got from the nearby drained Great Close tarn. In the larger room there is a small hearth in one corner and, against the partition wall, a hollow stone which could have served for the footing of a central post to support the mid-point of a ridge pole for a gable ended roof. If timbers were footed on the walls and onto a central ridge tree they would give a height of more than seven feet in the middle of the house.

The finds in this building belong to two periods. A finely cast bronze circular brooch-like head, with pierced Celtic interlacing pattern in four quadrants, gold inlay in the main lines of pattern, and a small hole at two ends of a diameter, is in general form and size like the central one of three pins linked with chain found in the river Witham (Brit. Museum *Guide to Anglo-Saxon Antiquities*, 1923, pl. ix & p. 98). A break in the lower part of the disc between the two holes would agree with the break away of a pin similar to that on the Witham example, which is suggested as of late Anglo-Saxon date (Fig. 12, 1). Another bronze brooch of pennanular type accompanied articles of bronze identified as book edging, the tag of a book marker, a buckle "silvered" with pure tin, and other pieces of bronze which might well have been parts of a book cover ornament (Fig. 12, 2-5). These articles and the structure of the house agree very closely with structures and articles found by Sir Charles Peers (1943) in his excavation of the Anglian monastery at Whitby. This suggests that here we have the house or cell of an Anglian priest or hermit, probably of seventh century date. In the filling of the house a little mediaeval pottery and a hone of mica-schist, of a type imported from the Continent in Norman times, were found, and it may be that the builders of the adjoining Norse farm found some use for this older building after the eleventh century, or threw some of their rubbish there during the few centuries of their occupation.

10. *MEDIAEVAL FARM on Great Close, SD 897675* (Fig. 13). Like so many sites this was a low grass-grown rectangular bank without any distinctive

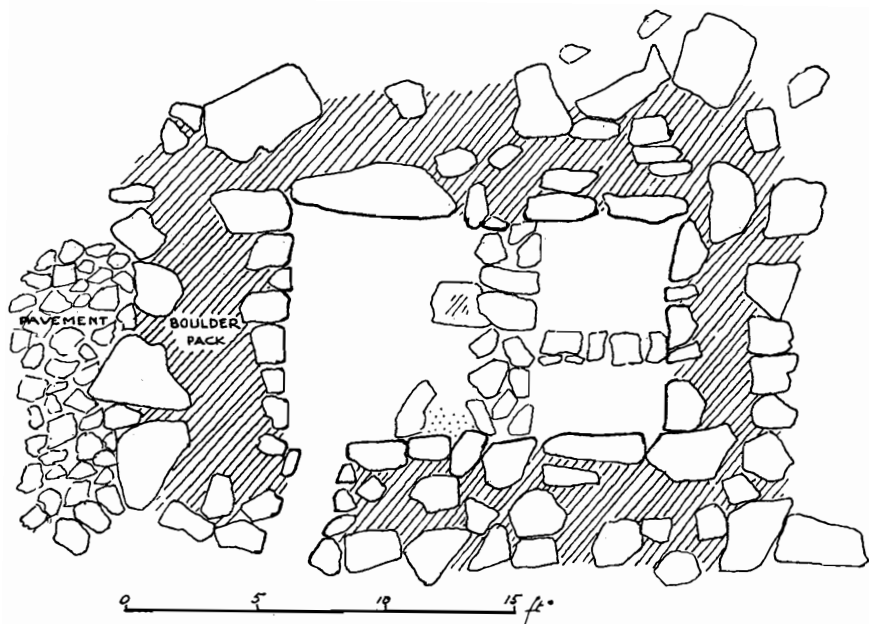


FIG. 11.
"Priest's House."

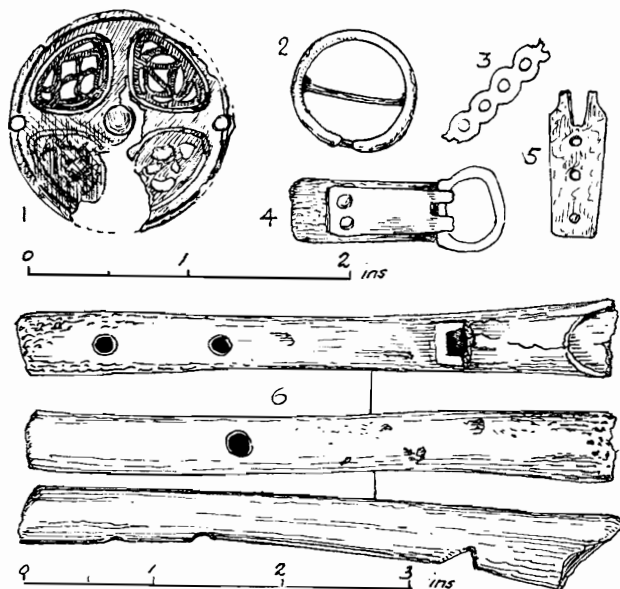


FIG. 12.
1-5, bronze objects from "Priest's House"; 6, bone pipe from Seaty Hill.

features. Excavation consisted first of stripping the whole site of its rough turf, which revealed a well built house, 25 ft. by 13 ft. inside with walls from 4 to 5 feet thick. The south end wall was slightly curved giving an apsidal end to the house. The first noticeable feature was the use of large limestone blocks up to 5 feet long, laid flat and not placed on edge, touching one another end to end and making a very good inner face to the building, with a slightly rougher outer face. In a few places the wall was two thin courses high. The space between the faces was carefully packed with small stone and the structure had every appearance of being the foundation for a timber superstructure. The entrance is at the east end of the curved south wall and leads to an area, one third of the interior, paved with heavy limestone blocks. The remaining two thirds of the floor was made with a gravel cover. Pottery was abundant in the unpaved area and many sherds of green glazed and decorated mediaeval ware were found (Fig. 14). There were several pieces of somewhat earlier pottery, and it is suggested that this is an early mediaeval farm house possibly belonging to the late eleventh or early twelfth century and remaining in use into the early monastic period. In the twelfth century Fountains Abbey had a grant of Malham Moor with its sheep farms and, as all their farms are accounted for on other sites, it appears that this and five other "farm" sites may be the remains of earlier farms abandoned when the Abbey took over the management of the moor.

Two of the other farm sites mentioned lie on Prior Rakes and one of these, SD 902649, is a rectangular building, 18 ft. by 8 ft. inside, with an entry in one slightly apsidal end, and walls of boulders laid flat, one course only. In this building there is some sign of six footings, one at each end corner and one at the middle of each long wall, which could have carried the feet of three timber crucks. A small charcoal hearth was found and some sheep ruddle, but nothing more. The second house not far away seems to be of the same structure. Two others lie on the western side of the Moor, one at the end of Lang Scar, SD 887652 and one on Ing Scar Crag, SD 892648. They appear to be of similar construction but have not been excavated. These houses are very comparable with a group at Hubbercove, in Wharfedale, which are believed to be the Norse settlement (now lost) of Hubbacove. All have the same structure of the walls and agree in dimensions and proportions. It is proposed to investigate more of these and to make complete excavations of some of them.

11. *SHEEPHOUSE on Prior Rakes, DS 905648.* This is a large site lying in the shallow grassy valley between Broad Scar and Abbot Hills, and before excavation seen as a group of rectilinear gravel ridges. The Compotus of Bolton Priory includes references to the Sheephous on Malham Moor (and also one at Appletreewick, still to be located), and items are frequent, both for ewe milk cheese sent to the Priory and for food sent to the shepherd and his men. There are also several accounts for loads of deals and other timber sent for the repair of the sheephous, so that between 1290 and the Dissolution the sheephous is documented. The occurrence of the two place names Abbot Hills and Prior Rakes framing these remains, and the fact that the Abbot of Fountains had leased this part of the Moor to the Prior of Bolton for a sheep

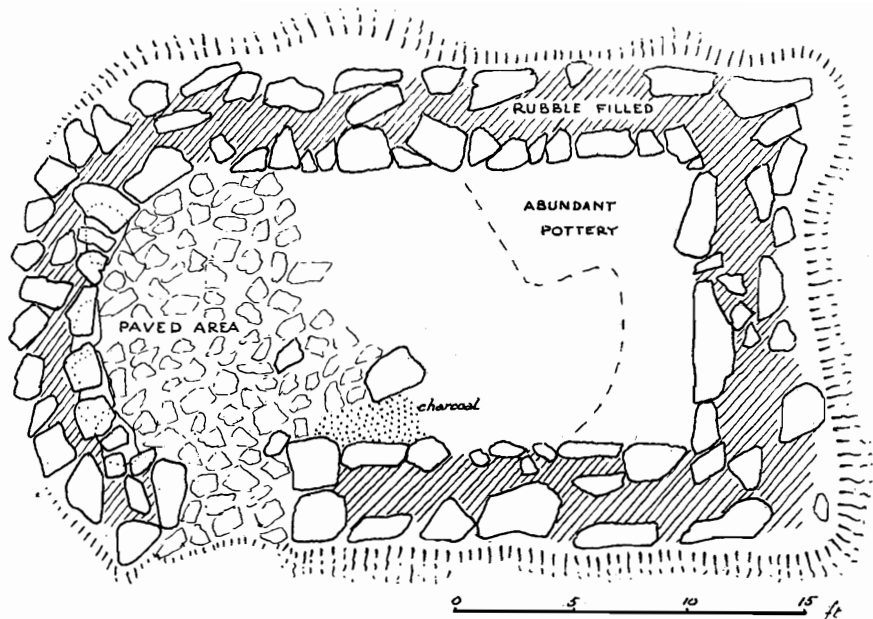


FIG. 13.
Mediaeval House, Great Close.

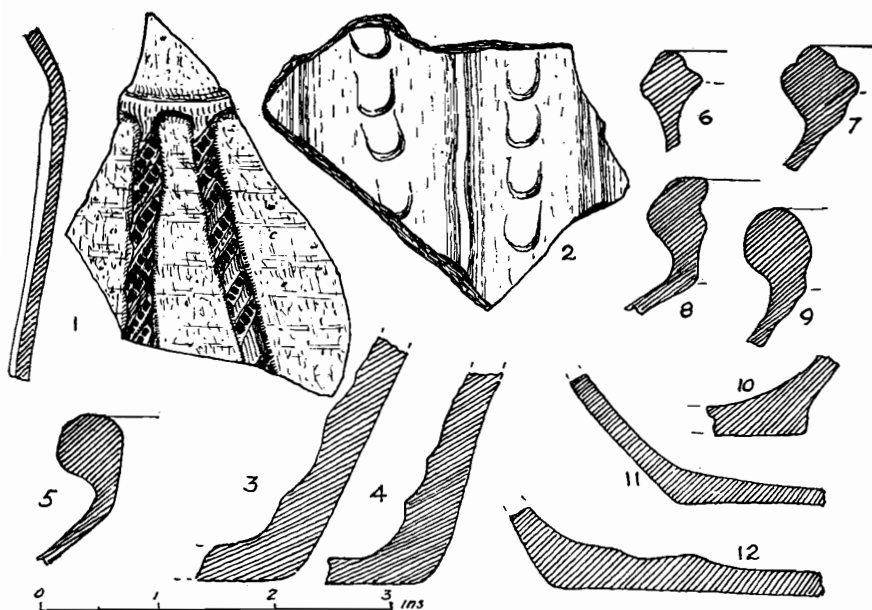


FIG. 14.
Pottery from Mediaeval House. 1-4, green glaze; 5-12, orange buff.

run, encouraged us to hope that here might be the sheephouse. Excavation has revealed the foundations of a large building, 48 ft. by 18 ft. inside, with wall foundations 4 feet wide and now about 18 inches high, built with large boulders on edge on the two faces, filled with a very careful packing of smaller stone, but with a well finished top. This is taken to be the foundation on which rested the timber built sheephouse (Figs. 15 & 16). In clearing this building a good adze head and a quantity of nails and small bits of iron were found. At one corner of the large building there was a smaller rectangular hut built on, with a hearth, and we assume this to have been the sheep master's house. On the east side there is a second enclosure with massive walls, the same length as the sheephouse, using its east wall for one side, and being 20 feet wide. On the three walls of this, other than the sheephouse side, there are good post holes at 35 ins. centres, extremely regular and assumed to be for the support of a post and wattle or deal fence. The sheephouse and the yard (this last enclosure) have each got an entrance from a large enclosed area of several acres lying north of the site and being, we assume, the sheep collecting pasture. Down the centre of the sheephouse and the yard there is a paved path of very large limestone slabs sometimes 3 feet across, making a path 4 feet wide. In the yard there are large stones set on edge parallel to the sheephouse wall and 8 feet from it, and on the inside of one or two of these, there were suggestions of a post hole. These could be footings for posts to support a lean-to roof. It is suggested that in the sheephouse the unpaved area each side of the central causeway was covered with a slatted wooden floor on which the breeding ewes could be wintered. The yard would be used, with the lean-to shelter, for milking and the large pasture as a restricted run for the ewes. During summer the many other sheep folds on the moor could accommodate a large flock, but through winter only a small breeding flock of possibly fifty or sixty ewes would be kept. On the limestone scar overlooking the site there is a small house which may have belonged to the shepherds, in which a hone, sheep ruddle, iron knife, and the straps and handle labels of an iron-bound bucket were found, with small pieces of fourteenth century pottery. A fuller description of the sheephouse site has been given by Raistrick (1956).

We are grateful to Professor W. F. Grimes for reading through the draft of this paper and for his helpful criticism.

REFERENCES

- GRIFFITHS, W. E. (1951). The Development of Native Homesteads in North Wales. *Antiquity*, **100**, 174-186.
- MANLEY, G. (1957). The Climate at Malham Tarn. *Rep. Field Studies Council, 1955-1956*, 43-56.
- PEERS, SIR C., and RADFORD, C. A. R. (1943). The Saxon Monastery of Whitby. *Archaeologia*, **89**, 27-88.
- PIGGOTT, STUART (1958). Native Economies and the Roman occupation of North Britain. In RICHMOND, I. A. (Edit.). *Roman and Native in North Britain*. Edinburgh.
- PIGOTT, M. E., and C. D. (1959). Stratigraphy and pollen analysis of Malham Tarn and Tarn Moss. *Field Studies*, **1** (1), 84-101.
- NEWBIGGIN, N. (1937). The Neolithic Pottery of Yorkshire. *Prehistory*, **3**, 189-216.
- RAISTRICK, A. (1929). The Bronze Age in West Yorkshire. *Yorks. Arch. Journ.*, **29**, 354-365.

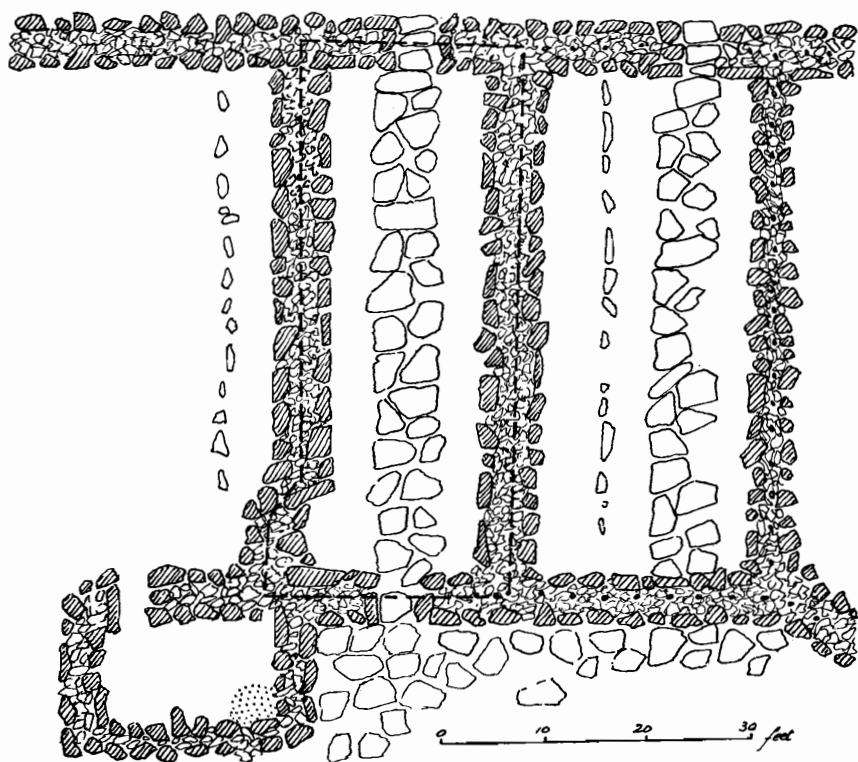


FIG. 15.
Sheephouse, Prior Rakes.

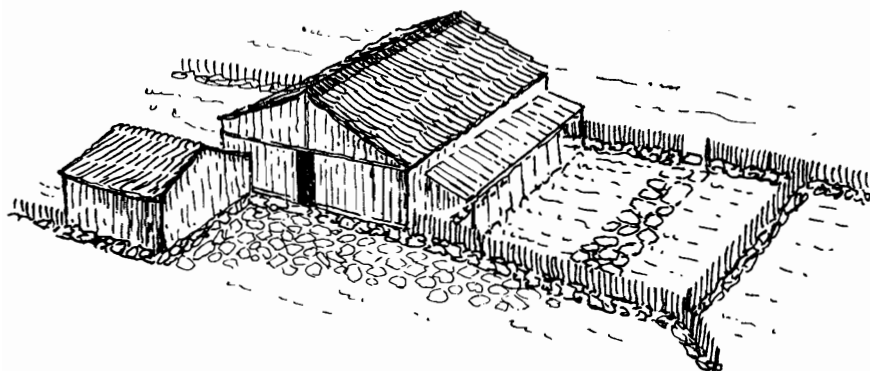


FIG. 16.
Possible restoration of Sheephouse.

- RAISTRICK, A. (1939). Iron Age Settlements in West Yorkshire. *Yorks. Arch. Journ.*, 34, 115-150.
- RAISTRICK, A. (1953). *The Role of the Yorkshire Cistercian Monasteries in the History of the Wool Trade in England*. Wool Education Society, London.
- RAISTRICK, A. (1954). Monastic Remains on Malham Moor. *Rep. Field Studies Council, 1952-1953*, 32-37.
- RAISTRICK, A. (1956). The Great Sheephouse at Malham. *Bradford Textile Society Journal*, 1954-55, 70-76.
- RAISTRICK, A., SPAUL, E. A. and TODD, E. (1952). The Malham Iron-Age Pipe. *Galpin Society Journal*, 5, 28-38.

APPENDIX A

*Sites excavated or examined with trial trench and surveyed**Bronze Age*

Seaty Hill burial mound	SD 907654
Sheriff Hill burial mound	SD 899641
Comb Scar house	SD 894648
Small burial mound	SD 907642
Dewbottoms farm	SD 912692

Iron Age

13 secondary burials, Seaty Hill	SD 907654
Stridebut Edge complex with 3 wall passages	SD 907638
Middle House Pasture	SD 901681
Shorkley Hill fields	SD 903638
Group of enclosed huts	SD 901639
Huts, enclosure and wall passage	SD 902640
Sheriff Hill wall passage and enclosures	SD 899641
Sheriff Hill fields	SD 900642
Trougate wall passage	SD 898647
Enclosure and huts	SD 895652
Hut circles under Torlery Edge	SD 899653
Field system on Broad Scars and hut	SD 902646
Four I.A. burials on Broad Scars	
Iron Age huts on Abbot Hills	SD 906649
Iron Age huts and enclosures	SD 906645

Dark Ages & Mediaeval

Norse farms (two)	SD 897675
Norse farms (two)	SD 902649
Priest's House	SD 897674
Sheephouse	SD 905648
Shepherd's house	SD 906647
Sheep folds in Trougate	SD 898647
Sheep folds on New Close	SD 910647

APPENDIX B

Changes of climate and vegetation on Malham Moor since Glacial times

Pollen analysis of peats and other deposits has made it possible to reconstruct the main changes in vegetation which have occurred in Britain during the last 12,000 years and the climatic changes which must have been responsible. Recent work on the Tarn and Tarn Moss by M. E. and C. D. Pigott (1959) has given the more local picture of these changes which are of direct relevance to the present paper. On the Tarn Moss a fairly complete series of deposits since the early Late Glacial are present, laid down in the shallow inflow end of a larger Tarn and then as a raised bog growing above the Tarn surface. During the Late Glacial period, ending about 8,300 years B.C., conditions here were severe with little tree pollen, except during the milder Allerød phase when Pine, Birch and Juniper were common. It seems that Upper Palaeolithic man did not reach as far north as this and his most northerly accepted station is at Cresswell Crags in Derbyshire. During the Preboreal and Boreal periods of the Post Glacial, which are generally taken to end about 6,000 B.C., the climate became progressively warmer and drier; Birch was followed up here by Hazel and then by Pine with Hazel. Towards the end of the Boreal the west end of the early Tarn was getting steadily shallower, so that finally fen vegetation spread right across followed by fen carr, and fen peat was formed in which leaves and rhizomes of the reed, *Phragmites communis*, are numerous. Today this plant is locally quite scarce and obviously near its altitudinal limit, confirming that summer temperatures in the late Boreal were a little warmer than today. From the peat of about this age, the Pigotts have recorded

Table showing rough correlation of post glacial events on Malham Moor

Date in years	Climatic Period	Probable Climate	Pollen zone	Dominant trees	Type of Man
1000 AD	SUB-ATLANTIC	Cool and much wetter	VIII	Ash Alder (Oak, Beech)	IRON AGE
500 BC					
1500 BC	SUB-BOREAL	Cool and dry becoming warmer	VII b	Alder Oak (Lime, Ash)	BRONZE AGE
3000 BC					
6000 BC	ATLANTIC	warm and wetter	VII a	Alder Oak (Hazel, Elm)	NEOLITHIC
	BOREAL	warm and dry	VI	Pine Hazel	MESOLITHIC
			V	Hazel	
8300 BC	PRE-BOREAL	Cool and dry becoming warmer	IV	Birch	

small and temporary rises in the pollen of certain weeds which are usually associated with human settlement and disturbance (Plantain, Nettle and members of the *Chenopodiaceae*), and together with traces of charcoal at the same level these can be taken as signs of Mesolithic man living in the immediate area.

After about 6,000 B.C. a climatic shift began towards wetter but still warm conditions (Atlantic period); Pine declined and Alder became dominant, with Oak and some Hazel and Elm. Probably much of the area was completely covered with woodland or scrub, as indicated by the small proportion of grass to tree pollen, but the presence of some open ground is confirmed by pollen of Rockrose (*Helianthemum*). In a countryside which was mainly forested the Moor may have remained attractive to Mesolithic man for this reason. The increased rainfall favoured the development of *sphagnum* peat and the raised bog began to form on the Tarn Moss. Some peat also began to form on the higher slopes of Fountains Fell though most of the blanket bog there developed a good deal later.

Soon after about 3,000 B.C. the climate began to change again towards drier and perhaps less windy conditions (Sub-Boreal period). There is an abrupt rise in the proportion of herb to tree pollen which probably corresponds to Neolithic forest clearance, and the Neolithic polished flint axe from Fountains Fell suggests that the clearance was also local. It is difficult to date the beginning of Bronze Age times here, and indeed the Neolithic probably merged gradually into it; 1,500 B.C. is about the date of the pottery from the Sheriff Hill burial. Peat continued to form on Tarn Moss during the Sub-Boreal but the increasingly dry and warm conditions in the north of Britain may have halted this on the higher slopes of the fells during its later stages, and peat erosion may even have taken place. The tree line became much higher than today and remains of Birch trees are found at over 2,000 feet in West Yorkshire; Hazel nuts have been found preserved beneath peat at 1,750 feet on Fountains Fell and remains of Birch growing there on peat suggests this period. Bronze Age man may thus have experienced a decidedly pleasanter climate on Malham Moor than we enjoy today and been able to occupy sites that are now too exposed and wet to seem tenable.

About 500 B.C. the climate rather rapidly began to get wetter and colder again (Sub-Atlantic period) so that by the second century B.C. and throughout Iron Age times the Moor must have presented a very different picture. Peat formation was renewed on the higher drift covered Yoredales and a rapid growth of blanket bog took place there, killing off high level Birch and lowering the tree line by several hundred feet. There is a tremendous increase in the proportion of herb pollen in the Tarn Moss deposits, partly due to spread of heather and cotton grass over bog surfaces, but high frequencies of plantain, dock, *Chenopodiaceae* and *Ranunculaceae* are clear evidence of widespread Iron Age destruction of woodland and an increase of grazing and cultivation. There is an increase also in the frequency of Ash pollen which is probably related to its ability to regenerate quickly on cleared woodland soils, when other trees have been eliminated. Most of the surrounding valleys of the Dales have contained extensive postglacial lakes dammed by terminal moraines and these probably remained as open water through the Sub-Boreal. With the increased rainfall of the early Sub-Atlantic the bottoms of these lakes became rapidly silted up, and the increased volume of water would enormously increase the cutting power of the outlet streams so that they were all drained; dateable remains from these lake bottoms suggest that this had happened by 200 B.C. Under the wet and unpleasant climate prevailing, with bog on higher ground and marshy conditions in the valley bottoms, the limestone plateaux of Craven and the limestone terraces on the valley sides must have become oases of good dry pasture, with excellent drainage and wind shelter among the scars. Almost all Iron Age settlements in Craven are in fact sited in these places.

The exact places chosen for living sites on the Moor both by Bronze and Iron Age people are, however, often difficult for modern man to rationalize. There is no constant direction from which they have sought shelter; some hut circles and enclosures may be sheltered from the north-east, but not far away will be one sheltered from the westerlies. After some experience one begins to know the sort of place in which to expect a site, but frequently it is found that what appears to be an "ideal" place has not been used. We have been forced to the conclusion that their exact selection of a site bears no easy relation to any factors which we can visualize today, and that they must have been influenced by considerations of which we have no knowledge.

Certain of the limestone pavements on Malham Moor have the remains of collapsed enclosure walls running across them; on the extensive pavement of Broad Scars, for example, is a whole system of Iron Age fields and there must surely have been a thin covering of soil and turf when the walls were built. Continued grazing and cropping, combined with subsequent climatic changes, must have removed this covering and exposed the clints and grikes. It is generally

considered that the sixth to ninth centuries included a period of considerable drought and that the eleventh century saw a period of heavy rains. It may be that the dessication of this period following the disturbance by hoe cultivation in the Iron Age, and followed by the period of heavy rainfall, was a potent factor in spreading the erosion of the soil to produce the extensive limestone pavements over which the Iron Age field boundaries now wander in apparently absurd style.

Other pavements may have been exposed very much earlier and developed woodland with trees growing out of the grikes, as can still be seen today in places such as Colt Park in Ribblesdale, which have been protected from grazing. Further light may be thrown on the problems of pavement colonization and exposure by experiments which are to be started at the Field Centre shortly.