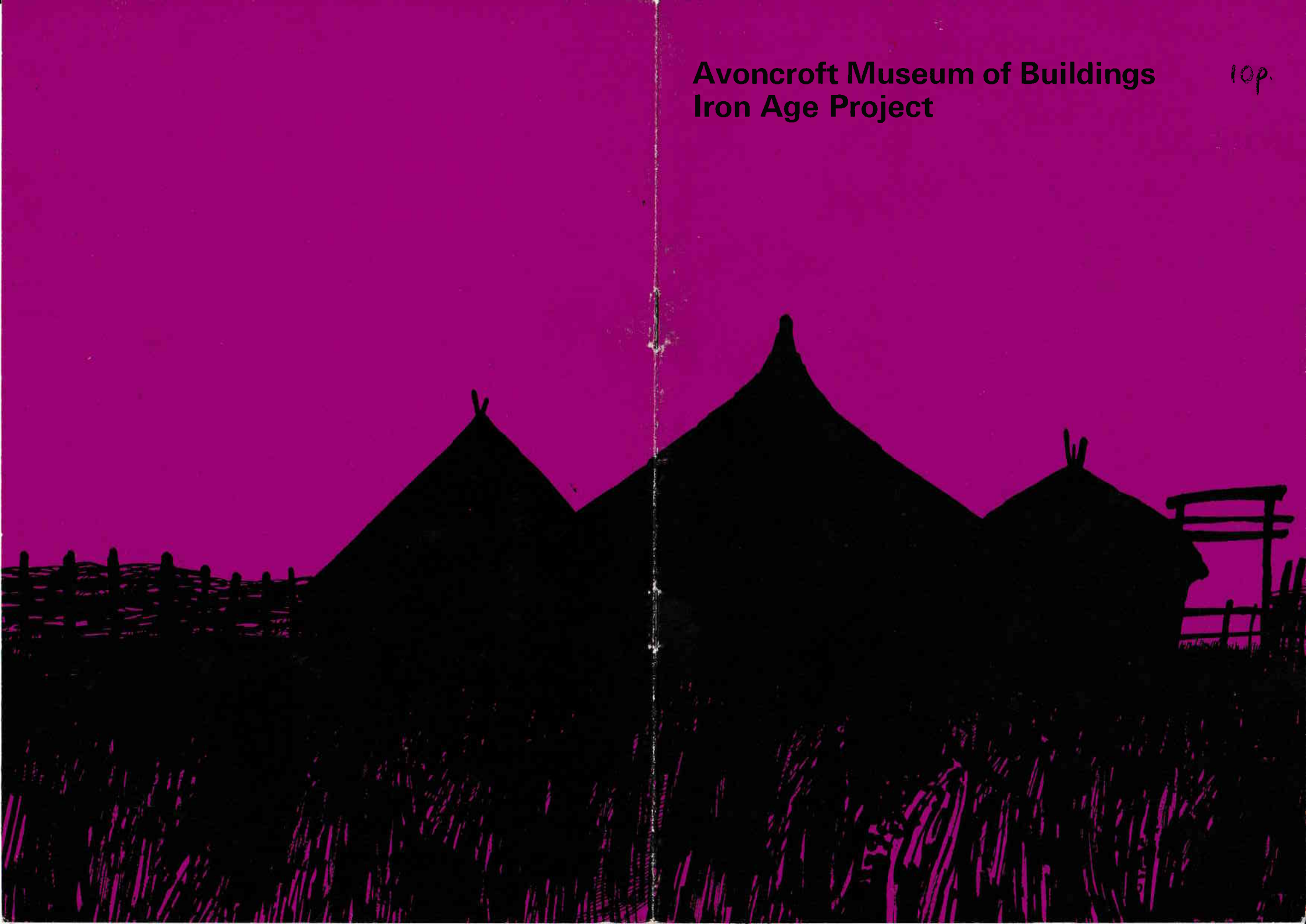
Avoncroft Museum of Buildings
Iron Age Project

10p.



Introduction

The Iron Age project was started in 1969, and is under the direction of Peter Reynolds, MA, who has written this booklet. The work has been carried out by student and undergraduate volunteers. The purpose of the project, which is a continuous one, is to examine and interpret archaeological evidence in three dimensions. It represents the initial phase of experimental archaeology of the prehistoric period, and as such is unique in this country.

This particular project differs radically from the other buildings in the Museum in so far as the structures are largely conjectural. One can take down a timber-framed building, even in an advanced state of collapse, and, replacing rotted or destroyed timbers, re-erect it with a fair degree of accuracy because there are either records to work from or similar buildings still standing. However, there are virtually no buildings of the Iron Age period still in existence in this country. The remains of this period which spans over 900 years, (C.900 B.C.–43 A.D.) are obtained directly from archaeological excavations. The evidence provided by such excavations is naturally very limited. Often the only indication of a building is a circle of post-holes or a shallow gully containing small dark patches of stain or more rarely a wall foundation of one or two courses of stonework. Sometimes even this evidence is largely destroyed by deep ploughing. Consequently the archaeologist has an extremely difficult task when he attempts to explain this evidence in terms of structures and buildings. It is easy to understand the complexity of this task if one considers some of the beautiful timber-framed barn structures, still to be seen on many farms, which stand on several staddle stones. Archaeologically the evidence for such a building, even if it could be observed, would be a few depressions in the ground and at best perhaps a few fragments of one or two staddle stones. It would be impossible from this evidence alone to imagine such a building.

However, with regard to the Iron Age, the situation is not quite so impossible. Our knowledge of this prehistoric period is steadily increasing not only in bulk but also in quality as excavation techniques steadily improve. Despite our increased knowledge, or rather because of it, our interpretation of what has been found needs to be more stringently examined and wherever possible tested by practical experiment. At Avoncroft this is precisely what the Iron Age Project has set out to do. Two major questions are posed – Why and How? All the buildings and the experiments in this area of the Museum are testing theories, seeking to explain evidence provided by excavation and attempting to establish better techniques of excavation to gain the maximum amount of evidence from any one site. By reconstructing buildings and investigating by experiment our contribution is three dimensional. At the same time our work is conjectural and it is never claimed that we are right. Our answers are always subjective and, more important, always open to suggestion and improvement. It is better to suggest an answer than to ignore the question.

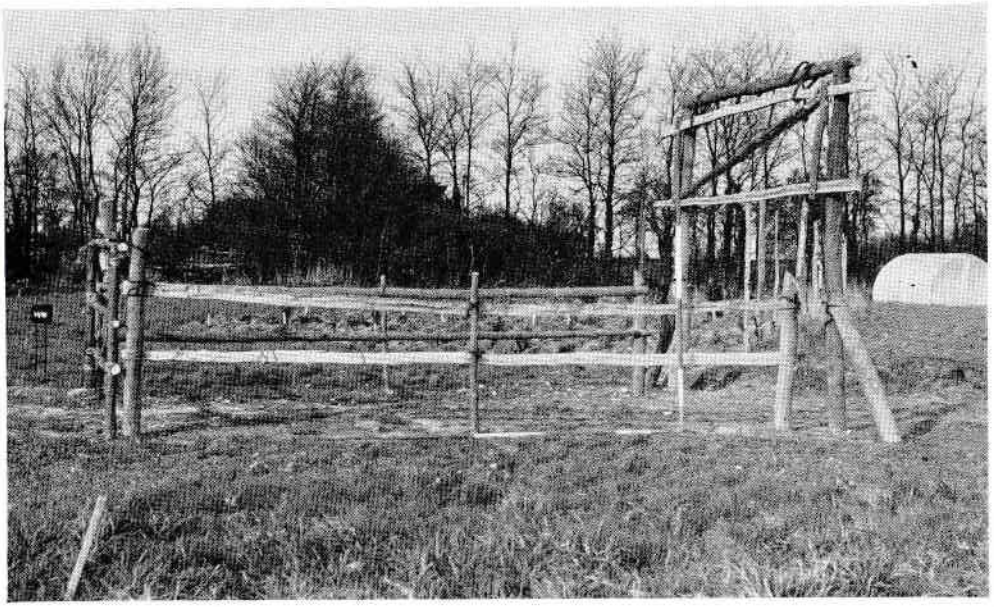
The boundary

The ditch, rampart and palisade

During the Iron Age period small farmsteads containing a few roundhouses and barns, were usually encircled by a simple ditch and bank with a palisade fence being set into the top of the bank. Its purpose is likely to have been to keep out animals, both wild and domestic. The ditch and bank at Avoncroft is modelled on evidence from a site at Tollard Royal in Dorset. The bank is of the dump variety, made from the soil dug out from the ditch. In the ditch near the entrance is a silt indicator. In three years, since 1969, only five centimetres of silt has accumulated in the bottom of the ditch.

The Gateway

This reconstruction is based upon a pattern of postholes revealed during the excavation of the entrance of a 'banjo' type of enclosure at Bramdean in Hampshire, carried out by Dr. B. T. Perry. The purpose of the enclosure which in plan is shaped like a banjo is thought to be concerned with animals, a kind of fold with a gathering pen in the entrance. In the original structure the major posts were almost four times larger than the ones used in the reconstruction and the visitor is asked to imagine the same structure but with much more massive timbers. (Built in 1972).



The Conderton Round House

In the British Iron Age the tradition of living in predominantly round houses was maintained until the Roman invasion of 43 A.D. and quite probably in certain areas for some time after that date. The round houses fall into three major categories: small structures with a diameter of 4–5 metres, structures with an average diameter of 8–10 metres and the very large structures of 15 plus metres in diameter. The Conderton Round House falls into the middle category.

The evidence for this structure is drawn from an excavation carried out in 1959 by Mr. Nicholas Thomas, Director of Bristol Museum, on Conderton Camp on Bredon Hill in Worcestershire. The excavation revealed the foundation courses of a circular wall over a metre thick and some 10 metres in diameter. During the excavation a segment of the stone scatter was collected and rebuilt on to the wall foundations to attempt to discover the original height of the wall. The result of this experiment suggested a wall the section of which was over 1 metre square.

Using this evidence the reconstruction was built to exactly the same ground plan and approximately the same wall height. A couple of courses of stone work were added to compensate for the possible loss of stones by plough action.

Thereafter the structure is conjectural. The basic arguments used in the reconstruction are as follows:– There was no evidence for any central support for the roof. Therefore the roof span is supported by the wall alone. The climate of this country, little different now to the Iron Age period, demands a pitch of 45°

for a thatched roof. Consequently, though the building detail may be wildly inaccurate, the basic shape is correct.

During the reconstruction several important facts were discovered. The building has to have a wall plate to support the roof poles or rafters in order to spread the thrust of the roof around the wall. The wall plate consists of notched and jointed timbers set into the inside edge of the dry-stone wall. Without such a plate, the thrust exerted by a single pole is enough to break down the stonework. The second fact that quickly emerged was the need for a ring beam in the apex of the roof. A ring beam is a circle of withes lashed to each other and then lashed to each roof pole. With each lashing the ring beam becomes progressively stronger as the distance between the lashings decreases. In this case after half a dozen poles had been erected the apex where the roof poles crossed became full, and in order to put up the remaining poles a ring beam was positioned about a metre below the apex. The remaining poles were notched and tied to the ring beam.

Throughout leather thongs were used for lashing. To provide a satisfactory bedding for the thatch, withes were interwoven between the roof poles and covered by a layer of hay. In this way there was a thick enough layer to support the thatch and hold the pegs tightly in position.

There is no hole in the roof, nor is there need for one. The small amount of smoke from the domestic hearth, usually centrally placed, percolated slowly through the thatch. Probably meat was hung in the roof to be smoked in the same way as in farm houses less than a hundred years ago. It is also probable that inside such a round house all the normal domestic tasks would have been carried out; spinning, weaving, leatherworking, pottery making, cooking, eating sleeping, etc.

Statistically there are 52 tons of limestone in the drystone wall and some 8 tons of roofing material. The outside diameter of the building is over 9 metres while the external height to the apex is 6 metres. (Built 1970-71).

The Glastonbury Round House

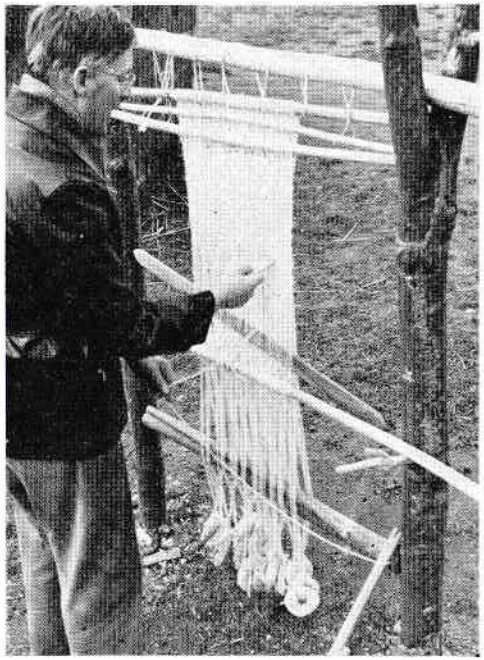
The smaller round house inside the enclosure is based upon evidence drawn from the Glastonbury and Meare Lake Villages in Somerset. Whereas the Breiddin and Conderton round houses are specific reconstructions of particular ground plans, this structure is a general interpretation of the Glastonbury archaeological investigations. Simply it is a circle of fairly heavy posts, wattled and daubed, which make the wall. Its major difference lies in the central tripod of poles which support the roof structure. Of the three houses, it is the simplest and least sophisticated. It was built in 1969 and the initial deterioration of the daub can clearly be seen. In an everyday domestic situation, the walls would be kept in good repair. The Glastonbury round house belongs to the first category of Iron Age houses being slightly less than 5 metres in diameter. Nonetheless it still has a degree of spaciousness that rectangular buildings of the same volume seem to lack. It is difficult to determine the function of these smaller buildings but there is no reason why they should not have fulfilled a complete domestic role.

The Breiddin Round House

The Round House immediately outside the compound is particularly interesting because of its flimsy construction. The evidence for the round house comes from a recent excavation directed by Mr. C. R. Musson inside the Breiddin Hill Fort in Montgomeryshire. The ground plan is in fact, an amalgam of several round houses. The evidence consists of a narrow circular gully about 7 metres in diameter, in the bottom of which small stains were observed which have been interpreted as the remains of stakes which formed the uprights of the wall. Clear evidence of earth and stone packing was also obtained and, of course, the more substantial holes which took the lintel and porch posts. Here all the evidence has been reconstructed, the narrow gully, the thin stakes driven into it and the earth and stone packing. With the daubed wall, this gully effectively becomes a damp course. Thereafter the structure becomes conjectural. The roof, if it was thatched, must be pitched at 45° if the straw is to be weatherproof. The wall height is arbitrarily fixed at 1·50 metres which means that adequate headroom is provided close to the wall. One most interesting feature of the reconstruction is the number of ring-beams used in the roof structure. Each of these was considered necessary to stop the roof from spreading and so forcing the walls outwards. Note too the necessary double-notch on the roof poles where they are lashed to the wall plate. The construction of the roof presented the same problems as the Conderton Round-House where the apex quickly became full and necessitated a supporting ring beam for the remainder of the roof poles. (Built 1972).

Agriculture

Spinning and Weaving
The practice of spinning and weaving is well attested by the finds of many loom weights, stones or baked lumps of clay with holes pierced in them, and spindle whorls, small discs of stone or fired clay with a central hole. There are a variety of types of looms including the upright loom which can be seen in the Conderton Round House. The principle of weaving remained virtually unaltered until the industrial revolution and this type of loom would be typical of many periods. Spinning by hand is exactly the same as it ever was, the only point being that different weights of spindle whorl were used for different types of thread, a heavy one for wool, a light one for nettle thread or flax.



Ploughing, Sowing and Reaping
Experiments in the full agricultural cycle have already been carried out at Avoncroft. In the Iron Age the farmer used an ard which is simply a device which scores a furrow in the earth. The plough which turns the soil over was a later introduction. An idea of what an ard looked like can be seen from the reconstructed example inside the Conderton Round House. The ard is a most efficient tool being able to produce a furrow some 25 cms deep even in heavy soil. The sequence of ploughing and sowing was virtually the same as today except that there is no evidence at all of any kind of harrow. Therefore it seems unlikely that seed was broadcast in the biblical manner. Probably it was carefully planted in seed furrows in a prepared tilth. The whole process of ploughing and sowing received great attention as indeed did the reaping. A classical author tells us that only the ear was reaped and the many small sickles recovered from excavations, usually with a 12–15 cm blade, would agree with this statement. Probably there were two phases of reaping, first the ear was cut, and then the straw which was carefully bundled into yelms to be used either as thatch or for domestic purposes.

Emmer and Spelt
In the field in front of the compound are grown two primitive forms of wheat, emmer and spelt. At some time in the Neolithic period in the Middle East it is thought that a spontaneous cross occurred between two wild grasses which gave rise to a wheat called *Triticum Dicoccoides* or Emmer Wheat wild. Its cultivated form, called *Triticum Dicoccum* was certainly grown in Egypt in 5000 B.C. and grains have been found in the Egyptian tombs.
Spelt is supposed to be the product of a further cross between a third wild grass and emmer at some time in the Bronze Age probably in the Crimean Peninsular. Certainly both types of grain were grown in this country in the Iron Age. They are both bearded wheats and, in appearance are similar to barley. Both are quite difficult to thresh. As soon as we have a sufficient supply of emmer it will be stored in an experimental grain pit while the straw will be used for thatching one of the round-houses.

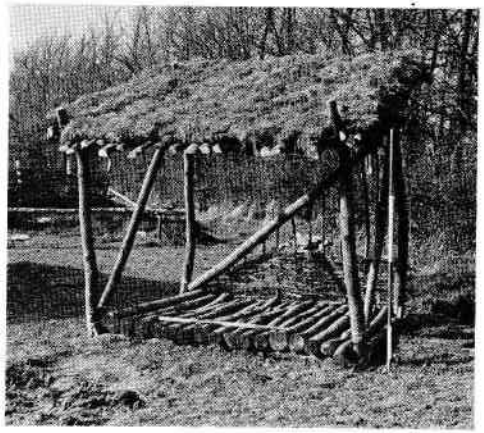
The Storage Pits

During the Iron Age the farmer stored at least some of his grain in underground pits. It is thought at present that he stored seed grain separately in special above-ground granaries. Within the compound can be seen several pits which have been used in recent and current research experiments. Each pit can hold just over two hundred weights of grain but in comparison with the large pits which could contain many tons, excavated on Conderton Camp and elsewhere, they are very small. The principles of storing grain in a pit in the ground is quite simple. Because the grain is in a sealed container, at first it continues to grow using up oxygen and giving off carbon dioxide until all the oxygen has been used up. Thereafter it reaches a state of dormancy until more oxygen is reintroduced when the grain re-commences its growing cycle. While we are aware of this as a scientific fact, prehistoric man probably discovered the principle by accident, possibly as early as the Neolithic period. On the site a series of experiments have been conducted specifically examining the effects of different kinds of lining. There is archaeological evidence for basket, stone and clay linings for pits as well as the unlined variety where the grain is put directly into a hole in the ground and then sealed off. The best results have been obtained from the unlined pit inside the Glastonbury Round House while the most effective of the outside pits has proved to be the clay lined one.

In general the experiments have provided some interesting and valuable results. One remarkable result is that seed grain can be successfully stored in a grain pit provided the concentration of carbon dioxide gas does not become too great. However, there is a need for further research into storage pits if we are to gain a greater understanding of agricultural economy.

The Barn

On many Iron Age sites archaeologists find rectangular groups of four post-holes, often set apart from the major settlement area. Traditionally they are interpreted as the holes which took the corner posts of an above-ground granary. In the opinion of the author, however, these structures are more likely to have been straw barns for two major reasons. First, the fire hazard, since straw is far more combustible than grain and therefore needs to be stored at a safe distance from the settlement and second, because of the lack of positive evidence to determine their function as granaries. But, bearing in mind the staddlestone argument used in the introduction, to reconstruct a building from four postholes is virtually impossible. This structure, therefore, is extremely dubious and is offered as a logical interpretation based on proportion and the application of simple building rules.
The turf roof would minimise fire risk while the raised floor would help to keep the straw dry. Probably the rear and the sides would have been filled with wattling and the more protected front left open. The barn as it stands would hold the straw from one third of an acre, the approximate size of a celtic field. (Built 1972).



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