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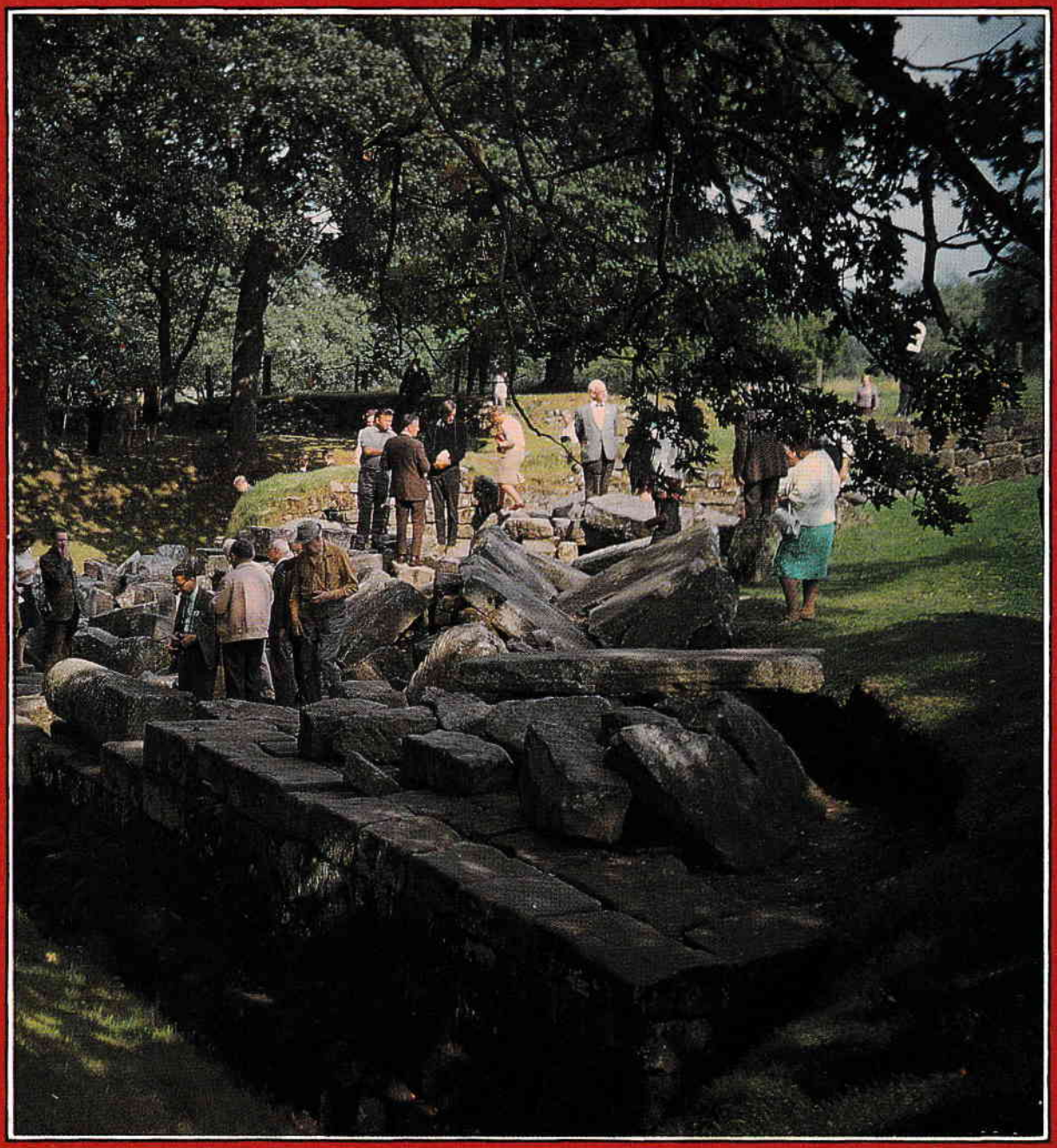


RECONSTRUCTION OR CONSTRUCT THE PIMPERNE HOUSE

by Dr. P. J. REYNOLDS

If ever there was a building boom it has to be in the business of reconstructing the past. In the last decade throughout Britain and Europe more prehistoric houses have been built than at any time since they were built with the serious intent of domestic occupation. It is, of course, a critical element in the process of interpreting the past, in making sense of patterns of post-holes or the waterlogged stumps of posts and stakes. However, the reasons for building all these structures rarely include a specific investigation. In fact, the vast majority are built as demonstrations in museum contexts or for educational purposes or even for entertainment. In this last category it is interesting to observe how frequently re-constructions of historic buildings are to be found in theme parks, the directors of which feel a spurious need to offset the pleasure machine experience with a little serious education. On a recent visit to such a park in Southern England on an extremely pleasant day, when the average queuing time for each three minute experience was over an hour, the only feature without a queue or, indeed, an attendant, was the educational centre. After all, who wants to mix pleasure with education, especially if its called that and lacks the 'buzz-invitation' of an experience?

However, in education terms a structure is an invaluable teaching aid. For children of all ages to be able to touch, feel, smell, poke and pry into a full scale building is to come to terms with a reality. The process of entering inside a house and to be encompassed by walls and covered by a roof is directly relevant to everyday life and instantly allows comparisons to be drawn both for the scale and the materials. Yet there are seemingly two dangers inherent in this exercise. The first is that of simple inaccuracy. A Saxon House, an Iron Age House, a Roman Villa — what degree of certainty, of proof, can there ever be? Does it really matter as long as the experience is had? As long as the label is clear, is the detail really important? The second danger is consequent to the first. Having labelled the building why not re-enact the domestic scenario? Why not get the feel of the period? Let us dress up and find out how the past really was — but only for a lesson or so, a day, a weekend. The hands-on experience is the proper title. There is little doubt that it is an excellent way to find out. Doing is learning. The dispute really begins when the question, regarded as cynical by true believers, is asked — learning what? If the structure is in doubt then the learning is in even greater doubt. The finding out is not, in fact, concerned with the past but rather the present self-discovery of the individual. So many such assays are reported which read like survival courses for the downwardly mobile. Some years ago a BBC film was made of a group of young people who were constrained to live an Iron Age way of life for a whole year. As an early soap opera it offered considerable insight into both the actors, for such they surely were, and those behind the camera. Its value in understanding the Iron Age, the avowed intention, was minimal. Its great success was in re-inforcing a standard prejudice that the past was peopled by under-achievers.

The museum life size structures almost have the same effect except that they are untouchable. The presentation is all

ABOVE: The outer wall of wattle and daub in place and the continuous rail set on the inner ring.

pervading, the obseqious six inch nail which holds everything together is hidden round the back or cloaked with black paint. After all the purpose is to give the impression and accuracy is not a primary concern. In a modern sense its like showing a computer which doesn't compute but you are not allowed to press the keys to find this out.

There seems to be a great confusion of practice and principle accompanied by a deliberate decision to ignore the fundamental issue of whether accuracy, in so far as it is possible, is important. The feeling rather than the fact takes precedence.

Against this background it is perhaps of value to consider the terminology itself. Strictly a reconstruction is the rebuilding of a structure either on its original location or elsewhere, which has fallen down or deteriorated and would otherwise be lost. In this strict sense reconstructions are to be found generally in museums of buildings where structures have been carefully put back together again and restored, quite deliberately, for a variety of reasons including demonstration, education and heritage maintenance. By the same token many historic buildings are lovingly reconstructed and restored *in situ*. there is no dispute that this is anything but a most important exercise in that each generation is responsible both for the future development of society and the maintenance of the best of the past. It does mean that reconstructions are, in fact, restricted to actual buildings enough of which is exstant to allow a reconstruction to occur.

In the sense of the remote past this is clearly not possible since the remains are extremely slight comprising at best waterlogged timbers, at worst patterns of postholes. In effect all the purported reconstructions of Neolithic, Bronze Age and Iron Age buildings are really constructs. They represent the physical products of a deductive process. Indeed, if the word 'construct' were used perhaps it would engender more careful thought about subsequent use rather than a simplistic emotional response and thus allow a more appropriate approach at every level of prospective user. It is somehow more applicable and certainly more appealing today to teach the deductive process and use archaeological data on the ideal medium for that purpose. Reaching a conclusion by reasoning is, at the very least, the heart of education.

Given this argument and the principle of a construct of prehistoric houses rather than reconstructions, the buildings which have been erected at the Butser Ancient Farm can be more easily understood. In general terms building a prehistoric house is an experiment like any other in that the possibilities and probabilities are being explored by empirical means. A large number of houses have been built over the last seventeen years of which but a few have survived the test of time. Indeed, it is the test of time which can confirm or deny the value of a construct. One particular example was a roundhouse based directly upon the excavated evidence of a structure at Maiden Castle in Dorset. Unusually there was a central post in the evidence which was taken to be a structural element. The house was initially extremely successful. The wattle walls were daubed appropriately, the rafters were lashed to the sides of the wall posts with rawhide, the principle rafters were lodged in a 'V' fork of the central post, subsidiary rafters were attached to a simple ring beam a third of the way down the slant height, the roof was thatched and a pivot hinged split oak plank door finished the building. It fulfilled all the criteria of a construct except for the testing passage of time. In fact, it withstood gales and storms, snow and ice without any difficulty. Interestingly the cavity beneath the daubed wall was colonised by rats who changed the evidence from post-holes to a gully. However, after ten successful years the rawhide lashings tieing the rafters to wall posts began to give way. Gradually the roof began to sink downwards and crush the brittle daub and now dry wattlework. After steady sinkage, at roughly fifty millimetres per annum, three years later the building collapsed. The central post held the apex firm and in simple terms the roof twisted around this pivoted point and closed like an umbrella. There was, in fact, a major design fault in the building. The rafters require to be notched onto the top of the post or stakes in the wall. Had this been done originally the building would still be standing.

The simple lesson learned from this experimental construct is that a building must be studied through time. It is not enough to create a construct and because it stands up pronounce it an accurate representation of the archaeological data. In this sense drawings of constructs are far safer especially when detail is shrouded from view.

One of the biggest constructs undertaken to date at the Butser Ancient Farm has been the building of the Pimperne House. The archaeological evidence for this building was, and in many ways still is, the best dry land evidence of a ground plan of a large Iron Age House available to us. The excavation was carried out by Professor D. W. Harding in the 1960's. The accompanying photographic sequence tells the story of its building in 1976. The construct faithfully utilises the archaeological evidence throughout, a process which yielded remarkable insights which no amount of technical drawing would have or, indeed, did isolate. The structure is conceptually quite simple once the physical scale of it has been appreciated. It is just under fourteen metres in diameter yeilding a floor area in excess of the average modern family house. The structure is based upon a double ringwork of an outer wattle and daub wall and an inner ring of posts surmounted by a continuous rail mortice and tenoned onto the top of the posts. The porch, which projects from the south-eastern quadrant, counteracts the break in the ring by its massive construction. Quite simply the wall and post ring form a powerful cylinder upon which sits the cone of the roof. It was the construction of the roof which focussed the problem quite acutely. In order to span the distances involved actual trees were needed, trees which weighed several hundredweights. The only way was to set the base of the principal rafters onto the ground and lean them against the wall and inner ring. The unsuccessful attempt to joint them directly in place almost led to the early abandonment of the Butser Ancient Farm Project. The question posed the presence of archaeological evidence for this system. The evidence was there. A series of curving slots outside the wall but concentric to it had been earlier dismissed because they were incomprehensible. Now they indicated the presence of six principle rafters and given the critical 45 degree pitch for a thatched roof gave proof to a wall height of 1.5m. The ring beam in the roof construction is critical to force the rafters apart and maintain the shape of the cone. Without it the timber rafters sag under their own weight. The curving nature of these slots was appreciated once these six rafters were in position. The cone of the roof must sit exactly central on the cylinder. During the building of the ring beam the rafters had moved position and had to be adjusted. This ▷

BELOW: The hexagonal ring beam set a third of the way down from the apex of the roof.

was achieved by moving the bases of the principal rafters. Each one had to be moved and in so doing replicated almost exactly the original evidence but not, it must be said, in the same places around the building. On completion of the building these rafters, which extended to the ground outside the circumference were checked to see if they were load bearing. The logic of the building argues that on completion all weight thrust exerted by the roof on the wall and ring should be vertical and, indeed, this was the case. There was no load on the principal rafters at all. They were left in place for a subsidiary experiment seeking to establish how long they would last before rotting away. Critically, however, it allowed for the first time a distinction to be made in the archaeological data between constructional and structural detail and thus completely justified the experimental construct even if it had stopped at this point. The remaining story of the building is adequately explained by the pictures.

Once completed the Pimperne House offered a great many implications. Essentially even if the actual detail of joinery and the method of thatching are in error, the evidence undeniably proves that the building accurately contains the right volume with the correct materials. This particular construct can be 'experienced' in these terms at least. The materials required for its construction are no less surprising. Over two hundred trees enhances the accepted premises that woodland management was a major element of farming practice in the Iron Age. Hazel coppicing similarly represents an integral part of the farming year for both fences and building. Ten tons of clay were required for the daub for the house, a tonnage which had to be hauled some distance to the original site at Pimperne. The straw for thatching comprises a minimum of five tons but herein lies a minor problem. Because of financial constraints the straw was put on at just 100mm thickness in 1976. Ideally it should have been 300mm thick. This some twelve years later has been corrected by the application of a second layer of straw, usually called a half-coat, which brings it up to the required thickness but increases the weight by a factor of three. Fifteen tons of straw at an average yield of a tone per acre has implications for cereal production and the amount of land in cultivation. Perhaps more importantly the physical act of thatching the roof has implications far beyond the material requirements. While in any construct seeking to elucidate the remote past no account must be taken of the time taken to achieve an end product because it begs the question of skill and motive, in this case a probability can be explored. Consultations with professional thatchers gave a basic consensus of opinion that six weeks work was represented by the roof area. The scale argued a complex task and not a co-operative neighbourhood scheme. Consequently it seems most likely that such houses imply the presence of a professional thatcher.

The completed house is particularly pleasing, the exterior rather belying the sheer size of the building. Nonetheless it is still a construct, its accuracy a high probability but it is not an Iron Age House. As a modern experimental construct it affords a tremendous opportunity for second phase study. This study is similarly restricted because while it was originally a domestic unit it is not now and is certainly not exploited as such because there is no substantive evidence either for the how of its use or even for the disposition of activity within it. Sensibly one can study the effect of the environment upon the structure and the effect of the structure upon the evironment. To date, apart from the need to increase the thickness of the thatch to minimise bird and wind damage, two major observations have been made. The first concerns the only posts exposed to the atmosphere, these being the doorposts of the porch. All the other posts are protected by daub and the eaves of the building. After just eight years it was found necessary to replace these porch posts because they had rotted through at the interface between ground and air. Such replacement would appear to be a basic hazard of these buildings, a hazard which is amply demonstrated by the massive disturbance around these post holes evidenced in the Pimperne excavation and in many other sites. In fact, the replacement process leant further insight into the nature of the disturbance and the manner of replacement. The second observation is concerned with the effect of the building upon its internal floor area. Because the Pimperne House is located in the museum

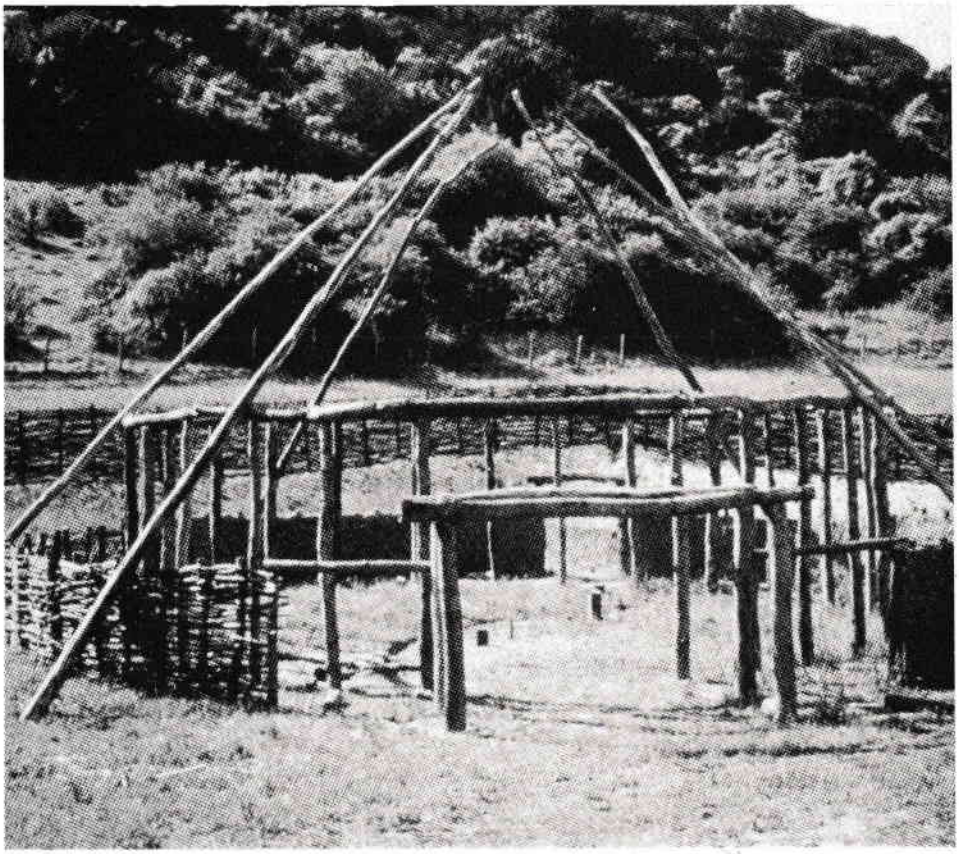
BELOW: Detail of the rotted butt of a principal rafter demonstrating that the load of the roof is not dependent upon these once the building is complete.

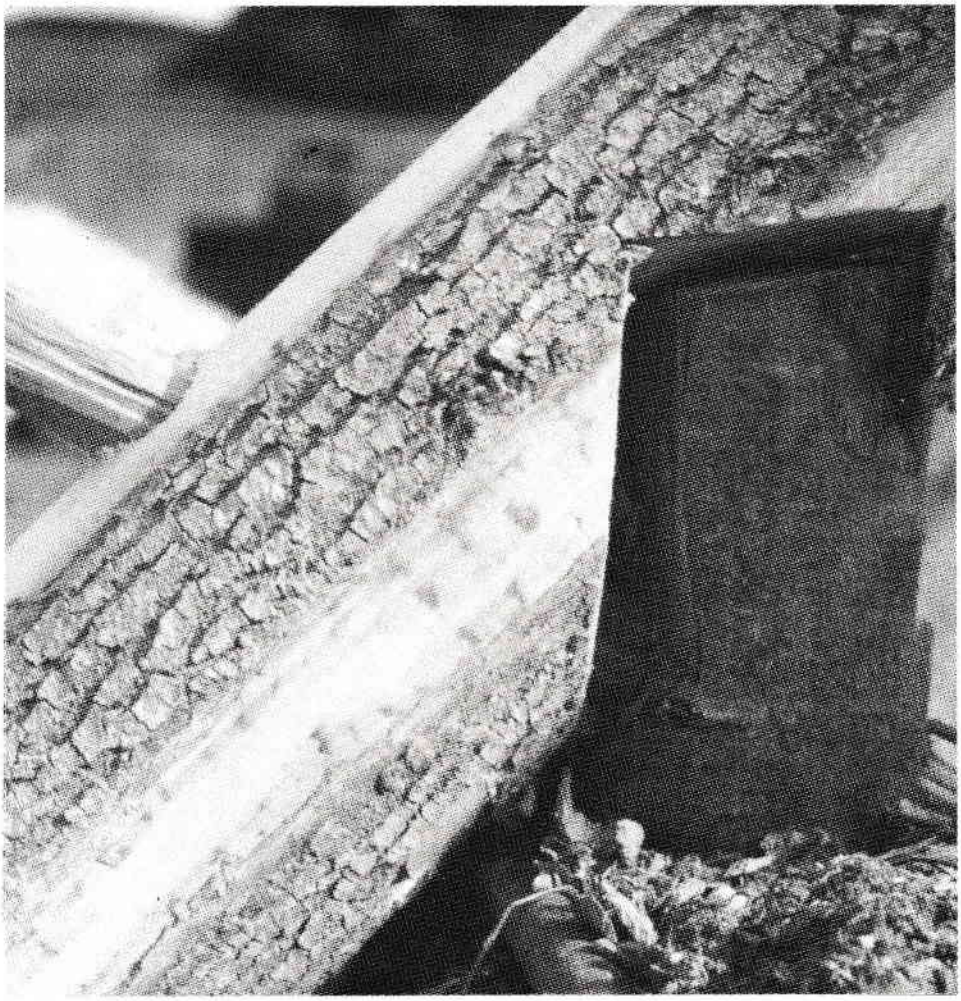
area a fire regularly burns in the hearth area demonstrating how there is no need for a smoke hole in the roof on the one hand, on the other stimulating the evidence of the original hearth. The result is an appreciable and significant enhancement of the magnetic susceptibility of the ground area of the house. This enhancement is, of course, permanent and, therefore, has important implications for archaeological investigations of future excavations of house sites.

In conclusion of this brief summary of the Pimperne House, the test of time now at 'T' plus 13 years indicates that fundamental errors in construction have been avoided. the archaeological evidence argues that such houses lasted many generations and perhaps even centuries with normal care and maintenance. The construct currently supports this hypothesis. There is no obvious reason why the structure should not last indefinitely barring accident.

The whole point of the construct which fulfils nearly every educational requirement and certainly follows the deductive principle, is that it is exciting in itself. The unravelling of the original evidence, the creation of the building, the observation of deterioration and repair, the monitoring of change both visible and invisible and the reading of this acquired data back into the archaeological evidence on the one hand, on the other into future archaeological practice, is enough. The implication of the structure for the increased understanding of agricultural and building practice and even social status and organisation in the Iron Age are hardly insignificant. Nonetheless it is still an experimental construct, not an Iron Age house. No-one has had to dress up in strange clothing, to live an alien existence in order to prove anything. The detective story, like archaeological excavation, is an exercise in deduction and the establishment of the boundaries of probability. By any stretch of the imagination it is both a unique classroom and a full scale experiment in an open air laboratory. ■

The Butser Ancient Farm is now closed for visitors other than in organised parties by prior arrangement until Easter 1989. Residential Courses for next year will be advertised in these columns in the next issue.





TOP: The six principal rafters in position.

BOTTOM: Detail of the rafter notched and pegged onto an upright in the wall.