

TIMBER STRUCTURES REVEALED

BY AERIAL PHOTOGRAPHY

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Abstract In the years immediately following the end of the war in 1945, the whole of Great Britain was covered by a vertical survey which was subsequently printed in stereoscopic pairs at a scale of 1/10,000. When the photographs covering parts of Scotland were examined, Dr. K. A. STEER of the Royal Commission on the Ancient and Historical Monuments of Scotland noticed the occurrence of oval and circular markings of several sizes which appeared on pictures of unploughed pasture land and rough moorland. A long programme of discovery of such sites ensued, and in due course several were excavated. It was found that the thin lines appearing on the photographs showed on the ground as narrow and shallow depressions, superficially similar to the tracks made by sheep or rabbits. When these were excavated, they were found to be the surface traces of palisaded enclosures and of circular timber-framed houses, all hitherto unsuspected, dating from the earliest part of the local Iron Age. The purpose of this paper is to describe the appearance of these sites on the photographs and on the ground, and to outline their significance in the prehistory of the region.

Résumé Dans les années qui suivirent immédiatement la fin de la guerre, en 1945, la Grande Bretagne tout entière fut couverte de vues aériennes verticales, qui furent ensuite reproduites par couples stéréoscopiques à l'échelle 1/10.000. Lorsque le Dr. K. A. STEER, de la Commission Royale des Monuments Anciens et Historiques d'Ecosse, examina les photographies de certaines régions d'Ecosse, il remarqua sur des photographies de pâturages et de landes la présence de lignes ovales et circulaires, de dimensions diverses. Un grand programme d'examen sur les lieux s'ensuivit, et par la suite plusieurs excavations furent entreprises. On découvrit d'abord que les lignes fines, visibles sur les photographies, correspondaient sur le terrain à des enfoncements étroits et peu profonds, semblables aux sillons tracés par les moutons et les lapins. Après avoir procédé à l'excavation de certaines parties de ces enfoncements on découvrit qu'il s'agissait en réalité de traces d'enclos entourés de palissades, ou de traces de maisons de bois circulaires, remontant sans doute à l'époque la plus ancienne de l'âge du fer local. Rien de tout cela n'était connu jusqu'ici. Le but de cette communication est de décrire l'aspect de tels emplacements sur les photographies et sur le terrain, et de donner un aperçu de leur signification dans la préhistoire de la région.

Zusammenfassung In den ersten Nachkriegsjahren seit 1945 wurden vertikale Luftaufnahmen von ganz Grossbritannien gemacht, welche nachher in stereoskopischen Paaren im Masstab 1 : 10.000 abgedruckt wurden. Als die Luftbilder von Teilen Schottlands untersucht wurden, entdeckte Dr. K. A. STEER von der Kgl. Kommission für Altertümliche und Historische Denkmäler Schottlands, das Vorhandensein ovaler und ringförmiger Formen verschiedener Grösse, welche in den Bildern ungepflügten Weidelandes und rauhen Moorlandes zu sehen waren. Ein ausgebreitetes Programm für die Entdeckung solcher Stellen war die Folge und schliesslich wurden auch mehrere gefunden und ausgegraben. Man fand, dass die in den Luftbildern erscheinenden dünnen Linien, am Boden, schmale, seichte Vertiefungen bilden, welche einigermaßen den Fahrten von Schafen oder Kaninchen ähneln. Als diese durch Grabungen blossgelegt wurden, zeigte es sich, dass sie oberflächliche Spuren von Pfahlwerk-Einhegungen und von ringförmigen, hölzernen Fachwerk-Bauten darstellen, die bisher nicht vermutet worden waren und welche aus der frühesten Periode der örtlichen Eisenzeit stammen.

Der Zweck dieser Veröffentlichung ist, das Aussehen dieser Stellen in den Luftbildern und an der Oberfläche zu beschreiben und ihre Bedeutung für die Vorgeschichte des Gebietes zusammenzufassen.

The land in that part of Great Britain which lies between the Solway Firth and the mouth of the River Tyne to the south, and the Firths of Clyde and Forth to the north, comprises broad coastal bands of excellent cultivable ground, together with a central mass, much of which is good hill-pasture. Considerable areas of the latter, situated on the higher parts of the lower hills and up the valleys penetrating the higher ones, have not been ploughed or otherwise cultivated since prehistoric times. As a result of this, ruined and decayed habitations of various categories and sizes have survived there in a better state of preservation than is usually the case elsewhere.

These include large and small hill-forts and settlements defended by stone walls or by ramparts and ditches, as well as small embanked farmsteads and homesteads – all of types which have been recorded in other regions as well as in the district under review. But in addition to these, significant numbers of other monuments, the existence of which was until recently quite unsuspected, have now been identified and explored. These discoveries began in 1946, when fieldwork was being resumed in connection with the preparation of the *Inventory of the County of Roxburgh*, by the Royal Commission on the Ancient and Historical Monuments of Scotland. Photographs of the area, which had now become available for the first time, formed part of the aerial survey of the whole of Great Britain which had been completed before the Photographical Reconnaissance Units of the Royal Air Force were disbanded. Examination of some of these revealed that in certain places in the regions of hill-pasture there existed markings which appeared as thin pale lines in patches of heather or grass, some in the form of small circles or arcs of circles, others as much larger oval or circular figures. These markings seemed to stand somewhere between shadows and crop-marks; and when some of them were visited on the ground, it was found that they actually appeared as narrow and very shallow grooves,

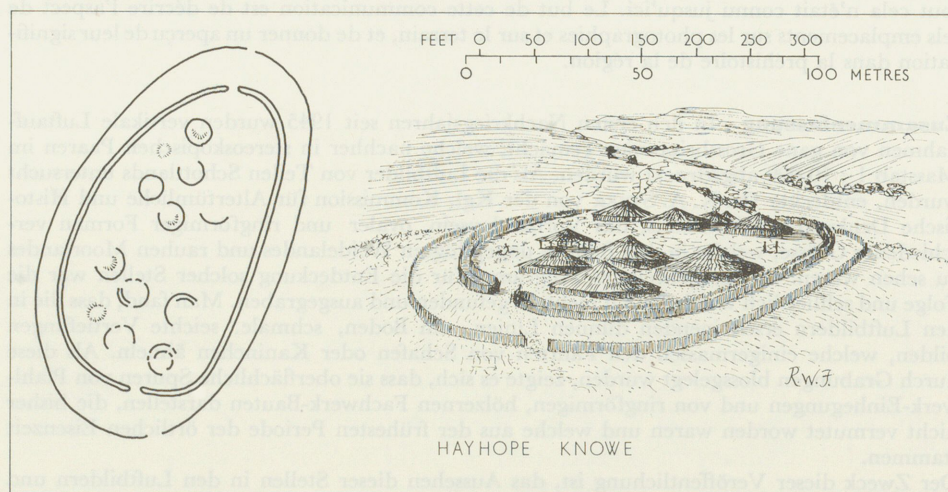


FIG. 1.

distinguishable from the tracks made by animals or men only by the fact that they formed closed circuits or open-ended arcs, as the case might be.

A small exploratory section was cut into one of them in 1947. The marking chosen was one of a pair situated on a hill called Hayhope Knowe on the north-west flank of the Cheviot massif (FIG. 1). The pair, running 2 metres apart, enclosed an area measuring 90 metres in length by 40 metres in width, within which were several shallow grooves taking the forms of complete rings as well as arcs, together with some small oval or crescentic depressions. The exploratory trench revealed that beneath the slight depression representing the outer member of the pair, there lay a continuous narrow trench filled with rubble and packing-stones, among which could be seen the holes in which upright timbers had originally been set. It was clear that when such timbers had decayed or been removed, the packing of the trench had settled sufficiently to have left a shallow depression on the surface which remained visible after grass or heather had grown.

During full-scale excavations at the same place in 1948, considerable lengths

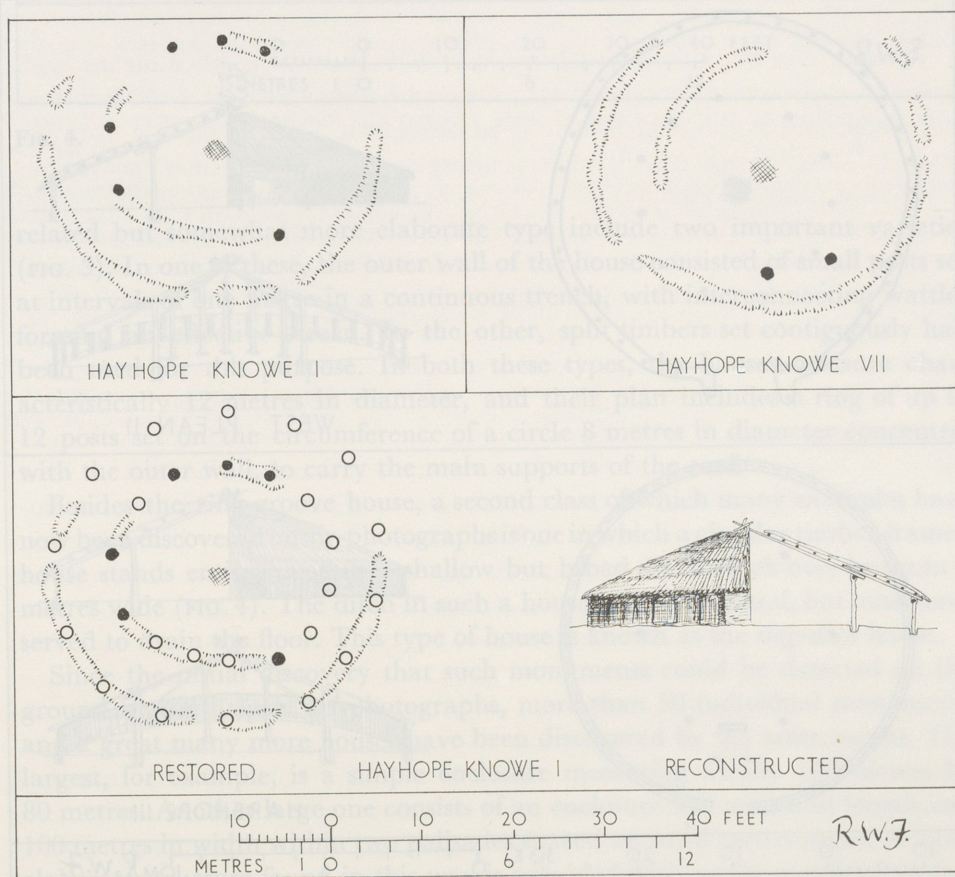


FIG. 2.

of the twin palisade trenches were examined and cleared. The posts had originally been placed in them at intervals of about half a metre, and the trenches themselves had joined on a curve at either side of the entrances. The excavation also showed that a single fence of the same kind lay at a distance of some 10 metres outside the pair. This feature formed an additional defence, as well as providing an enclosure in which beasts could be mustered or kept.

Inside the main enclosure, the rings and arcs and the small depressions were found to represent the surface traces of the foundations of a class of circular timber-framed houses to which the name *ring-groove* has been attached (FIG. 2). When cleared, the grooves were found to represent the shallow trenches into which the timber or wattle walls and partitions of the houses had been set. The roofs had been supported on posts standing in holes in the grooves or on the floors of these.

Many other settlements of this and other plans were found after the discovery of the Hayhope Knowe settlement. For example, all-timber houses of a closely-

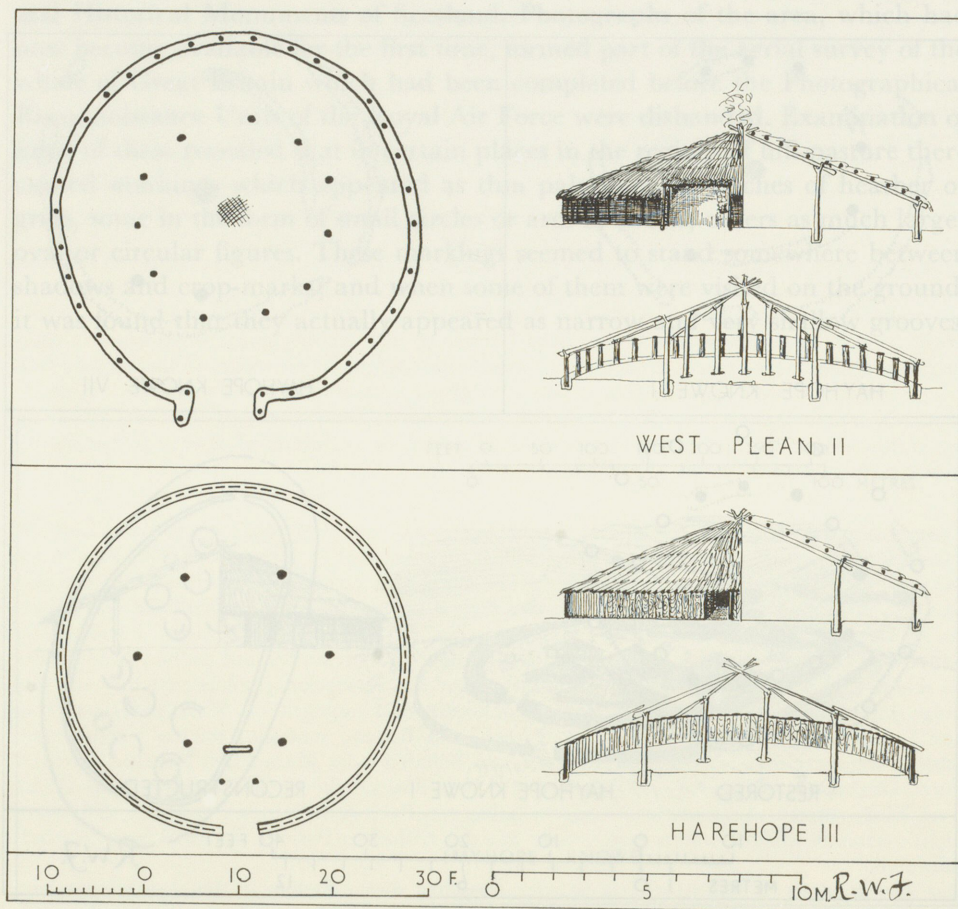


FIG. 3.

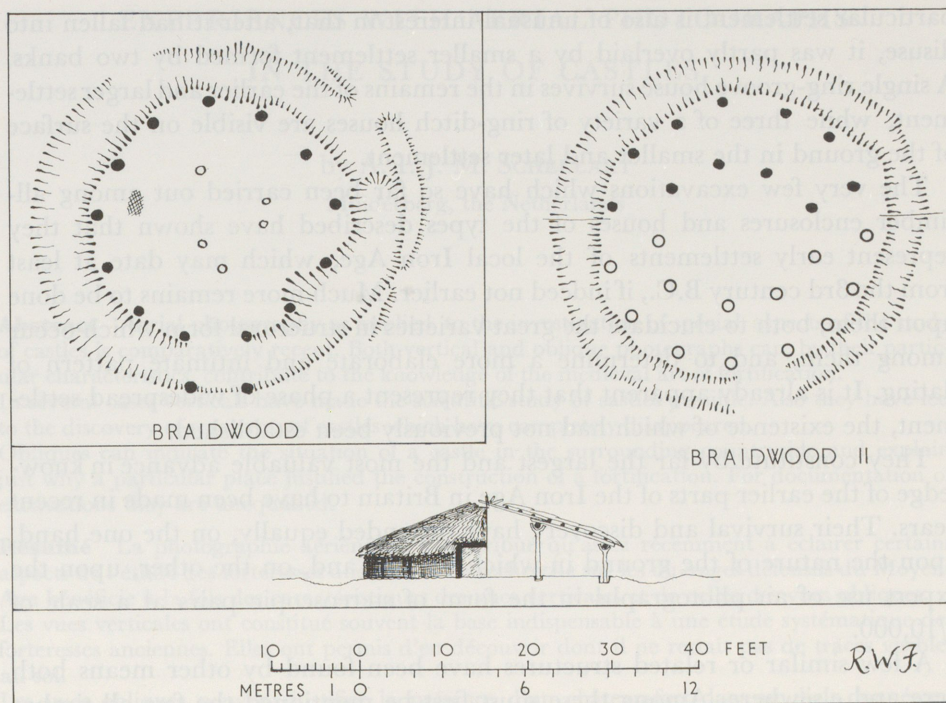


FIG. 4.

related but somewhat more elaborate type include two important varieties (FIG. 3). In one of these, the outer wall of the house consisted of small posts set at intervals of one metre in a continuous trench, with interconnecting wattles forming an effective screen. In the other, split timbers set contiguously had been used for this purpose. In both these types, the houses measure characteristically 12 metres in diameter, and their plan includes a ring of up to 12 posts set on the circumference of a circle 8 metres in diameter concentric with the outer wall, to carry the main supports of the roof.

Besides the ring-groove house, a second class of which many examples have now been discovered on air-photographs is one in which a circular timber-framed house stands entirely within a shallow but broad ditch which may be up to 2 metres wide (FIG. 4). The ditch in such a house is not structural, but must have served to drain the floor. This type of house is known as the *ring-ditch* house.

Since the initial discovery that such monuments could be detected on the ground by the help of air-photographs, more than 50 individual monuments and a great many more houses have been discovered by the same means. The largest, for example, is a simple enclosure measuring axially 160 metres by 80 metres. Another large one consists of an enclosure 140 metres in length and 100 metres in width within two palisades spaced up to 18 metres apart. A more elaborate structure found in this way is provided with an inner pair, 2 metres apart, which are in turn covered by an outer pair lying 5 metres apart. This

particular settlement is also of unusual interest in that, after it had fallen into disuse, it was partly overlaid by a smaller settlement formed by two banks. A single ring-groove house survives in the remains of the earlier and larger settlement, while three of a variety of ring-ditch houses are visible on the surface of the ground in the smaller and later settlement.

The very few excavations which have so far been carried out among all-timber enclosures and houses of the types described have shown that they represent early settlements of the local Iron Age, which may date at least from the 3rd century B.C., if indeed not earlier. Much more remains to be done upon them, both to elucidate the great varieties in structural form which occur among them, and to determine a more elaborate and intimate pattern of dating. It is already apparent that they represent a phase of widespread settlement, the existence of which had not previously been established.

They constitute by far the largest and the most valuable advance in knowledge of the earlier parts of the Iron Age in Britain to have been made in recent years. Their survival and discovery have depended equally, on the one hand, upon the nature of the ground in which they lie and, on the other, upon the expert use of air photographs in the form of stereoscopic pairs at a scale of 1/10,000.

A few similar or related structures have been found by other means both here and elsewhere. Among these must first be mentioned the few all-timber settlements and houses which have been brought to light by chance from beneath hill-forts or other evidently secondary settlements in which excavations have taken place. Second are a few which have appeared as crop-markings on air photographs of one kind or another. The former class have, of course been seriously mutilated by the dwellings and other works of the later occupants of the sites, while the latter have been shaved so nearly to oblivion by the action of the plough that little but the bottoms of ditches and post-holes survive, and the occupation levels have been swept away.

At present, only a few unspoiled examples have been recorded outside the areas covered by the Royal Commission on the Ancient and Historical Monuments of Scotland, some of them in adjacent Northumberland and at least one in Wales. It is more than probable, however, that many additional examples will eventually be recorded before afforestation or other perils destroy them; and that as threatened examples are excavated, a whole new body of evidence about the Early Iron Age in Britain will emerge.