

The investigation of two cropmark sites near Inverness

Stephen Carter* & Christopher J Russell-White†

ABSTRACT

An archaeological assessment of the proposed line of the Inverness Southern Distributor Road led to the excavation of two cropmark sites. Neither of these sites, the Hilton 'pit alignments' and the Glendruidh 'timber halls or enclosures', was located by excavation. It is concluded that the pit alignment cropmark could be the product of recent agricultural activity, but the cause of the Glendruidh cropmark, and therefore the existence of the timber halls or enclosures, remains uncertain. The excavation was arranged by Historic Scotland and funded by Highland Regional Council Roads Division.

INTRODUCTION

The cropmarks which are the subject of this report were investigated as part of a larger archaeological assessment by Historic Scotland's Archaeological Operations and Conservation Unit, on behalf of Highland Regional Council Roads Division which funded the project. The assessment was carried out in late 1990 on the proposed line of part of the Inverness Southern Distributor Road (illus 1). A complete record of the assessment has been deposited in the National Monuments Record of Scotland and only a brief summary of its findings is necessary here.

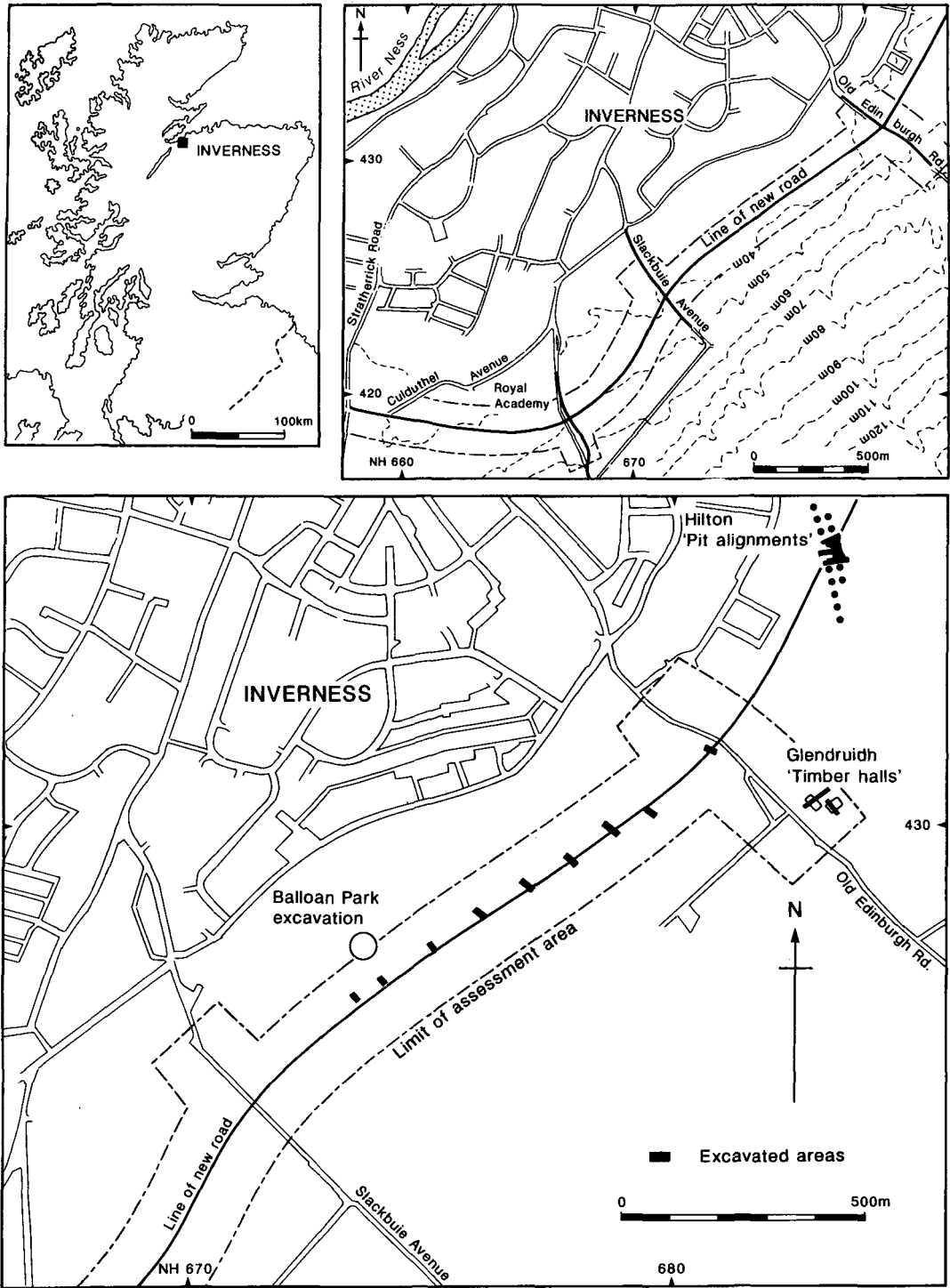
The assessment was undertaken in three stages: a desk study of the available records; a field survey of the roadline; and finally, trial excavations. The desk study identified a number of cropmark and upstanding sites, none of which was directly affected by the development, with the exception of the Hilton 'pit alignments'.

The field survey concentrated on the mapping of soil types and sediment accumulations in order to provide an explanation of the nature and distribution of cropmark sites. The surveyed area comprises a fluvio-glacial terrace at c 40 m OD which is currently under arable cultivation. No large areas of accumulated sediment were located that might conceal archaeological features, but ground conditions for the development of cropmarks were found to be variable and spatially complex.

Since the first two stages of the assessment failed to identify any areas of high archaeological potential on the roadline, a series of nine machine-dug trenches were opened at regular intervals along the roadline to sample the apparently empty areas and confirm the

* AOC (Scotland) Ltd, The Schoolhouse, 4 Lochend Road, Leith, Edinburgh

† 129 Lochend Road, Edinburgh



ILLUS 1 Location maps. Based upon Ordnance Survey map © Crown copyright

absence of archaeology. No features of archaeological interest were recorded except where the roadline passes close to the cropmark of an enclosure at Balloan Park (illus 1). This cropmark was the subject of a separate assessment excavation conducted simultaneously and, as the features revealed in the road assessment test trench are part of the same site, they are described in the Balloan Park assessment report (Wordsworth, forthcoming).

THE HILTON 'PIT ALIGNMENTS' (NH 683 436 to 683 434)

The Hilton 'pit alignments' were recorded as a cropmark in 1972 (by Cambridge University aerial photograph BKG 63; illus 3) and are listed in the *Archaeological Sites and Monuments of North-east Inverness* as site 143 (RCAHMS 1979, 21). The cropmark consists of two parallel rows of marks approximately 12 m apart. Individual marks are generally between 2 and 4 m apart. The western alignment is c 250 m long and the eastern is c 100 m long.

EXCAVATION

The route of the proposed roadline threatened some 50 m of the western, and 25 m of the eastern 'pit alignment'. Therefore, the excavation was designed to locate and excavate a sample of the pits in this area. As an accurate plot of the cropmarks was not available at this stage, three trenches, each roughly 4 × 50 m, were laid out at right angles to the estimated position of the alignments; these trenches were stripped by machine to the base of the ploughsoil and manually cleaned. This method failed to locate the 'pit alignments', and the excavated area was consequently enlarged by linking the three trenches at their eastern ends (illus 2). The area threatened by the roadline could not be excavated further as standing water was encountered close to the surface in the central and southern machine trenches.

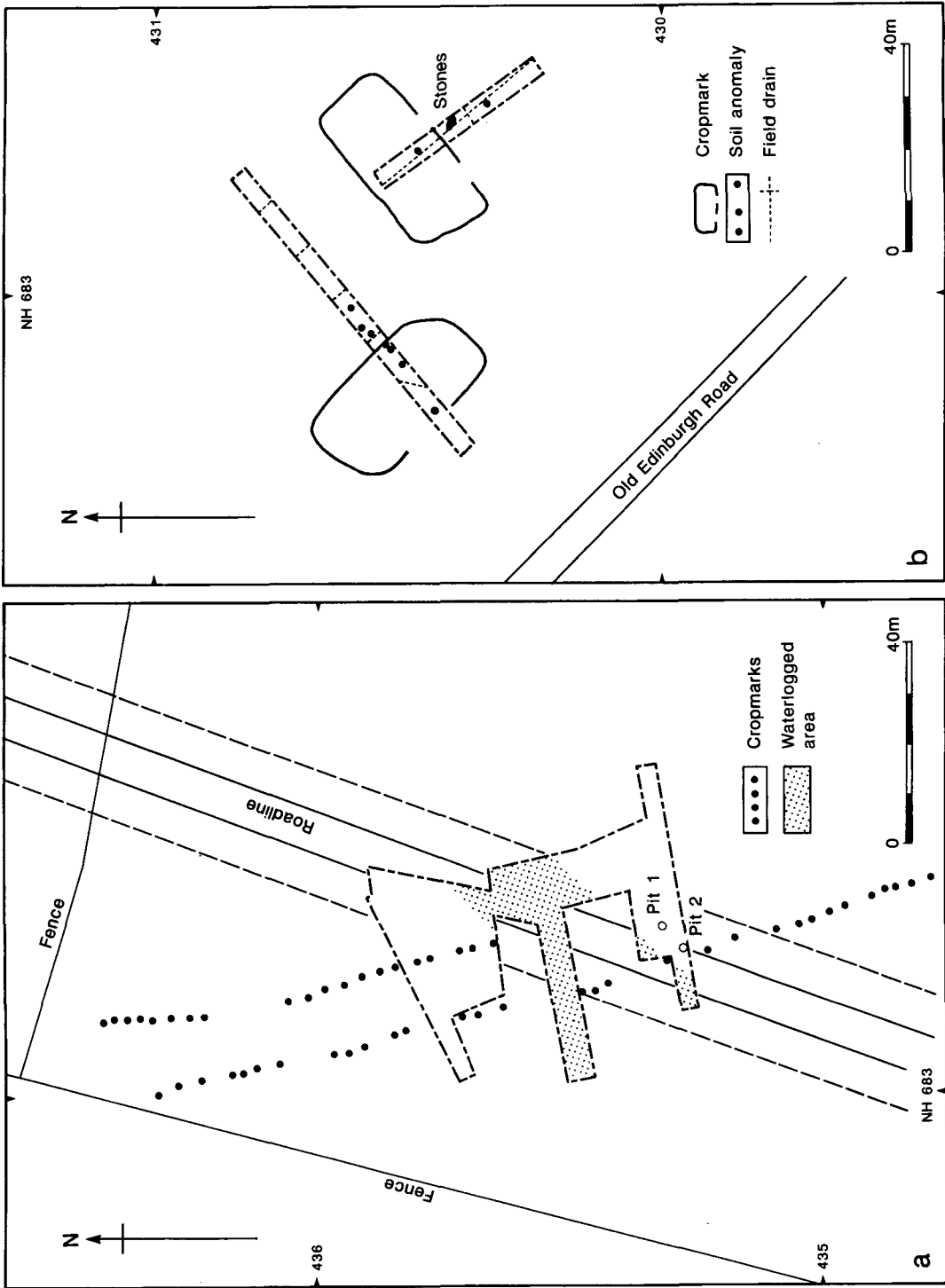
The excavated area spanned a SW/NE trending channel in the terrace surface with gravel ridges on either side. Two pits were identified beneath the topsoil (illus 2). Pit 1 was circular, 0.8 m in diameter and 0.2 m deep, with steep sides and a level base. Its fill consisted of abundant, loosely packed, medium to large stones in a charcoal-stained, silt loam matrix. Pit 2 was elongated, at least 0.8 m long and 0.15 m deep, with gently sloping sides. It had an upper fill of charcoal-rich, sandy loam overlying a stony sandy silt.

INTERPRETATION

Pit 2 is close to the probable position of the western alignment and could therefore be responsible for part of the cropmark. Pit 1 is too close to Pit 2 to be part of the eastern alignment and, together, their orientation does not match that of the cropmark. The identification of Pit 2 as part of the western alignment would have been more certain if the anticipated 20 m length of the eastern alignment had been located at the north end of the excavation trench. This area was repeatedly cleaned and the top few centimetres of the gravel subsoil was removed, but no pits were identified. Given the similarity of the two cropmarks and the absence of any pits on the better exposed eastern alignment, it is unlikely that Pits 1 or 2 are part of the western alignment.

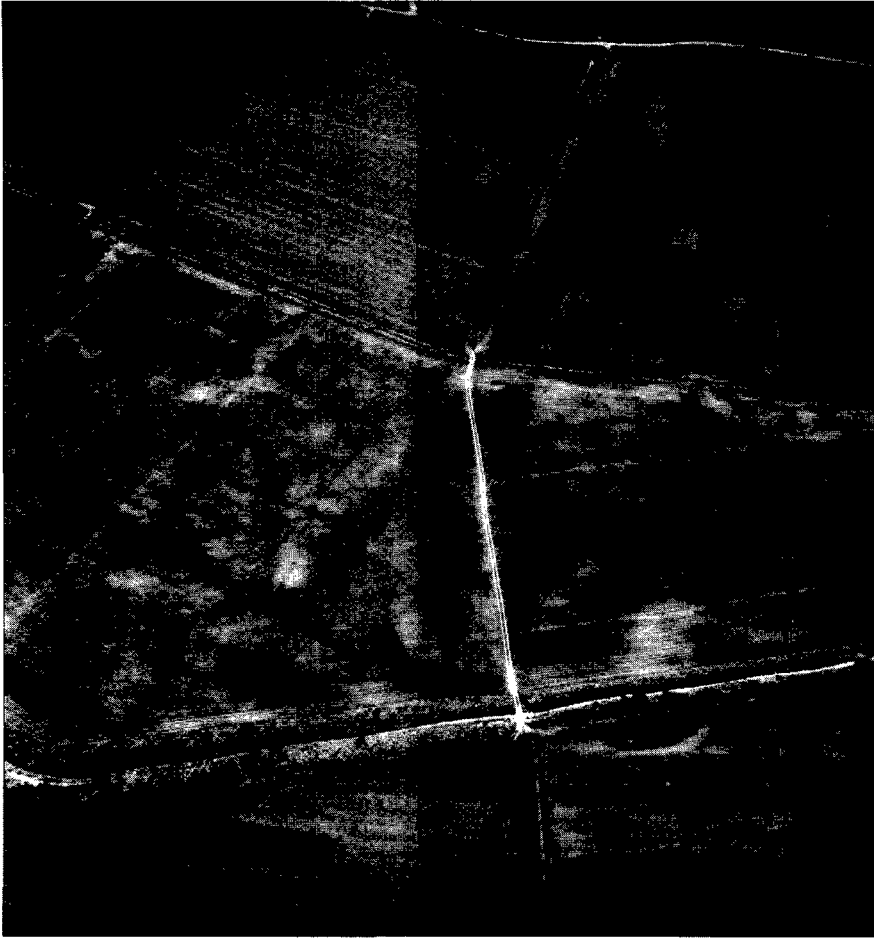
There are three possible explanations for this failure to locate the pit alignments:

- 1 The pit alignments exist within the excavated area but were invisible, as either topsoil or subsoil features.



(b) Glendruith 'timber halls or enclosures', excavated features

(a) Hilton 'pit alignments', excavated features



ILLUS 3 Hilton 'pit alignments', cropmarks from NE; they extend diagonally away from the end of the track in the foreground (*Copyright: Cambridge University Committee for Aerial Photography*)

- 2 The pit alignments exist but are outside the excavated area.
- 3 The pit alignments do not exist.

It is possible that pits dug through the fine sediments filling the channel would not be easy to identify, but those on either side, where the gravels are close to the surface, should have been detectable. It is highly unlikely that the pit alignments are located outside the excavated area even though the position of the trenches was decided before an accurate plot of the cropmarks was made. Subsequent comparison with a computer transcription provided by RCAHMS indicates most strongly that, although the alignments actually lie c 5 m west of the position originally estimated, they certainly lie within the excavated area and should therefore have been apparent.

These conclusions leave only the third possibility: that the pit alignments do not exist

and that, therefore, the cropmarks must have been caused by some other soil pattern. This explanation is supported by the anomalous behaviour of the cropmark as it crosses the field. The aerial photograph taken on 28 July 1972 (illus 3) shows the pattern of ridges and channels on the terrace surface, with the riper (paler) crops on the shallow soils of the ridges. Although the appearance of cropmarks can be diverse, the anticipated cropmark from a line of pits cutting into subsoil, under these ground conditions, would be an interrupted line of darker marks, visible only in the areas of riper crops. However, here, despite the variability of the subsoil, the Hilton cropmarks are quite consistent, extending uninterrupted across the partly ripe crop over most of the field. This is not what we would expect if the cropmarks were caused by archaeological features, which suggests that they may be caused by a superficial phenomenon located within the topsoil, about 0.3 m deep. As the field is frequently cultivated, any topsoil feature must be very recent.

The longer, western cropmark is clearly aligned with diagonally opposite corners of the modern field, both of which contain gates. It therefore seems possible that the alignments were created by the passage of farm vehicles across the field at an early stage in the growth of the crop, causing variable crop development. A track in this position is visible on RAF aerial photographs from October 1946 (CPE/SCOT/UK 184 FS2370) and May 1953 (58/1116. F210023). The interrupted nature of the feature could have resulted from the intersections of the track with the rows of the crop, with each dark spot created by an area of shorter shadowed crop.

THE GLENDRUIDH 'TIMBER HALLS OR ENCLOSURES' (NH 683 430)

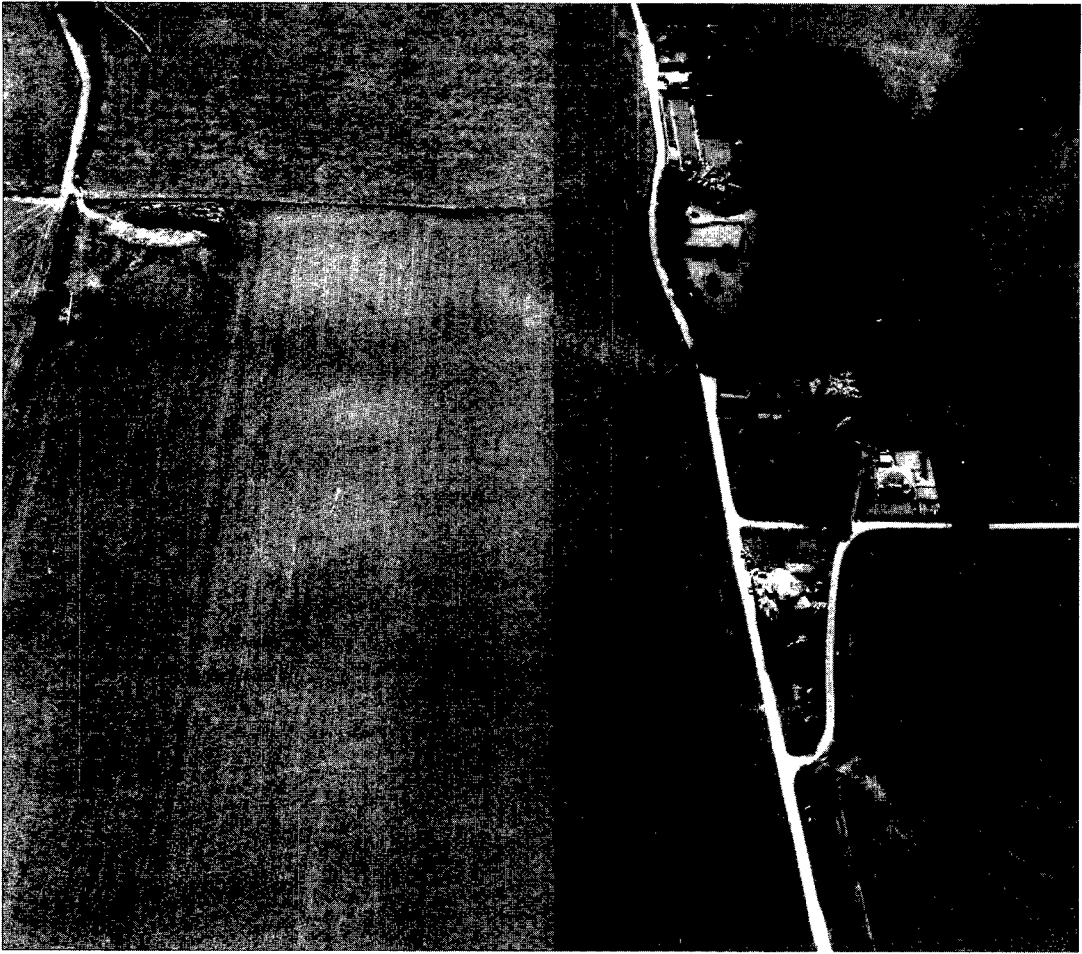
This site was recorded as a cropmark in 1976 (RCAHMS aerial photograph, IN/2644; illus 4) and is listed in the *Archaeological Sites and Monuments of North-east Inverness* as site 131 (RCAHMS 1979, 20). Originally described as a rectangular timber building adjacent to a sub-rectangular enclosure, the current interpretation is that neither of these features is a hall and that both are likely to be enclosures (Gordon Maxwell & Marilyn Brown, pers comm). The published dimensions indicate two structures of different sizes but this is an error resulting from the use of an oblique aerial photograph. Measurements taken from a computer transcription provided by RCAHMS show that both cropmarks are rectangular features with rounded corners, each measuring c 35 × 17 m.

EXCAVATION

The Glendruidh cropmarks were not on the proposed line of the Inverness Southern Distributor Road but lay close to associated developments. It was therefore decided to carry out fieldwork with the limited objectives of locating, but not excavating, the archaeological features responsible for the cropmarks, in order that they could be protected; and of determining whether any adjacent features existed which were not visible as cropmarks.

As in the case of the Hilton 'pit alignments', an accurate plot of the cropmarks was not available before excavation. Two trenches, each 4 m wide, were located over the estimated position of the cropmarks and were stripped by machine to the base of the ploughsoil. These trenches were then cleaned by hand in order to reveal any cut features.

The subsoil was found to vary from stony sandy silt to gravel. The only clearly defined negative features were field drains which showed as narrow linear cuts and were noted in both trenches (illus 2). Four formed part of a parallel series, c 11 m apart, which ran down the



ILLUS 4 Glendruith 'timber halls or enclosures', cropmarks from NW (Crown copyright: RCAHMS)

slope; two others were at right angles, and at 45° respectively, to this set. Nine poorly defined grey patches were observed in the subsoil, each c 0.3 m in diameter; in addition, there was an irregularly shaped area, some 3 × 1.5 m, of large rounded stones (illus 2). These possible features were not excavated.

INTERPRETATION

On the photograph, each cropmark consists of a continuous line which suggests that they are caused by linear cuts rather than discrete pits or post-holes. All of the field drains revealed by excavation are also visible as cropmarks on an Ordnance Survey aerial photograph taken in May 1968 (OS/68/124 V. 255); it was clear, therefore, that the excavations did not reveal any linear features which could relate to the rectangular cropmarks. The patches of contrasting

colour in the subsoil could represent post-holes but further excavation would be required to establish this. However, as the cropmark is a continuous feature, it is unlikely that discrete post-holes are responsible for it.

As in the case of the Hilton 'pit alignments', there is more than one possible explanation for this failure to locate archaeological features which had caused the cropmarks. It is unlikely that well-defined linear cropmarks such as these would not be caused by obvious linear cuts. However, it would require the stripping of a large area to identify poorly contrasted features, which was not an option in this case. The machine trenches were correctly located over the cropmarks according to the computer plot that was received subsequent to the excavation. This again leaves the possibility that the cropmarks are caused by a temporary superficial feature in the ploughsoil. However, in this case, no plausible explanation can be offered as to how the cropmarks might have been formed in the absence of archaeological features.

CONCLUSION

The failure to locate two well-defined cropmark sites by trial excavation provides a useful reminder that the interpretation of cropmarks is not always a straightforward task. Recent excavations of cropmarks, classified as pit alignments or timber halls, have shown that they include a wide range of monument types and periods (eg Barber 1985; Reynolds 1980), so it was not clear in this case what archaeological features were to be expected.

Restrictions were placed on the amount of excavation allowed which reduced the chances of finding poorly defined features; however, the clarity of the cropmarks initially implied the existence of obvious archaeological features. A plausible, non-archaeological explanation has been found for the appearance of the Hilton cropmarks, and it seems likely that the Hilton 'pit alignments' do not exist as an archaeological monument. No convincing non-archaeological explanation can be offered for the appearance of the rectangular cropmarks at Glendruidh. The lack of evidence for them in the trial trenches indicates that their identification as 'timber halls' or 'enclosures' should be treated cautiously until more extensive excavation is carried out.

Both sites were recorded only once from the air, and this makes it difficult to analyse them as cropmarks. The lack of repeated appearances need not in itself be a reason to doubt the existence of the sites, as this area is not flown over frequently, but it does reinforce the need for caution when interpreting such sites.

ACKNOWLEDGEMENTS

The assessment and excavations were funded by Highland Regional Council Roads Division and arranged and managed by Historic Scotland. They were carried out by kind permission of the landowners, Mr D Mackenzie of Parks Farm and Mr M Mackenzie of Castle Heather. The excavation would have been impossible without the excellent work undertaken by Irene Cullen, Lennard Andersen, Clare Gathercole, Bridget McGill and Duncan Montador. The desk study for the roadline assessment was carried out by Melissa Seddon; the illustrations were drawn by Sylvia Stevenson and this report was edited by Olwyn Owen and Finbar McCormick. Illus 3 is reproduced by kind permission of Cambridge University Air Photo Unit. Computer transcriptions of the cropmarks were prepared by RCAHMS who also gave

permission for the publication of Illus 4. Richard Hingley (Historic Scotland), Marilyn Brown and Gordon Maxwell (both RCAHMS) discussed the various problems raised by these sites with the authors.

REFERENCES

- Barber, J 1985 'The Pit Alignment at Eskbank Nurseries', *Proc Prehist Soc*, 51 (1985), 149–66.
RCAHMS 1979 *The Archaeological Sites and Monuments of North-east Inverness*. Edinburgh.
Reynolds, N 1980 'Dark Age timber halls and the background to excavation at Balbridie', in Thoms, L M (ed) *Settlements in Scotland 1000 BC–AD 1000*. (= *Scott Archaeol Forum* 10). Edinburgh.
Wordsworth, J forthcoming 'A later prehistoric settlement at Balloan Park, Inverness.'

This paper is published with the aid of a grant from Historic Scotland