## AARGnews 6

### CONTENTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial</td>
<td>3</td>
</tr>
<tr>
<td>Chairman's Piece by Bob Bewley</td>
<td>6</td>
</tr>
<tr>
<td>Some thoughts on Field Archaeology by David Wilson</td>
<td>7</td>
</tr>
<tr>
<td>Air Photography and Sites and Monuments Records: some observations by Neil Lang</td>
<td>10</td>
</tr>
<tr>
<td>Archaeological Interpretation and Rectification of Aerial Photographs. A short course at Bradford</td>
<td>13</td>
</tr>
<tr>
<td>Archéologie Aérienne Colloque International: two comments by un égout by Charles Leva</td>
<td>14</td>
</tr>
<tr>
<td>Technical News by Rog Palmer</td>
<td>18</td>
</tr>
<tr>
<td>Ordnance Survey's Superplan</td>
<td>18</td>
</tr>
<tr>
<td>PhotoGIS</td>
<td>18</td>
</tr>
<tr>
<td>PC drawing packages - a query</td>
<td>18</td>
</tr>
<tr>
<td>Ordnance Survey vertical photographs</td>
<td>19</td>
</tr>
<tr>
<td>Contour surveys</td>
<td>19</td>
</tr>
<tr>
<td>Diploma and MPhil in Aerial Photography. A new course</td>
<td>20</td>
</tr>
<tr>
<td>Cropmark Discoveries in the River Barrow Valley, Ireland 1989-1991 by Gillian Barrett</td>
<td>21</td>
</tr>
<tr>
<td>Aerial Archaeology in Shetland: the South Nesting Palaeolandscape Project by Val Turner and Chris Cox</td>
<td>29</td>
</tr>
<tr>
<td>Looking Down on Amarna by Gwil Owen</td>
<td>33</td>
</tr>
<tr>
<td>Royal Commission on the Historical Monuments of England, Air Photography Unit: grants for aerial reconnaissance 1993/4 by Roger Featherstone</td>
<td>38</td>
</tr>
<tr>
<td>Wazzat? Number 2 by Vikki Fenner</td>
<td>41</td>
</tr>
<tr>
<td>Wazzat? Answer to Number 1</td>
<td>42</td>
</tr>
<tr>
<td>Books of interest?</td>
<td>43</td>
</tr>
<tr>
<td>Stereo Airphoto Training at CUCAP by Bud Young</td>
<td>44</td>
</tr>
<tr>
<td>List of Contributors</td>
<td>45</td>
</tr>
<tr>
<td>Notes for Contributors</td>
<td>46</td>
</tr>
</tbody>
</table>
EDITORIAL

The bright spot of the year (I've been cross most of the time - as this editorial might reflect) is the announcement of the MPhil in 'Aerial Photography with Geophysical Survey in Archaeology' at the University of Glasgow. Bill Hanson has put considerable effort into designing the course (which the 'ad' in this issue barely describes) and must be congratulated this and on convincing the University authorities of its value. I look forward to meeting his students at future AARG meetings and hope that such a new intake to the subject might revitalise research using the aerial evidence.

AARG membership is mainly that expected of a specialist group. The UK contingent includes most of the practising archaeological aerial photographers, photo interpreters, and many employed to manage heritage concerns at county, regional, or national level. It is to be expected that AARG will concern itself as much with methods and techniques through which to pursue these specialities as with their archaeological applications and results. Education, at various levels, has been touched on a few times at our annual meetings but, other than accepting the needs to broaden archaeological uses of aerial photography, little action has been proposed. This is expected and acceptable for a specialist group, especially when a number of its members have given, and do give, 'outside' lectures, tutorials and demonstrations.

The CBA Aerial Archaeology Committee has, or ought to have, broader concerns. David Wilson wrote, when chairman of that committee, to inform AARG members of the role and directions of the CBA AAC and to place that committee in its CBA context (AARGnews 1, 7). His second paragraph shows that the CBA AAC, 'is concerned with all aspects of archaeological research, management and conservation which can benefit from the use of air-reconnaissance.' This puts the case succinctly and is later followed by comment on training - an aspect, maybe an avoided aspect, for which there is considerable need at present. Our photo libraries, whether national or local, are suitable places from which to meet the requirements of the National Curriculum and thus provide early-age familiarity with aerial photographs, but it is the higher-level students who, I think, should be our main targets. Wilson's second paragraph ended with the comment that the CBA AAC, 'is particularly concerned to see the results of air-reconnaissance used in the development of a fully integrated approach to study of the historic landscape.' To do this requires demonstrations of the ways in which this can be attempted and achieved and it is towards these objectives, using our somewhat limited, but increasing, resource, that I think our University-level teaching ought to be directed. As the newly chosen chairman of the CBA AAC I hope to be able to promote some moves in these directions.

I have long had, and still retain, the impression that the archaeological world - and even some AARG members - considers that aerial studies - aerial archaeology, if you care to use the term - means aerial photography. This concept was highlighted recently by the publication of The Amateur Archaeologist (by Stephen Wass. Batsford, 1992). The book does well using the author's experience of fieldwork and excavation; there are some clear explanations concerning, for example, surveying, and the reconstruction of sites - but the section on aerial photography (pp 74-76) writes about 'getting yourself into the air' with a closing paragraph on the possibilities within SMRs, CUCAP and NLAP. While I acknowledge the contribution of some airborne amateurs, Wass would have offered so much potential had he directed the 'amateur' to the possibilities and rewards of working with aerial photographs. And why didn't he? Because the archaeological world is still waiting to be shown these. Our lectures and books still concentrate, to my mind, too much on aerial photography - good gripping stuff, but akin to writing about geophysics and not getting beyond the circuit diagrams of the equipment.

Accurate mapping from air photographs may be the norm for some of us, and most AARG members should be aware of the precision which can be attained using AERIAL, but such things are, apparently, quite unexpected
in the great archaeological world outside. I was recently travelling with two local diggers, the Unit director and the Assistant County Archaeologist. The latter mentioned receiving a congratulatory phone call concerning the accuracy of mapping at Little Paxton [thanks: ed], a project undertaken in advance of gravel extraction. Chris Evans, the Unit director and a long-time user of our mapping, said that it shows things to be in an early stage when people are impressed by accuracy rather than expecting it. It seemed a good point and one which could only have come from people whose noses are not constantly shuffling stereoscopes over pairs of photographs. With the recent publication of the IFA Technical Paper on aerial things (see Books) and the CBA Aerial Archaeology Committee’s forthcoming Guidance Note things may be expected to change.

If demand for accurate mapping is to increase - and correctly applied PPG 16 must lead to increased requirements - we are going to need more trained photo interpreters to undertake the work. I understand that there is mixed reaction over the pleasures of photo interpretation from the newly recruited RCHME staff but the few who find a niche will considerably add to our numbers. However, there is little time at RCHME for other than Mapping England and therefore there is no addition to the number of interpreters able to produce short-notice, short-timescale, accurate maps for contract archaeology. Anyone with any inclination to discover photo interpretation, or to refine their interpretative skills, would do well to attend one of the courses run by Bud Young. Bud, who has vast experience of photo interpretation of non-archaeological subjects, writes briefly about his courses in this issue.

I’ve been nagging about computer indexes for the last several years. The good news is that NLAP now have the beginnings of a basic subject classification for post-1990 material. Roger Harris sent me a listing and examples which gave me an idea of the planned capabilities of the system. Perhaps we may expect more on this in a future issue as it is likely to benefit those of us who use the libraries in various ways. A vital issue in the computerisation of the material from our major libraries is to ensure that the systems used are compatible. Commercial computer software has realised that it is essential that different programs can interact easily - something that the camera industry never achieved - and our own latest word processor and database claim compatibility with just about everything. (Chris Cox is looking forward to breaking out of the archaic MORPH software and being able to merge MORPH and dBase files - as well as being able to edit MORPH without having to reinput the whole lot again.). The first, and hopefully final, computerised RCHM-RCAHM-CUCAP index must aim to be a 'total' system so that a single query can interrogate all sources if necessary.

Computer uses arise again in Neil Lang’s welcome contribution on the role of SMRs. Neil probably knows more about computer systems, uses of computers, forward planning to counteract obsolescence, etc than the rest of us put together. We owe it to ourselves, and to the discipline, to be prepared to dump inefficient systems, to keep up with the latest developments in computer usage, and to welcome these. Despite the hassle entailed changing to and learning new software, it is usually worth it - if you have enough shelf space to stack the manuals.

We were hoping to include in this issue an ‘Irish section’, based on papers given at AARG Dublin, but this is represented by Gill Barrett alone. We continue the ‘far-flung’ papers with the first instalment of the Shetland saga. I can say first instalment with some confidence as I know that both Val Turner and Chris Cox were hugely enthusiastic about the initial results and for future opportunities to integrate aerial and field survey in Shetland. Egypt is the last stop, although it omits most of the funny stories relating to beating, or being beaten by, the system. If you think the CAA gives us problems in Britain....

Other treats include two views on Amiens, David Wilson’s response, with a tongue-in-cheek titled paper, to Jim Pickering (AARGnews 5), and Jim himself responds to our invitation to become an honorary member of AARG. His letter, with permission, is appended to this editorial.
Dear Dr. Bewley,

Thank you for your letter of October 20th advising me that AARG have offered me Honorary Membership. I’m very grateful to the members of AARG and of course accept the honour with thanks.

The amateur has a privileged position. He can pursue matters other than those that the "Establishment" supports. He can express opinions more freely without penalty, though getting heard is more difficult. My interest has been in the aerial archaeology pioneered by O.G.S. Crawford, George Allen and John Bradford. As my flying experience in many parts of the world goes back to 1931 (though only to 1937 as a pilot), I started as their contemporary. I have therefore been conscious of the neglect by archaeologists of the results of aerial archaeology. These, together with all air photographs taken for a variety of purposes, still remain mostly unknown to archaeologists and in particular those senior archaeologists who might have advanced the development of aerial archaeology. Such interest as most archaeologists have in air photographs is restricted to their pictorial value to illustrate parochial ground based subjects.

It is quite extraordinary there has been no scientific research by a university into the factors that both create and inhibit crop marks - every one of which is an exception to any simple explanation. There has been more interest in crop circles which are certainly not anything to do with archaeology. Conditioned by such basic innocence, it is not surprising that the research potential of aerial archaeology has not been developed. What ought to be more surprising is that those who should have some vested interest in its development have accepted direction into short term (sometimes as little as a few flights in one year) programmes of aerial photography. Or have believed that after a five year programme, some law of diminishing returns made further surveillance unnecessary. Any such law related to crop marks is repeated annually and sometimes almost daily by the variable factors that create crop marks and other recordable phenomena.

The underwater archaeologists soon discovered that diving knowledge and experience were more important than initial competence in archaeology and that to obtain finance they had to divorce themselves from dependency on an archaeology that had other self-determined priorities. In contrast, aerial competence and experience has been regarded as unnecessary for aerial archaeology, which has therefore remained in the thrall to an Archaeological "Establishment" only interested in preserving the primacy of excavations as the archaeological technique.

If one is objective, there is no way in which archaeology as at present structured can incorporate the new evidence from air photography into its interests. It is too vast and varied to be examined by excavations and these become pointless when they only continue to confirm the agreed fables of archaeologists and historians. Air photographers have to develop into aerial archaeologists and this will take far more flying and far more years than is yet realised. An "amateur" is free to say this and would be remiss not to do so.

Yours sincerely,

[Signature]
CHAIRMAN'S PIECE

by Bob Bewley

Your new committee has not been idle since the last AARGnews as you will see below; elsewhere there are reports on the Festival International d'Archéologie Aérienne in Amiens. Great hospitality and worthwhile information on work throughout the European community (and beyond).

Arrangements for our Annual Meeting are well in hand; it will be in Wales at Abergavenny (thanks to Jo) and obviously Welsh archaeology will be one theme but any further ideas should be sent to me as soon as possible. Student bursaries are being offered for a second year (for which we are very grateful) and bona fide students should be encouraged to come if they have an interest in aerial photography - so all UNIVERSITY members let your students/colleagues know about AARG, its Annual Meeting and the bursaries; applications for the latter to me please.

Encouraging students to join is one way of ensuring our particular sphere of interest continues and a new membership leaflet (with French subtitles and a German version) has been prepared. Extra copies will be available from Gillian (Hon. Sec.). SUBSCRIPTIONS are due now and this copy of AARGnews has to paid for by the subscriptions you are about to pay NOW!

AARG members have rightly taken a keen interest in GPS (remember the Dublin workshop in 1992?). The RCHME is now investing in GPS and we should hear how their use of it has helped the 1993 season when we meet in Abergavenny (Wales) in October (20-22nd) for the Annual Meeting.

Pilot magazine had an indepth article on the value of GPS and their reliability; (March 1993 pages 54-58), which is recommended reading for anyone interested in its strengths and weaknesses.

It is still hard for me to conceive of a system which relies on 21 satellites orbiting at 6,000 mph, 20,200 kms away. GPS has been designed for military use to aid precision bombing or in US jargon "more bomb for your buck". As with any 'free' system it can be switched off without notice. The system is a down-graded version of the amazingly accurate real (military) one. If it were otherwise the 'enemy' could use it too, thus defeating the object of having the best system for accurate targeting.

Down-graded or not the use of GPS for reconnaissance flights opens up a number of possibilities for research and application. The Pilot magazine article endorses the need to use it conjunction with other navigational systems. Similarly for archaeology it will be used in conjunction with existing recording systems (maps and paper records). Its value will be in providing us with information about where we have flown which in the past we have not been able to record (digitally).
SOME THOUGHTS ON FIELD ARCHAEOLOGY

David Wilson

Jim Pickering does well to remind us (AARGnews 5, 1992) how much is now missing from the archaeological record in lowland Britain, at least in those rural areas where once upstanding earthworks have now been generally removed by ploughing. The larger banks and mounds may still have sufficient substance after prolonged ploughing to yield soil- and crop-marks, but the more numerous slighter examples will normally have vanished without trace, leaving only ditches, pits and foundations of various kinds to be detected by archaeological investigation.

There is a marked contrast between what is known of the pre-medieval landscape in the upland or earthwork zone and of that in the lowland or crop-mark zone just described. In the uplands, in those areas where early remains are still relatively intact, we see both settlements and fields, but in the arable lowlands - apart from some telling exceptions - settlements are located by aerial reconnaissance and by excavation, but fields are generally conspicuous by their absence.

To list the lowland areas where field-systems are in fact known will serve to draw attention to the very large regions that are effectively blank. First, there are extensive tracts of chalk downland in Wessex and on the South Downs bearing systems of so-called Celtic fields, whose scarped or embanked divisions were so massive that they still yield clear soil- and crop-marks after half a century of ploughing. Secondly, in the wet environment of the Fenland all boundaries were defined by drainage ditches, so revealing the complete man-made landscape, including fields of varying size and regularity. Thirdly, in north Nottinghamshire and South Yorkshire Derrick Riley has traced a substantial tract of ditch-defined fields, mainly in a brickwork pattern, to which our discussion must shortly return. (The unusual thing about these fields, of course, is not the brickwork pattern, which may, for all we know, have been widespread, but the fact that they had ditched boundaries.) Finally, in at least some areas of 'Ancient Countryside' (sensu Rackham 1976), untouched by open-field agriculture, there is reason to suppose that the nineteenth-century field pattern we have inherited had its origins in pre-Roman times. In Essex, for example, part of the field pattern is cut through by the Roman road from Little Waltham to Braintree in such a way as to imply that the field boundaries are pre-Roman, and fields in other areas seem to be at latest Roman (Rodwell 1978).

Elsewhere, as on the river gravels and on the limestone and chalk wolds from Gloucestershire to North Humberside, major boundary ditches and pit-alignments occur in some numbers, as do ditched enclosures (sometimes clustered together), but coherent groups of fields of any extent are really very rare. Is this because fields were not in fact a common and abundant feature of the pre-medieval landscape? This seems most unlikely. The environmental evidence from prehistoric and Roman excavations attests both arable and pastoral farming; when both are present in one place, it is vital that crops are protected by stock-proof fences or hedges. In the upland regions such hedges took the form of stone-built walls, which often survive; on the
southern chalklands they were chalk banks, perhaps topped with thorns or some other barrier; elsewhere we must suppose the widespread use of no less effective a barrier which, if unaccompanied by a ditch, has now left no trace.

When we see enclosures and larger parcels of land bounded by ditches, we commonly assume that a major purpose of digging the ditch was to provide the material to construct a bank alongside it. The combined profile of bank and ditch ensures the maximum definition of the boundary as a mark and an obstacle, whether it has an overtly defensive purpose or not. Sometimes, though rarely, the presence of a bank may be more directly inferred, when a secondary ditch can be seen to approach another ditch but stop just short of it, as if halting at an intervening bank. The same behaviour can sometimes be observed in pit-alignments, seemingly confirming the view that they were (at least in part) quarry-pits for an accompanying bank; examples can be seen in a small group of fields defined by pit-alignments at King's Bromley (Staffs) (Wilson 1982, fig. 75).

When ditches are absent, however, a bank of any size seems to be unlikely. Fences are only rarely encountered and, to be effective, they should have been sufficiently deeply founded to have left their mark in the subsoil for subsequent detection, whether by excavation or by aerial observation, as, for example, at Shell Bridge (Lincs) (Wilson 1989, fig. 8.3). The remaining option appears to be the conventional hedgerow, which is an effective barrier to livestock if properly laid and maintained in the traditional manner. As already noted, patterns of hedged fields seem to go back to before Roman times in parts of Essex, so the notion of a pre-Roman landscape of hedged fields need not be anachronistic.

The apparent absence of fields from the most fertile parts of the British landscape has always been a puzzle, for the Roman as well as for the prehistoric period. Where are the fields to go with the Roman villas? Similar observations in France led Roger Agache to ask if the prairie-farming of modern Picardy was already being practised in Roman times.

In Britain it is not unusual to find the buildings of a Roman villa lying within a walled or ditched enclosure or surrounded by a compact group of home paddocks, but associated systems of ditched fields are very rare. Moreover, in such examples as have been published the association is actually something less than certain. At Ashwell (Herts), for example, there is a well-defined group of fields of assumed Roman date, but the associated villa has yet to be positively identified (Frere & St Joseph 1983, fig. 18). At Little Milton (Oxon) part of a possible field-system is known surrounding a Roman farmhouse, but the Roman buildings (at least in their visible form, with stone foundations) belong to a relatively late stage of its development (Wilson 1974, 254) and the supposed fields may in any case be orchards or paddocks (Frere & St Joseph 1983, 189). At Barnack (Cambs) the character of the fields is clearer, but it seems more probable that a Roman farmhouse was inserted into an existing field-system than that the fields were laid out in relation to the house (Wilson 1974, 257). At any rate, the general rule in Britain remains that, as far as we can see, Roman villas have no fields. If the prehistoric and Roman rural landscape was actually composed of fields that have generally left no trace, then the paradox is resolved.
But is there any real evidence for such vanished field boundaries apart from general probability? It is here that we should return to the brickwork-pattern fields of north Nottinghamshire and South Yorkshire published by Derrick Riley (1980). The primary features here are the long through-boundaries defining parallel strips 50-130 m wide. These strips are divided by cross ditches to yield a pattern something like coursed brickwork. The individual 'bricks' are sometimes further subdivided lengthways (Riley 1980, maps 4, 9, 17, 19, 22-23, 26) and similar subdivision is strongly suggested elsewhere by offsets, changes of direction and discontinuity in the cross ditches (maps 11, 15-19). It is always difficult to argue from the non-appearance of crop-marks, but it looks as though this field-system was originally even more elaborate than appears on Riley's careful plans and that certain of the lesser boundaries are no longer in a form detectable from the air. This could be because the remains of shallow ditches have now been totally ploughed away or because ditches were never present in the first place. In either case these inferred, but now invisible, boundaries provide a parallel for the numerous inferred, but now invisible, boundaries which we suggest once divided up the prehistoric and Roman rural landscape.

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AIR PHOTOGRAPHY AND SITES AND MONUMENTS RECORDS: SOME OBSERVATIONS.

N.A.R. Lang

1. Introduction

In response to Rog Palmer's comments on the Cambridgeshire SMR (AARG News Number 4, pp. 20-21), and the site at Limlow Hill (TL3241), it may be useful to discuss some of the issues he raises regarding SMR recording in general, and the incorporation of air photographic results in particular.

Maintaining a large and complex body of information, such as an SMR in a consistent and retrievable form is a challenging task, which should not be underestimated. Sites and Monuments Record are, in most Counties, an amalgam of the archaeological records of the Ordnance Survey and the AM 107 recording format for Scheduled Ancient Monuments. Of course, much additional information has been added in every County since then, but the origins of the SMRs are readily identifiable.

Typically, these are fairly simple flat file databases (though there are significant exceptions). Most SMRs are technologically un-sophisticated. They are managed by persons with no formal training in, and relatively limited experience of database design, information retrieval theory, or, in many cases the range of technological 'tools' now available for information management.

Several reasons account for this, including the very wide brief many SMR officers are expected to cover, but perhaps the main reason for this is that the resources (staff, IT support, systems) to manage even the basic character databases run by most SMRs are so desperately limited. This applies both to maintaining the flow of new information (especially when, as is normally the case, this is presented in non-digital form and has to be re-keyed) as well as editing past entries.

This is an important point - my comments should certainly not be taken to denigrate the efforts of SMR officers. By the very nature of the job, they are expected to be generalists, but many of the crucial areas for development - such as Information Technology - require specialist input, the resources for which are not normally made available. To round this off, SMR posts are generally regarded as lower status posts within the Local Government hierarchy, and in consequence, with few exceptions, have a limited 'voice' within the profession.

2. SMRs and the verification of sites

If we consider that sites and monuments records are primarily maintained for development control purposes, then the principal objective must be to identify potential or definite constraints on development for planning control. Given the limited resources within the planning system for archaeology (despite the increased burdens placed upon it through changes in government policy - eg PPG 16 (DoE 1990)), it is often only possible to verify a potential constraint at the time a planning application conflicts with it.

Since naturally occurring formations resembling archaeological features are a source of potential confusion - as Rog Palmer appears to have found in the case of Limlow Hill - this is precisely why they should be retained in the SMR, and not edited out! The SMR entry concerned is not presented in his article, and it may not be helpful to discuss the specifics of this case, but at a general level, SMR recording for potential sites should, I would submit, follow a 'life-cycle'.

The processes of recording might be:

(i). Recognition: a possible archaeological site identified from an air photograph.

At least an index record is made for the site, giving this a primary record number, describing the characteristics of the site, and...
assigning a provisional identification. Ideally, a record system will distinguish morphological characteristics separately from any provisional site characterisation, and will include a signifier demonstrating that the assignment is tentative. An authority will be cited (the air photo interpreter), and the date of the interpretation will be given along with details of the air photo(s) from which the interpretation has been derived.

(ii). Records of archaeological interventions.

Where the site has been investigated (e.g. by trial trenching, a watching brief on a development, or fieldwalking) the results should be incorporated as a component of the record. Often, such investigations will not prove conclusively that a site is not of archaeological origin - this is true in a surprising number of cases, particularly where the field records from 'early' investigations have not survived. The 'source' is often no more than an ambiguous note in a County Journal. At this stage, the site would still be recorded as a possible example of its sitetype, since it still represents a potential constraint on development. Up until this stage, a planning application submitted affecting the site may be subject to a request for an evaluation.


Where subsequent research or fieldwork demonstrates a site to be 'natural', the sitetype will be altered to a suitable term (e.g. non-antiquity), and the last entry in the SMR record will describe the date and reasons for the change of classification. Subsequent eager researchers coming across the same original photograph will then, on contacting the SMR, be able to avoid the embarrassment of publishing their newly found site!

(iv). The treatment of planning applications for tentative sites.

It is worth making certain observations on the status of 'possible' cropmark sites within the planning process. Where a site identification is extremely tentative (and especially where this has been made by someone with limited experience of air photo interpretation), there is a clear case for obtaining specialist advice before requesting physical investigation. It should be borne in mind that any request made to a developer by a planning authority for an evaluation (either under Regulation 4 of the Town and Country Planning (Applications) Regulations (DoE 1988), or following PPG 16) must be 'reasonable'. Although there is no precise definition of 'reasonableness', I would submit that this implies, in an archaeological context, a probable, rather than possible site, and does not give the County Archaeological service carte blanche to investigate every little blemish appearing on air photographs at the developer's expense!.

3. The potential of SMRs as air photographic databases

While not wishing to 'brush over' the inadequacies of SMR databases, a more interesting discussion can be focussed on their potential as holders of air photographic information, particularly where sites are classified by morphology, rather than by an interpretive label. It should be noted that most SMRs are currently more suited to acting as repositories of interpretation (in which I would include morphological classifications) than as air photographic libraries, though digital storage may considerably alter this.

It has been recognised for some time that the most satisfactory method of holding SMR information is within a spatial database, either as a computerised mapping system, or in a true Geographic Information System (Lock and Harris, 1991), incorporating techniques for spatial analysis, as well as display. This is particularly relevant for the depiction and assessment of 'landscape' information, to which aerial reconnaissance has contributed such an important part. Nonetheless, cropmark sites still appear to be under-represented in SMR databases (eg IAM, 1984, Lang, 1991).

While there are very interesting projects already started (eg. the National Mapping programme (Bewley, 1992), the development
of County-wide (or, more interestingly, regional) GIS, with different morphological components of cropmarks held as individual rectified vectors has considerable potential. Not only would this give a rapid, and geo-referenced cartographic capability, it would also provide the basis for comparatively rapid analysis. For example, it would be possible to calculate the average distance of a particular cropmark type from a water source, or search for general regularities in locational attributes. Moreover, air photographic information can also be rapidly integrated with other evidence - for example, fieldwalking results, or geophysical prospection.

It may also not be too long before searches for analogous sites will be possible via intelligent computer-based pattern matching. This would mean that, rather than having to classify a cropmark as a textual statement, for example through the MORPH system (Edis, MacLeod and Bewley, 1989), the search would be based on matching patterns of vectorial information, which could be tailored to specific tolerances for size, and variation from the 'model' cropmark.

The vectorial representations are likely to be held alongside rasterised images of the photograph(s) from which they are derived (many GIS products can manipulate raster and vector information simultaneously). Although the storage of digital images is still 'immature' technology, it is already quite feasible to achieve high resolution digital imaging of photographic quality (e.g. Booth, forthcoming), though the costs may still be prohibitive for small organisations (even with the advent of Photo CD). Since Photo CD is likely to emerge as a standard, despite some reservations as to interpretations based on digital images, it seems likely that this will be a growth area in the coming years.

It may be argued that little of this is very new, (many of the techniques of spatial analysis used in GIS have been applied to archaeological data without the benefit of computers in the past) and the resource implications have been conveniently skated over (see Lang, forthcoming for a discussion of the constraints to GIS development). Despite this, in a world where we are increasingly struggling to keep up with available information, GIS offers an efficient means of managing complex inter-relationships between data, and more accurate and sophisticated modelling than could ever be achieved through manual means. It may not provide an escape from charges of environmental determinism, but I suspect it will give a considerable revitalisation to the kinds of spatial analysis and settlement models, largely borrowed from human geography, so prevalent in the 1970's.

4. Conclusion

While these comments are perhaps not directly relevant to problems of interpretation per se, I would argue that, if basic recording life-cycles are followed rigourously, they will give considerable help in avoiding the confusion described over Limlow Hill. More importantly, future developments, including the establishment of digital information networks are likely to offer the capability for searching libraries of comparative data to answer such problems quickly and efficiently - quite possibly at the end of a fibre-optic cable connected to a computer on the Air Photo Services desk!

References


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**A SHORT COURSE ANNOUNCEMENT**

Department of Archaeological Sciences
University of Bradford

It is intended to hold a two day professional training course on the subject of:

**Archaeological interpretation and rectification of aerial photographs**

Mid-September 1993

at the University of Bradford

Details: Cathy Batt, Department of Archaeological Sciences, University of Bradford, Bradford, West Yorkshire, BD7 1DP.
Tel 0274 383533. Fax 0274 728497
Between the 15th - 18th October, 1992 over 150 participants from Austria, Belgium, Canada, France, Germany, Great Britain, Ireland, Italy, Luxembourg, Netherlands, Poland, Spain, Sweden, and Switzerland, gathered in Amiens, ostensibly for a four day aerial archaeology conference, coinciding with the Festival international d'archéologie aérienne de Picardie. The reality was a little more prosaic, and (literally) thousands of air photographs later, one may hopefully be forgiven for entertaining a number of doubts which rise unbidden in the mind. Are mental sanity, gastric health, air photographs, red wine, and the French language somehow mysteriously and inextricably linked? We may never know the answer to this question, but your correspondent expended considerable energy, and not a little money, in research. All at the cost (contrary to his own naturally abstemious character) of some considerable personal sacrifice, especially of his much valued sobriety (this of course only given up reluctantly, and in the pure spirit of scientific enquiry).

Despite the fact that a large proportion of Amiens has been reconstructed since the First World War, and little of the Medieval town survives to the present day, the city centre retains considerable charm (although admittedly not to everyone's taste). Excellent shopping, an outstandingly French (what else) market, a fine Cathedral, the first skyscraper in the world (why Amiens? is another interesting, but unanswered question), and a wide variety of cafes,
restaurants, and bars (many market tested, but not necessarily in that order of priority), all provided ample distractions from the main business (?) of the conference. Attractions all too tempting to many of the delegates, as demonstrated by a number of (slightly shamefaced) downtown encounters during conference sessions. The conference itself was located in the corporately grand, modern Salle des congrès du Crédit Agricole. Aircraft (real ones) style seating arrangements, with personal lights and desks were particularly memorable, although unfortunately the in-flight movies never materialised. Deceptively comfortable, these seats were particularly welcome (and essential) as an aid to relaxed digestion.

The official opening ceremony ran between 6 and 7.30 (sorry 18H00 - 19H30) on the first evening (or was it longer? One tries to forget), leading into a sumptuous and very tasty buffet (no difficulty remembering that). The inaugural session (although hardly an after-dinner speech in the traditional sense of the word) was opened by a homage to Roger Agache by Raymond Chevallier (The dream of flight in Antiquity), followed by a response by Agache (The art of aerial archaeology). The main body of the conference was divided into three sessions: Aerial Archaeology Abroad (everywhere in the Universe apart from France), Aerial Archaeology in France (obviously much more important), and new advances in methods and techniques. Members of AARG were well represented, and some even spoke in tongues (more so than usual, that is), to the great pleasure of the predominantly and inevitably Francophile (and dare one suggest, just a teensy bit partisan) audience. Accounts of work beyond the usual orbit of AARG meetings were of considerable interest, and sometimes (literally) eye-opening (do they really fly that close to the ground in Canada?). Reports of current work throughout the highways and byways of France were not always as consistently interesting, and one was struck by the small (dare one say localised?) scale of such work. Does this, however, reflect a greater level of funding (although demonstrably not of organisation) than in Britain? Your correspondent enjoyed the session on methods and techniques, if for no other reason than it confirmed that his own faltering steps in this area seemed at least as advanced as anything anyone else was doing (its always a great relief to have ones confidence boosted in this way - worth every penny!)

The conference was organised with traditional Gallic charm and efficiency. The first session seemed to overrun by an hour and a half (it can't just have been the after effect of the buffet), and this factor increased exponentially throughout the remainder of the conference (at one point it seemed as if we were a day late). Particularly vulnerable were the sessions which included papers by native French contributors. Twenty minute slots were effortlessly metamorphosed into hour plus read papers ('I've started, so I'll finish' was occasionally the order of the day). French hospitality was munificent, and if at times it seemed as though the French organisers and participants regarded the meals themselves as more important than the actual sessions, any such doubts were at least partially offset by the pleasurable nature of the table talk. I especially appreciated the cocktails and the help-yourself-to-a-bottle-of-wine (or two) drinks service (but twice a day?). British conferences (AARG?) please take note.

Oh, we did also manage to fit in looking at just a few air photographs.

un égout
(nomme de plume)
Three months have passed since the conclusion of the International Festival of Aerial Archaeology of Picardy which was very well received by both the French participants and the numerous foreigners who came to contribute and gain some idea of the level of archaeological research in Europe. They also came to pay well deserved tribute to Roger Agache, one of Europe's most eminent archaeologists, and to his monumental and unique work which has greatly expanded our knowledge and understanding of the ancient landscapes of the north of France.

This conference with its rich programme certainly did not disappoint the many people present at the opening - more than 250 - nor during the next four days during which aerial archaeological researchers of national and international reputation, and their sometimes less well known regionally based colleagues, followed each other to the podium. As is often the case and for a variety of reasons, several well known names were absent. It was evidently their loss!

For the layman, just becoming aware of the significance of aerial archaeological research there were four days of new discoveries and of wonder, but for the specialists it was a time of enriching exchanges and a sharing of different experiences, methods and results. This was just some of what all the participants at the festival experienced in a friendly atmosphere to which the well known qualities of French hospitality and gastronomic skill contributed more than a little.

French participants were certainly in the majority, with more than fifty speakers, but one must also salute the British delegation for its numeric importance, more than twelve, and for the scientific quality of its presentations. Many other countries were well represented including Belgium who sent five aerial archaeologists and three geographers to the festival. Five aerial archaeologists came from Germany and others from Spain, Ireland, Italy, Switzerland, Austria, Luxembourg, the Netherlands, Sweden and even Canada. The organisers were overwhelmed by proposals to speak and produced an ambitious programme. However, the time available proved insufficient which meant that several deleagtes, by no means the least important, could not read their papers which was very regrettable.

The abundant documentation given to each one on his arrival at the conference, as well as the definitive programme, amounted to a booklet of more than 50 pages, giving in French and in English the resumes of the announced papers.

This Festival and Conference of Amiens, which was conceived by M. Brune Bréart, former collaborator of Roger Agache, and whose organisation and success was assured by the Association for the promotion of the Archaeologic and Historic Patrimony of Picardy (A.P.P.A.H.) aided by the regional service of archaeology (D.R.A.C.), were offered in homage to a man who has worked more than forty years above Picardy and the Somme and has revealed all the possibilities of aerial observation for a better understanding of the past.

This dedicated aerial archaeologist is Roger Agache, of whom Prof. Raymond Chevallier, during his masterful introductory speech to the assembly, recalled his exemplary career and underlined the immense merit that his persistence, his enthusiasm, and his incomparable knowledge of the terrain have given to a discipline of which he is one of the founding fathers in France. Researcher and populariser, Roger Agache is also a scientist who has left an abundant heritage. His work, made up of more than a hundred publications, covers all the
historic periods and proves to be an indispensable tool of reference concerning the techniques of prospection and aerial photography. It was a real ovation that saluted Roger Agache when he, very moved, addressed the public to thank them with the modesty and humour for which he is well known.

The last day was reserved for guided visits to the Museum of Abbeville for the opening of the exhibition 'Autoroute A28, Kilometres of History' and to the Archaeological Park of Samara. Some more adventurous participants took off from the airport at Abbeville and overflew the Somme valley in aircraft from the local club and two owned by CIRA which had come from Belgium especially to take part in the great international festival.

It has been the intention of the organising committee to publish a volume of the proceedings and we know that its production is already well advanced. When published, it will constitute a primary source of information for the study of aerial archaeology in France. In fact, the quality and diversity of the results and conclusions of our French colleagues have given us the opportunity to produce a very good account of aerial archaeological research outre-Quévrain. Such meetings between national and foreign archaeologists also offer opportunities for establishing contact and the direct exchange of ideas and information that are much richer than the reading of publications alone. This fact has been observed and appreciated during the two symposia that CIRA organised in Belgium.

The International Exposition of Aerial Photographs "Vertiges and Vestiges" which was presented by Bruno Bréart and his colleagues in the grounds of the D.R.A./C., rue Henry Daussy in Amiens, truly impressed its many visitors. There have been several requests to borrow the exhibition for showing in Belgium and the U.K. At the moment, the Institute for Archaeological Patrimony and the C.I.R.A. are working together in the hope of being able to organise its transfer to Brussels during 1993.

In conclusion, on behalf of all the participants to the Festival of Amiens, I would like to offer my hearty congratulations and sincere thanks to the organisers and all those who so generously gave their time, advice and assistance to guarantee the success of this worthy undertaking. In particular I mention the Ministry of Culture without whom such a conference could never have taken place.

Charles LEVA
Ordnance Survey's ‘Superplan’

With the conversion of OS large scale mapping into digital form - expected to be completed for all areas by 1996 - comes a range of new mapping services under the cover name Superplan. The service applies to 1:1250 and 1:2500 source data but what follows omits reference to the larger scale. Standard National Grid format map sheets will be available at a cost of £40.00 per 1000 x 1000 m 1:2500 sheet.

Digital data also allows the ability to produce Site Centred mapping (for those of us who have to deal with those sites which lie in the corners of four maps) and these are available as two product types, pre-defined and user-defined. At this point the catalogues sent to me by OS became confusing as, in one of them, 'large scale mapping' includes 1:10000 scale (which I'd always thought of as 'medium scale') but that which dealt with Superplan took 'large scale' as 1:2500 and greater. My interpretation of these is that standard digital maps are, or will be, available at scales larger than 1:10000 but at scales at, or greater than, 1:2500 there exists the option for Site Centred output. Data for this product is derived from 1:1250 and 1:2500 survey although there is an output range of scale options between 1:200 and 1:5000.

We have not had the time (or the necessity) to see or obtain and Superplan products but would be interested to hear from any AARG members who have. My principal concern is to ask how accurate is the scale and is it the same east-to-west as it is north-to-south? Paper quality and the output mapping can be expected to be high standard - but can we use it directly on the digitiser and retain an AERIAL error of less than 2.0m? Any comments?

With Superplan comes a network of agents to supply the maps. Cambridge has national cover, York regional, Edinburgh has one (national) across the river but interestingly there are no agents at Aberystwyth or Swindon.

PhotoGIS

Details are being pursued of a product recently noted in Archaeological Computing Newsletter (No 33, 10). Extracts are reproduced below:

PhotoGIS enables data capture direct from aerial photographs. Data can be interpreted from a photograph and immediately entered into a GIS or digital mapping system.

PhotoGIS corrects data from a single photograph for any amount of camera tilt and for scale differences due to variations in terrain elevation. Data can be input from vertical or oblique photographs using a digitiser. It also transforms the photographic data to the coordinate system of a selected map. Corrections rely on a DTM and four control points.

But before you all abandon AERIAL and rush off to buy one... you'll also need ARC/INFO software, a Sun or IBM workstation (or IBM-compatible PC), and photographs from metric cameras.

PC drawing packages - a query

Air Photo Services recently purchased a copy of Professional Draw with the intention of trying to use it to produce final drawings from rectified AERIAL output. The main reason being that once available in digital 'finished' form maps could be output at any (sensible) scale - a kind of APS Notbadplan if you like. Time to learn the package and play has been minimal but, with the help of a timely disc received from John Haigh in December, files have been transferred - with a little muddling
- and it has been possible to part draw a 'finished' overlay version of a bit of archaeology. I believe that Pete Horne has been playing similarly at York (although using AutoCAD) but is anyone else using drawing packages, and for what? Maybe this could be a subject for a one-day AARG workshop later this year.

Not really technical, but...

Ordnance Survey vertical photographs

Recently we had cause to use, or enquire, about two other OS products. One site which we were examining in advance of development was covered only by recent OS verticals (which we located through their Aerial Photography Advisory Service (see AARGnews 4). Our enquiry resulted in next-day receipt of a 1:50000 flight trace and translucent template showing the ground area covered by prints of different scales, making it easy to determine and order the relevant prints. Prices seemed exceptionally high at £25 (plus vat) per contact print but the dozen we ordered were printed and sent to us within a few days (apparently this is normal service for OS!) and allowed us to complete our assessment within the agreed time limit. Prints were of high quality and made me wonder how it is that OS manage to fly and photograph only on days when there is no cloud cover. I was using a different set today - again cloud free - in areas where there were superb records of 1946, 1971 and 1984 clouds.

Contour surveys

Not an everyday requirement of an aerial photographer or photo interpreter but something we may occasionally be asked about. I pass on information acquired during the course of two recent jobs.

A number of firms specialise in producing contour surveys for a range of tasks. We were asked to provide three quotes and found one local (Peterborough) firm, were given an address by RCHME APU and thought we'd also ask Ordnance Survey. In both cases OS provided middle-range estimates of costing for the work (for one job this was the difference between £2000 and £8000 quotes - quite a range for the same work!). A further, and perhaps considerable, advantage of using OS, especially if the original photographs are theirs, is that there is, apparently, no additional cost for provision of diapositives or for copyright fees.

Both OS departments can be reached through their central switchboard after which personal contact seems to be a matter of policy and helps the smooth running of queries and orders.
Diploma and MPhil in Aerial Photography with Geophysical Survey in Archaeology at the University of Glasgow.

A new course starting in October 1993.

This unique course has a strong practical content and focuses on the principles, methods and applications of aerial photography and geophysical survey in archaeology.

Aerial photography is the single most important technique for the discovery of new archaeological sites and the appreciation of their broader landscape setting. Geophysical survey is an increasingly sophisticated nondestructive method of indicating the archaeological potential of sites by revealing plan detail.

**Course Structure**

Teaching over the first two terms, concentrating on the basic theory, principles and methods, is provided by staff of the departments of Archaeology and Geography and Topographic Science in Glasgow. The third term is spent on placement with the Royal Commission on Ancient and Historical Monuments of Scotland in Edinburgh in order to gain practical experience of professional aerial photographic work.

**Entry Requirements**

A good second class degree or above in archaeology or other relevant discipline (eg; geography, geology, history, environmental science) or an equivalent qualification, or suitable practical experience.

**Assessment**

Assessment is by examination (2 papers), a portfolio of practical work and, for those taking the MPhil, a dissertation to be submitted by the end of September in the year following admission.

**For further information contact:**

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Gillian Barrett

Having spent many years using the excellent Irish material in the CUCAP collection, the opportunity to take to the air myself (with the help of Iona Airways!) finally arrived in July 1989. With rainfall only 18% of normal values and soil moisture deficits reaching 100mm, cropmarks were abundant. Well laid plans for the careful recording of sites and flight paths, were soon forgotten in the hectic pace of photography. Whilst the techniques of recording no doubt left much to be desired, the experience of seeing such a wealth of cropmarks evidence, revealed with great clarity was a memorable experience. Excellent results were again achieved in July and August 1990, but in 1991 the Irish weather reverted to its usual character. By August 1991 I had a more realistic appreciation of the difficulties involved in aerial photography, the patience required, and that peculiar and unsettling state of indecision: to fly or not to fly!

Approximately 90 hours reconnaissance were completed in the three year period, concentrating on five study areas. The major avenues of investigation are summarised below, with examples from a transect of the River Barrow between Monasterevin and Bagenalstown in the counties of Laois, Kildare and Carlow, this being the most productive of the five study areas in terms of cropmark recording.

1. The chronology and pattern of Discovery:

Distribution maps are being compiled for each year of survey to demonstrate the cumulative pattern of cropmark discovery. Light well drained soils, combined with extensive cereal cultivation provide very responsive conditions for cropmark formation within the Barrow transect, particularly in 1989, when six hours of reconnaissance undertaken on 13, 15 and 21 July generated 137 cropmarks, 106 (77%) of which were newly identified archaeological features.

The pattern of cropmark discovery is also being correlated with topography and soil type. Whilst distinctive concentrations of cropmarks are evident, for example within the grey brown podzolics of the Fontsdown series which are particularly prone to soil moisture deficits, their geographical significance will become clearer when the composite results from the three years of photography are available.

2. Computerised mapping of cropmark plans and morphological assessment

The Bradford Aerial System (BAPS) was used to produce rectified plans at a scale of 1:2500 for a representative sample of cropmark sites, providing the basis for morphological comparisons. The application of a detailed system of morphological classification was considered premature within the context of the River Barrow transect. My main objective was to provide a preliminary sorting of the main types of cropmark evidence, to illustrate their range and diversity.
Fig. 1  Cropmark group at Castlereban South, Co. Kildare
Since the cropmark record in Ireland is dominated by isolated features with relatively simple morphological characteristics, the occurrence of cropmark groups and cropmarks of greater complexity merit special mention. Cropmark discoveries were therefore initially categorised and mapped as:

(i) Discrete Cropmarks: individual, isolated cropmarks.
The most common category of cropmark recorded.
73 located in the Barrow transect in July 1989 (69%)*

(ii) Cropmark Groups: two or more closely juxtaposed cropmarks.
Nine groups located in the Barrow transect in July 1989, comprising 27 individual cropmark components (25%)*
Cropmark groups provide valuable examples of spatial infilling at the local level. The close juxtaposition of contrasting morphological types, as can be seen at Castlereban South, Co. Kildare (Fig. 1), pose important questions regarding chronological and functional relationships, which can only be resolved through field survey and selective excavation.

(iii) Cropmark Complexes: extensive sequences of cropmarks composed of adjoining and sometimes superimposed cropmark features.
Six complexes recorded in the Barrow transect in July 1989, (6%)*.
These complexes are unusual in the Irish context and provide rare insights into the character and organisation of past landscapes, as can be seen at Rainestown, Co. Carlow (Fig 2). Incorporating varied cropmark components, these complexes certainly merit ground based investigation, to clarify the processes of development and change within these fragments of the early landscape.
(* percentages refer to the 106 new cropmarks located in July 1989).

Individual cropmark components were subsequently classified as in Table One.

| Table One |
| Frequency of cropmarks by morphological category: River Barrow Transect, July 1989 |
| Curvilinear Structures (below 20m diameter) | 23 | (22%) |
| Curvilinear Enclosures (single-ditched) | 59 | (56%) |
| (multi-ditched) | (47) | |
| Rectilinear Enclosures (single-ditched) | 8 | (7%) |
| (multi-ditched) | (7) | |
| Cropmark Complexes | 6 | (6%) |
| Miscellaneous | 10 | (9%) |
| Total | 106 | (100%) |
Fig. 2   Cropmark complex at Rainestown, Co. Carlow
This rather haphazard classification clearly lacks the rigour of the Morph system! Nevertheless it was felt that it did provide a satisfactory preliminary level of description, identifying broad categories of site, and highlighting the more unusual features of morphology and spatial pattern. Where possible suggestions were made concerning the possible functional and chronological contexts, but in many cases the cropmark sites lack direct counterparts with the upstanding archaeology of the area.

3. Reconstructing the early landscape: an integrated approach.

Broad morphological descriptions are a useful summarising device, but provide little explanation of the significance of the cropmark sites within the archaeological record as a whole. Investigations at the local level permit the integration of the cropmark evidence with archaeological data from other sources within a landscape setting. An area of 16 sq km in the centre of the River Barrow transect (focussed on a single surviving field monument - the medieval church and graveyard at Dunmanoge) was selected for more detailed evaluation. A chronology of archaeological discovery reveals both the fragmented nature of archaeological survival in this fertile arable area and also the important role of aerial reconnaissance in recovering many facets of the archaeological record (Table two).

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<td>1837</td>
<td>3 Field monuments: early church and graveyard, ringfort and moated site.</td>
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<td>1989</td>
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Recording of archaeological sites over time:

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Aerial photography has thus provided 14 of the 19 known archaeological sites within this area, nine of these from the renewed programme of aerial survey between 1989 and 1991.
Fig. 3 Cropmark enclosures in the Dunmanoge area, Co. Kildare
Dunmanoge provides just one example of the complex 'hidden' landscapes which can be recovered through aerial survey in these fertile agricultural regions. A diverse sequence of cropmarks has been revealed within an area of limited interest in terms of its 'visible' archaeology (Fig. 3), generating a substantial revision of the density of early settlement (Fig. 4).

Areas such as Dunmanoge, with their rich array of cropmark evidence, provide the opportunity to develop focussed programmes of field work, including field walking, phosphate survey, palaeo-ecological investigations and selective excavation, which could prove crucial in the understanding of the formation of the Irish landscape over time. Only through the application of such integrated programmes of research can the full potential of the cropmark evidence be exploited. So if anyone fancies a bout of fieldwork on the banks of the Barrow, let me know!

**In conclusion**

Although the evaluation of the River Barrow transect is still in progress, a few general issues emerge:

- the great potential of aerial reconnaissance within the fertile agricultural regions of south-east Ireland. The cropmark evidence form the River Barrow transect and the adjacent River Nore (where the results still await analysis) indicate that these great river systems encompass a rich and varied subsurface archaeology awaiting discovery.

- the need to develop regionally based programmes of aerial survey, building on local knowledge and experience of the landscape and its archaeology.

- the provision of funding for aerial survey, particularly to take advantage of good weather conditions such as the summers of 1989 and 1990.

- the establishment of locally based teams of professional archaeologists to update SMR records, conduct local investigations, and particularly to monitor the status of the surviving field archaeology. The aerial view provides not only a record of discovery, but also unfortunately a record of destruction. Whilst the SMR is an invaluable data base, the majority of the monuments receive no real protection from their inclusion in the SMR, and many are seriously at risk from the rapid pace of landscape change within rural Ireland.

**Acknowledgements**

Financial support for the aerial reconnaissance programme was provided by The Leverhulme Trust and The British Academy.

**POSTSCRIPT**

A photographic display presenting the results of the 1989-1991 programme of aerial photography in Ireland will take place at ENFO (The Environmental Information Service) in Dublin during May 1993.
AERIAL ARCHAEOLOGY IN SHETLAND: 
THE SOUTH NESTING PALAEOLANDSCAPE PROJECT

Val Turner and Chris Cox

Val Turner, Shetland Archaeologist

The South Nesting palaeolandscape project was conceived by myself and Steve Dockrill of Bradford University in order to investigate the prehistoric landscape of the area (Fig. 1) and try to establish the role and function of burnt mounds within that landscape (Dockrill 1992).

Figure 1. Shetland: location of study area.

South Nesting was selected as the study area due to its predominantly limestone geology, which makes it one of the more fertile areas of Shetland. It is also a suitable area in which to apply geophysical survey. There are several known burnt mound sites in South Nesting, in addition to a number of obviously prehistoric monuments and field systems which had never been systematically recorded. The hill landscape in South Nesting, as in much of Shetland, has not been used intensively since the Bronze Age. Crofting practises have heavily influenced the cultivable land, and in some places this influence does extend to hillsides. Whereas in most of England hints of the prehistoric landscape can only be observed by diligent air photographers for a few days in the year, Shetland’s prehistoric landscape is there to be tripped over!

During the first field season of the South Nesting Project (1991), the area of modern cultivation was surveyed. Not surprisingly, a crofting landscape was found, interspersed with identifiable prehistoric monuments: burnt mounds, house sites, enclosures and a possible burial cairn. Every lump or bump which was not definitely part of the modern landscape in use was recorded, and while pleased with the amount achieved, progress was understandably slow.

At this point, it was felt that aerial photography could be usefully employed to enable the project to examine larger areas and to gain a more comprehensive landscape overview and facilitate swift and efficient ground validation of the mapped features.

Chris Cox undertook this work for the project during February 1992.

Chris Cox, Air Photo Services

Interpretation and mapping from existing vertical and oblique photography aimed to put the field data in a wider landscape context, and identify further features of archaeological interest.

Existing photographic coverage for Shetland was predictably patchy and, in the case of the vertical coverage, ancient and of variable quality. Professor St. Joseph had photographed some Shetland sites, and his photos were studied for landscape familiarisation, but were not within the South Nesting study area. The main body of
photographs used for this assessment were verticals taken by the RAF during the 1940s and 1950s, at scales of 1:10000 - 1:28000, the clarity and quality of which ranged from reasonable to utterly dreadful. Cloud cover is, predictably, a problem in this part of the world. The verticals were old enough to be described as historical documents and I was aware all through the assessment that I was looking at the land as it was 50 years ago. However, the non-agricultural modern landuse compensates for this, and accounts for the remarkable level of preservation of Shetland's upstanding archaeological remains. Some useful illustrative obliques covering known sites had been taken during the 1970s, by John Dewar studios. These photos are of a very high quality (Fig. 2), and are suitable for mapping detailed archaeological features (Fig. 3) - however, they only covered three sites within the study area. Copies were purchased from the copyright holder, RCAHMS.

Figure 2. Houlland field system and house. Photograph by John Dewar Studios, 1973.
Maps dating back to the 19th century were consulted, but it was decided that the best topographic and contour data was the modern 1:10000 OS.

Photographic interpretation was facilitated by my own experience of other upland areas, but I soon realised that I was dealing with a special and specific environment in Shetland. Ample information and bibliography was supplied by Val and RCAHMS, and the educative aspects of this project were particularly valuable to me as a photo interpreter. My own knowledge and perception of archaeological features was considerably widened by this work, which was not only visually demanding (working from low-quality high-altitude photos), but intellectually challenging. In other words, it was difficult.

I made interpretative overlays to the photos, using 1x and 4x stereoscopic magnification, working from known sites which could be identified, out into previously unrecorded features. Stony enclosures, house sites and homesteads of unknown, possibly prehistoric date, and fragments of stony walling were identified. Most of the enclosures and possible house sites were less than 10m in diameter, and many known recorded cairns and small homesteads were simply not visible or discernible from the natural stony landscape features. However, over 100 features were mapped, and classified, according to their archaeological validity, as good, possible, dubious or non archaeological. Burnt mounds were not easy to identify and differentiate from the natural lumpy landscape working within the confines of the small scale vertical photographs.

Sites were mapped at 1:10000 onto an overlay to the OS base map, aided by network and grant projector. No sites were digitally rectified, due to a general lack of suitable control points and sufficient mapped contour information in a very hilly terrain.

The aim of this mapping was to indicate areas of interest rather than locate sites to the nearest metre. Each site was numbered and
described briefly in an accompanying gazetteer.

The assessment left me with a sense of having begun something, and being able to suggest possibilities from the slender archaeological evidence discernible from available photographs. In no way was this aerial assessment designed to stand on its own as an archaeological statement. It was a statement of archaeological possibility, a broad basis from which fieldwork can begin to flesh out the bare bones provided by the photographic interpretation.

Field checking showed that the reliability of results from the existing verticals was variable. In some cases, such as on the summit of Houlland, where there are some very low structural remains, obscured sites were located. In other cases, particularly where discontinuous lines of stones ("dykes") ran through the hills, they could not be located from these photographs.

The value of field observation to the aerial photographic interpreter (particularly when dealing with upstanding remains) is immeasurable. During October 1992, Val and I visited South Nesting, undertaking detailed observation of all types of sites, from burnt mounds to small house sites. This obviously essential exercise increased my interpretative confidence enormously, and brought reality to the landscape at which I had looked hard down the stereoscope for some weeks. We also examined the oldest pub in Shetland. Extending field observation to other areas of Shetland confirmed my view that aerial photographic interpretation is the way forward in the identification and mapping of the extensive and beautifully preserved range of field monuments in Shetland - the settlement and agricultural landscape at Scord of Brouster being just one example (Whittle 1986). My visit to Shetland also opened my eyes to the real value which is placed on archaeology in this community, where time present and time past seem to merge into one whole living landscape, which is appreciated and respected by all its inhabitants, and conserved for time future. This respect for the past and importance afforded to the archaeologist is not to be overlooked or underrated in our present competitive environment, and assured me that any aerial photographic work undertaken in Shetland would be truly appreciated by Shetlanders who take a very serious interest in their environment.

The amount of information gleaned from low-quality verticals was encouraging, and whilst the use of existing photography enabled detection of hitherto unknown archaeological features, there is a demonstrable need for a systematic and extensive programme of aerial photography in Shetland, not only within the South Nesting area. Val has some limited resources for reconnaissance, and intends to take to the air as soon as the rather inclement climate permits. Air photography in Shetland is probably more difficult than any of us on the mainland realise - great patience and persistence in working with the often appalling (to an outsider) squalls and sudden rainstorms is called for. However, the results will justify the effort involved.

Val Turner

The work in South Nesting has considerable implications for the rest of Shetland. Coastal and peat erosion could be monitored by a regular programme of flying, extending the benefits of reconnaissance to the natural environment which is, in this area, so bound with the archaeological. Meanwhile, large tracts of land such as those mentioned above, await systematic mapping and interpretation. A good, purpose-flown, vertical survey, undertaken in April or May would help progress this, in conjunction with specialist oblique photography.

References


Whittle, A. 1986. Scord of Brouster, an Early Agricultural Settlement on Shetland. Oxford University Committee for Archaeology, Monograph No. 9.
LOOKING DOWN ON AMARNA
Gwil Owen

Classic aerial photography of a desert site in Egypt; low relief, early morning sun and a clear atmosphere. What an image this conjures up! Perhaps a little Cessna, banking and wheeling like the storks that migrate over the site every springtime. Maybe a well heeled operation, running a helicopter hovering with precision over a particular feature. Plausible? You must be joking! Picture if you can two sweaty, dishevelled Europeans chasing a runaway balloon through fields of beans and corn, hoping that Allah or someone will persuade it to come to earth before it reaches the Nile. That is aerial photography at Amarna.

Tell el Amarna is the site of the ruined city of Akhetaten, the new capital founded by Akhenaton the "heretic" pharaoh in the mid 14th. century B.C.. The Milton Keynes of its day, if you will. Less than thirty years later it lay abandoned by the court and the government that had built it. Now all that is left are the mud brick walls and pylon cores. A few still stand proud of the sand to heights of two or more metres. The vast majority of the city lies like an aerial photographer's dream, just breaking the surface, and leaving the desert covered with humps and hollows as the only evidence of one man's dream.

Geographically the city sits in an embayment on the right bank of the Nile about halfway between Cairo and Luxor. With its associated cliff tombs and smaller sites it covers an area some seven by three kilometers. It has been explored regularly for many decades, from Petrie in the nineteenth century to the present excavations, run under the auspices of the Egypt Exploration Society.

It is of course not possible to excavate more than a couple of small sites at a time in such a large area, even in the lifetime of a long-term project. One of the major tasks, therefore, has been to survey fully the city using modern techniques in order to set the smaller excavations in as accurate a context as possible. Partly from this, and partly from the need to be able to see the same sort of relationships within individual buildings, has risen the need for aerial coverage of the site.

Apart from the daunting thought of the bureaucracy involved, it was immediately obvious that any aeroplane would be prohibitively expensive. Therefore a ground-based system was chosen. In 1990 a twin keel kite of two metre wing span was bought. This type of kite, a "Durnford Flying Machine" is steerable and very stable in most wind conditions. However we soon found out that Egypt offers just the exceptions to norrnality that make kite flying a hazardous procedure.

For the same season we were loaned, for comparison, an aerofoil kite from another site in upper Egypt. This type takes the camera aloft on the tether rope. It was launched one
A day in a stiff breeze, giving enough lift to make it advisable to tie the tether to our jeep. One of the aspects of wind conditions at Amarna is that the direction changes rapidly to and fro over perhaps twenty degrees. The rapid swoops and dives that the kite made to compensate for this, coupled with the vibrations of the tether in the strong wind, caused the camera and its control box to part company with the kite at a height of about 80 feet. This experiment has not been repeated, all subsequent flying being with the "Durnford" type.

In fact the windspeed at the time was too much for good photography, much of the desert surface passing the site at a height of five to ten feet. In the late spring in middle Egypt the wind is mostly too strong as described or, if weaker, too variable. The "Durnford" will indeed fly at quite low wind speeds even with a camera attached, provided that the wind is consistent. The big problem in the desert is that there is a strong column of hot air coming off the ground whenever the sun is out. If the wind is not strong enough to raise dust clouds, it is easily interfered with by the rising hot air. There exists up to about thirty feet dead air where the wind is very fitful. Assuming a kite is up, it only has to enter into this dead zone for it to fall out of the sky. The risks to camera and site, not to mention personnel are obvious.

Nevertheless good results were obtained at low level with the steerable kite on a few test runs. Sufficiently good for it to be thought useful to try again earlier in subsequent seasons when winds may be more consistent because of the cooler weather.

Our thoughts turned then to balloons - well, after a few drinks whose wouldn't? It soon became apparent that any large balloon was out of the question. Security clearance and the general bureaucracy would have been major difficulties. The import and transport of helium would have presented similar problems. A small hot-air balloon was decided upon.

The smallest size capable of lifting a 35mm. camera and its control is about 14ft. diameter. It was calculated that the 1300cu.ft. of this size would have a gross lift of about 231bs., and a net payload of about 71bs. Small balloons are often flown in Britain, but are usually inflated and launched from a burner on the ground. Our balloon builder and general mentor, Charles Saffery from Bath, developed for us a burner which would be capable of being carried in the balloon gondola. This would be run from a small propane/butane gas cannister of the sort used for portable brazing kits. More of this anon.

The balloon was shipped to Egypt in 1991 with equipment to allow for ground based burners or for in-flight ones. No suitable propane gas supplies were found in advance that year in Egypt. The plan on arrival was to explore the possibility of using domestic butane, available in the local town, Mallawi. At the same time a major assault on suppliers of gas was launched with the help of an Egyptian import/export firm. The results were predictable.
Nowhere was any propane, cannistered or not, to be found, nor would the locally available butane cylinders provide enough heat to launch the balloon and its payload. Just as the team left Egypt messages were received to the effect that suitable cannisters had been found in Alexandria by a relative of a member of staff of the import firm. 1992 looked favourable. Late summer 1991 and the contact in Alexandria was pursued. The gentleman concerned had died. Back to square one.

In the meantime contact had been made in another context with B.P.Middle East. They came to the rescue. Propane for ground based burners was promised - "no problem" And indeed this turned out to be the case, the stumbling block having been formal permission from the relevant ministry. Finally, in March 1992 the balloon went up!. Test flights were made, and good results obtained. Gas for the in-flight burners is still missing, nowhere to be found in Egypt. An adaptor to refill our own cannisters is promised for the 1993 season.

Now, what have we done with our new toy? There have been covered three main parts of the site - the Small Aten temple in the central city, the North Palace and two of the larger private houses and their estates. With the exception of one run with colour slide film over the temple all photography has been in black and white. The estimated maximum height that the balloon reaches is 800ft.. It remains at this height for several minutes, and in a light breeze covers a surprising amount of ground. Total flight time is about 8 minutes, at the mercy of the wind.

Twelve flights have been made so far. The Small Aten Temple has had most coverage. The initial objective was to show the current excavations of the foundations of the sanctuary area. Tethered flight to keep the balloon to a low height proved difficult to control. Flights were made then without tethers, the camera being tripped while the balloon was on the way up, and while it drifted over the site. This was the method used for all the remaining vertical photography. Results from about 200 feet show good detail of the gypsum foundations. The balloon tends to rock in the breeze, which prevents accurate vertical alignment. At full height on subsequent flights coverage of the whole temple precinct was possible. Its relationship to other buildings was clearly seen. One flight was made with colour film while the balloon drifted over the temple and along the edge of the modern cultivation. This showed the encroachment of farmed land into the original city.

All of the flights were to some extent to learn how to fly the balloon. The correct anticipation of wind direction is always difficult, and often a cause for amusement. Three attempts were made to cover the North Palace from the maximum height possible. One of these was the cause of the cross-country run previously mentioned. Before that was necessary good shots were made of nearly all the palace, slight inaccuracies occurring again due to the
oscillation of the balloon in the wind. Two sequences of negatives from this run yielded stereo pairs of photographs.

Some of the most striking photographs were of two of the larger private estates to the south of the Small Aten Temple. In addition to the exposed walls the granaries, chapels and other smaller buildings were clearly to be seen within the compounds. For one, Q44-1, the photographs are the last record before a major consolidation and fencing-off of the compound. The intention is that this house will be part of a new "tourist trail' through the city.

The last flights were to obtain oblique coverage of the Small Aten Temple. Several oblique photographs from the nineteen thirties exist of this area. For this exercise tethers were tried again, the idea being to use two, from either side of the bottom of the balloon. This, we hoped, would give some stability in the breeze, and allow the balloon to be slowly rotated. The first was a moderately successful flight, the limiting factor being the poor atmospheric conditions. Finally the balloon was launched free, when the wind had completely abated. The balloon rotates slightly under normal conditions, sufficiently on this occasion to cover some 180 degrees of view. Much to our relief it then landed less than 100 yards from its launch point.

The work done during the 1992 season has enabled us to identify the main problems in using a balloon at Amarna. Without a constant source of hot air the lift is not sufficient to overcome swaying in the wind when tethered. This occurs also when the balloon has reached its equilibrium height. Given burners on the balloon it should be possible to keep it at fixed heights over specific areas. We shall see. Other improvements could be considered: a larger balloon, or one with an exo-skeleton to give more stability when tethered, for example. Certainly, for free flight it is necessary to have a good understanding of the meteorology of the area. Fortunately the wind's speed and direction are suitable mostly for two hours or so after dawn, which gives the best lighting conditions too. There is nothing theoretically difficult about operating a balloon for archaeological photography. Experience gained from practice is something else.

The saga continues........

Plates opposite show:
Upper. The old: a house in the central city showing clearly it outbuildings and granaries.

Lower. The new: the modern dig house. The right hand block is built on the foundations, and partly to the plan of its eighteenth dynasty predecessor.

Photos courtesy Egypt Exploration Society.
ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND
AIR PHOTOGRAPHY UNIT

GRANTS FOR AERIAL RECONNAISSANCE 1993/4

Roger Featherstone

RCHME has allocated grants for regional reconnaissance for the coming year (1993/94) in the following manner. Last year's figures are in brackets.

Twenty two (24) applications were received for projects with a total estimated cost of £46,462 (£44,273). As usual, these were carefully evaluated by a committee which this year comprised Bob Bewley (RCHME-APU), Bruce Eagles (RCHME-NAR), Roger Featherstone (RCHME-APU), John Hampton, and David Wilson (CUCAP). As a result, allocations have been made to 19 (22) organisations totalling £23,220 (£23,630) out of a budget of £25,000 (same). This allocation represents, in gross terms, 230 (231) hours of flying - but after taking account of expenditure, such as film purchase and processing, the net figure is about 195 with the equivalent of about 15 hours in reserve. The table below summarises the position and gives a brief account of each proposed project.

Naturally, if conditions defy all our current, pessimistic, expectations and there is an abundance of crop marks, we will need to explore ways of increasing this allocation. Please note that Roger Featherstone is now responsible for administering the reconnaissance grants whilst Bob Bewley heads the National Mapping Programme.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Hours bid</th>
<th>Net hours funded</th>
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<tbody>
<tr>
<td>Air Photo Services</td>
<td>6</td>
<td>6</td>
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<tr>
<td>To survey the area around Bourn, W Cambs, and the Bedfordshire claylands to record both newly showing sites and monitor destruction of the remainder.</td>
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<tr>
<td>Cheshire C C and Merseyside Museum</td>
<td>9</td>
<td>5</td>
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<tr>
<td>To survey the lowlands of Cheshire and Merseyside and through integrating the evidence with that from other sources to create a fuller picture of the landscape as the basis for further work.</td>
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<tr>
<td>Cornwall Archaeological Unit</td>
<td>24</td>
<td>11</td>
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<tr>
<td>To continue to prospect for additional crop-mark sites also augment coverage of the whole range of extant sites and landscape features, including specifically this year, more work on industrial landscapes.</td>
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<td></td>
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<tr>
<td>Devon County Council</td>
<td>35</td>
<td>18</td>
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<tr>
<td>To continue the primary reconnaissance in Devon but undertaken in an increasingly analytical and problem orientated way.</td>
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<tr>
<td>Devon for Somerset County Council</td>
<td>25</td>
<td>10</td>
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<tr>
<td>To continue the primary reconnaissance in western and southern Somerset.</td>
<td></td>
<td></td>
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<tr>
<td>Essex County Council</td>
<td>18</td>
<td>12</td>
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<tr>
<td>To continue to survey the area around Stansted Airport in NW Essex, to continue the survey of Essex intertidal zone and reconnaissance in NE Essex directed at areas where there are no existing crop-mark sites and at enhancing existing complexes.</td>
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<tr>
<td>Organisation</td>
<td>Funding 1</td>
<td>Funding 2</td>
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<tr>
<td>Lancaster University Archaeological Unit</td>
<td>10</td>
<td>5</td>
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<tr>
<td>To continue the current programme of reconnaissance and monitoring of upland and lowland landscapes, recording industrial landscapes and establishing a programme of reconnaissance for the Cumbria SW coastal plain.</td>
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<tr>
<td>Leicester Museum</td>
<td>10</td>
<td>7</td>
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<tr>
<td>To continue reconnaissance for new sites and enhancing existing ones with particular focus on areas threatened by developments.</td>
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<td></td>
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<tr>
<td>Norfolk Archaeology</td>
<td>50</td>
<td>17</td>
</tr>
<tr>
<td>Problem-orientated reconnaissance and recording status of scheduled monuments. Continued work on Historic Gardens and other landscape themes if conditions for crop-marks are unfavourable.</td>
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<tr>
<td>Norfolk for Suffolk</td>
<td>15</td>
<td>13</td>
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<tr>
<td>To continue the primary reconnaissance in and begin recording the status of scheduled monuments.</td>
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<tr>
<td>Northamptonshire Archaeological Unit</td>
<td>25</td>
<td>12</td>
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<tr>
<td>Continuation of crop and soil mark survey in Northants and adjoining areas of Buckinghamshire and Bedfordshire.</td>
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<td></td>
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<tr>
<td>Northumberland</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>To record earthworks N of the Tyne aimed at improving record of Otterburn ranges and Hadrian's Wall corridor (excluding the wall itself) and bringing coverage of major pre-medieval settlements to around 90-100%.</td>
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<tr>
<td>Shropshire County Council</td>
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<td>12</td>
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<tr>
<td>To continue reconnaissance in the western half of the county.</td>
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<tr>
<td>Teesside Archaeological Society</td>
<td>12</td>
<td>10</td>
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<tr>
<td>Continued reconnaissance of Cleveland and Lower Tees Valley.</td>
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<tr>
<td>North Yorkshire Moors National Parks</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Survey of North Yorkshire Moors in direct association with fieldwork.</td>
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<tr>
<td>Warwick Museum</td>
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<td>8</td>
</tr>
<tr>
<td>Special focus on recording and updating photography of earthwork sites.</td>
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<td></td>
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<tr>
<td>Wolverhampton University</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Reconnaissance for crop, soil and earthwork sites in eastern Shropshire.</td>
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<td></td>
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<tr>
<td>Yorkshire Archaeological Society</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Continued reconnaissance of S Yorkshire and N Nottinghamshire.</td>
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<td></td>
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<tr>
<td>Yorkshire Dales National Parks</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Focus on neglected or poorly recorded earthwork sites and industrial remains.</td>
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</tbody>
</table>
The second in this series of brain-teasers is devoted to a site-type encountered during the recent Royal Commission 1:10,000 survey of crop marks in Hertfordshire. The Cambridge University Committee for Aerial Photography photograph above provides an illustration of this site-type; not the multiple ditches but the many short parallel lengths of ditch in the foreground. A total of 46 pairs of these ditches were observed on aerial photographs and transcribed. All are in the north of the county, on the chalk ridge and with three exceptions all lie within the parishes of Ashwell and Sandon. Visually they are very similar in appearance. (There are a few exceptions where the site appears to consist of two pairs of ditches on the same alignment, the distance between one of the sets being less than in the other). The length of the ditches varies between 5 m. and 30 m. but for over half (63%) of the sites the ditches are 8 - 12 m. long.

During internal RCHME (APU) discussions, it has been suggested that the ditches may represent the remains of ploughed-out pillow mounds. It is true that all except 11 of the sites occur in groups of four or more, and within any one group most of the ditches will be aligned cross-contour. The two largest groups both lie on south-west-facing slopes.

However, other facts are worth noting. The sites occur only at a limited number of localities; it might perhaps be expected that they would be more widespread. Many have been photographed as crop marks in more than one year. Many are in the proximity of round barrows and one site is close to a long barrow.

Time has not yet allowed a detailed search of documentary sources, to see if there is any information to confirm the suggested interpretation of pillow mounds. I would be interested to know if anyone has seen any parallels (no pun intended!) in the course of their work, or has information to support the interpretation of pillow mounds. And of course I would like to know if there are any other suggested interpretations.

Copyright CUCAP. Photograph taken 22.4.1971.
WAZZAT?

Answer to Number 1 (AARGnews 5, 26)

The photograph showed a pentagonal enclosure with a round-profiled bank with ditches, or scoops, apparently on both sides of the bank. Anthony Crawshaw gave the location as SE147507 (some 4 miles NE of Ilkley, Yorkshire) and told me that the largest side was about 300 metres long. Your response to the first in what we hope is a continuing series of puzzles was very much as expected.

AARG members' guesses: ....

Answer? (from a letter Mary Pickles to Anthony Crawshaw):

On the aerial photograph it looks like a possible pentagonal enclosure but on the ground only three sides can be identified. These are stone-filled banks about 10 feet wide and 2 feet high with shallow depressions running at either side of the bank. There is a pile of stones at the right-angled corner and a possible building platform on the outside close to the western extremity of the most northerly bank [this perhaps shows the value of putting north points on published photos].

As we were walking round the earthwork we noticed numerous rabbits and the farmer on whose land it lies said that when his father first 'ploughed' the area in 1952 many rabbits ran out of the bank. His father declared it was a man-made rabbit warren.... The earthwork is not marked on any map I have the oldest of which is an estate map of 1716 and there are no surviving field names for that area. There is, however, a 'Warren' in the Park further towards the east.

Editorial comment:

My knowledge of rabbit warrens is confined to those 'bank barrow' forms in Wessex. There is, however, a Wessex parallel to the site described above which I encountered on Parsonage Down (SU053412) when mapping a stretch of the A303. That feature, an irregular pentagonal enclosure with a maximum side length of 80m, had rounded banks with no obvious (or major) flanking ditches. The enclosure was constructed over an earlier field system and was attached to a linear bank which ran across the axis of an earlier field system. The area was one of unploughed (modern unploughed) downland with both 'ancient' and medieval fields surviving as earthworks. I made no guesses then as to its function but wonder now on the logic of siting a rabbit warren in the midst of arable land.

Perhaps Stephen Briggs would like to comment further?
BOOKS OF INTEREST?


Seen in passing and, from a rapid scan, seems likely to have something of value to most interpreters - although at high cost.


Another book of aerial photographs, but taken with a vision uncommon to most such books. Weather, lighting and viewpoint have been used to produce a set of excellently printed colour plates which demonstrate that there are many different ways of 'seeing' the ground. All aerial observers could learn from this book.


This collection of papers results from a one-day meeting organised by the Society of Antiquaries in 1988, although some of the papers are more up to date as references run to 1991. It is an acknowledged fact that without the contribution of aerial photography our knowledge of the gravels would be little more than that excavated in advance of quarrying. Not that the excavated contribution is minor but, as usual, provides intense detail of tiny portions - themselves often huge and complex settlements - of the known early landscapes. Excavational bias has been on the gravels of river terraces. These are a deeper more commercially viable resource than the fen-edge gravels (scanned by French and Pryor) which are now coming under more active threat and one for which archaeologists should be better prepared after the work of the above authors and the surveys of the Fenland Project.

Other than one paper from Scotland the 'British Gravels' appear - at least to the organisers and editors - to be the Thames gravels. Authors are mostly from the Oxford area and papers are thus biased despite considerable work being undertaken on gravels elsewhere. Many of the papers, being by excavators, provide us with the scraps of dating and morphology on which to hang the rest of the landscape. And it is our task to apply these facts, not necessarily an omission on their part.

The most disturbing paper in the collection is that by Whimster on aerial photography. Rightly in first place in the volume it offered the chance to really put the case(s) for application of aerial studies to gravel landscapes. Instead we are treated to a journeylese-style, jargon-rich, ramble which says what it promised not to and offers little guidance for the future. RCHME's Air Photography Unit is sitting on a huge pile of data and has much recent and current work that is ripe for publication. Should AARGnews commission someone working on the Thames gravels 1:10000 mapping to write realistically about the architectural merits of that project?


This volume, the latest in the Cambridge Air Surveys series, is a collection of eight chapters by various geographers arranged in a chronological sequence from prehistoric to the twentieth century. Comments that follow are based very much on a first impression, as the book was acquired too close to my AARGnews copy date to suffer fuller review.

As a use of aerial photographs it is interesting to note the change of emphasis through this timespan which is itself much due to the nature of that which survives to be
photographed. Change of emphasis is also due to the survival of other records - the text of the post-Medieval chapters, in particular, becoming historical geography rather than fact-based-comment that is all that can be provided for the prehistoric period. The book, therefore, illustrates a range of ways in which aerial evidence can be used and - perhaps - may help us broaden our own interpretations.

I have spent many hours working with CUCAP photographs but rarely see those of targets other than 'crop marks'. This book contains examples of illustrative air photography at its best and shows the value of the near horizontal view (acres of ridge and furrow in Photo 32) for work of this kind. The cover photograph (by Aerofilms) is a Sorrell-like work of art - it is a pity that it has not been included, text free, within the book.


Possibly a bit more than a day in the life of Air Photo Services. It was written after we were asked to comment on recent developer-funded trenching that was based on 1:10000 SMR mapping (itself mostly of geology) and entailed extending trenches more than 20m to seek ground evidence. The (somewhat more polite) message of the paper is that it is more cost effective to obtain high quality mapped interpretations than to charge around a field in a JCB. Contents include: mapping methods, use of different mapping scales, AERIAL, contents of maps (to help fieldwork), use of maps for field planning, retrospective interpretation, and even how to commission new aerial photography.

STEREO AIRPHOTO TRAINING AT CUCAP

Rog Palmer has just asked me whether I would like to publicise the courses I do at Cambridge. I do so as a newly joined member of the Group (invited by Vikki Fenner), aware how rudimentary is my knowledge of archaeology. However, Bob Bewley thought it a good idea to send me 15 of his mapping staff in two groups for a three-day course that enables them to use stereo photos more effectively and explore the non-archaeological aspects of landscape that have a bearing on site mapping. I am helped in the larger courses by Chris Cox whose knowledge and skills complement my own and cover archaeological mapping in which she is an expert. We have also had the support of the staff at CUCAP where the courses are held in a newly lit attractive teaching room right next to the Library and its wealth of materials. Cambridge is an exciting centre to visit for a course and you can combine it with a Library visit!

So, if you would like to extend your competence into quality, thinking API, using photos in stereo and examining a wide variety of landscapes and sites in colour at all imaginable scales, you should write either to me at the address below or to Chris (who is in practise with Rog Palmer and can be reached at his editorial address). Based on the interest shown by RCHME you should be able to swing such a course on to the training budget if you work for a local authority.

My address is 26 Cross Street, Moretonhampstead, Devon, TQ13 8NL and so that you know who I am, I am a visiting tutor in API at CUCAP. You may send to either address. I have been interpreting photos for about 25 years in a variety of resource and urban studies 'at Home and Abroad' and have taught a lot of professional staff in many land-based disciplines. We look forward to hearing from you.

Bud Young
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