

AARGnews 29

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Editorial

AARGnews on the web

Earlier this year the Committee agreed that past issues of *AARGnews* could be converted to PDF files and placed on the web site for free access. Lidka Żuk agreed to do the conversion, stopping here on the way between Durham and Poland for a few days to begin the work and learn to use the relevant program. Of course there were problems, such as the need to retain the original page layout to ensure that paper and electronic versions could be referenced identically, but Lidka has done an excellent job and the early issues look better in PDF than the original pasted together compilations. We hope that issues 1-20 will be added to the AARG web site sometime in September.

Armenia

The British Academy funded another year's work in Armenia and we've (the other half being Antje Faustmann) just come back from a fortnight that was divided between research and teaching. Everything seemed to click together on this trip. Our pilot Karen Martirosyan made ten paramotor flights, took about 1600 aerial photos thanks to using a 1GB card in my Coolpix, and photographed a 6 x 10 km area with an almost continuous series of photos plus additional detail. Hayk Hakobyan had selected five students, mostly at Magister level, and we worked with them on photo interpretation and field checking. Hayk and the students intend to work on cataloguing the photos and to make further field investigations while we're away but the cataloguing is hampered by the lack of computers there. If any of you can think of a way to get my old computers over there for little cost please let me know.

People

At the end of August, Bob Bewley made the break from archaeological and aerial survey to become Regional Director of the EH's South West region. He is no longer officially responsible for aerial survey although I imagine that he will maintain an 'amateur' involvement along with other aviators such as Otto Braasch and Jim Pickering. The National Mapping Programme began under Bob's management

and it is good to see him sticking to his promise to me that he will retire if it took longer to complete than the predicted ten-years! Bob has become a leading figure in the promotion of aerial survey and, with Otto and Chris Musson, has been responsible for pursuing the European funding that has allowed us to run successful training weeks in central Europe and Italy. I hope the new job allows him time to be with us during some of our ventures in new parts of the world.

In June/July I persuaded Lidka Żuk to come over from Poland for a month to help out with a great heap of developer-funded work that had accumulated. Such is life that by the time she arrived I'd caught up with most of the backlog and needed to find other things for her to do. Her PhD topic is to be a reappraisal of the Rudston area of the Yorkshire Wolds, building on Cathy Stoertz's work albeit in a largely theoretical way. Early in July we went to Glasgow to help Ioana Oltean celebrate getting her PhD on the Roman Dacia project that she and Bill Hanson have been undertaking. On the day we were leaving Ioana received a letter from the British Academy awarding her a three-year post-doc fellowship. I've rarely seen anyone so happy and it was a pleasure to be there to share the occasion. I look forward to progress reports as she extends her work over a greater part of Romania.

As mentioned in the last issue, Włodek Rączkowski spent 10 weeks at Keele where he had a successful time among some the heaps of WW2 photographs. He has contributed a piece on his experiences there and on the state of the archive and its future. Conservation of this important record is something that should concern most AARG members even if we don't use it ourselves.

Digital cameras

In his *Chairman's Piece* Toby Driver makes comments about digital cameras and I'll add further as I began using a Nikon D100 in January and bought a second body a few months later. Most of my use has been for

dance and theatre photography so the camera has been set between 1600 and 6400 as most of the time although I did manage to get the speed down to 200 (its slowest) in Armenia. I've been taking best-quality jpegs as the raw setting does not allow me to take more than two photographs in quick succession – this is likely also to affect aerial work where we expect serious photographers to take stereo pairs all the time. I'm happy with the enlarged quality of prints from these files.

Pros: With film no longer being an expense I soon began to take a greater number of photos and was prepared to take the 'risky' shots that perhaps I hesitated to take using film because they may not work. Any rubbish can be thrown out after it's been downloaded.

'Film speed' and white balance can be changed at will as the light changes and further changes can be made after downloading. This should mean that we are able to take, or make, better pictures. Manipulation of images is something that has been done in the darkroom for years with no complaints from photographers or users. Digital manipulation would seem to be equally valid.

I can come home after a dress rehearsal, plug the camera into the computer and sit here drinking a pint. This is more pleasant and relaxing than developing films in the bathroom and standing up while drinking a pint.

There are programs that will make 'contact sheets' and overwrite an image with copyright data or *Proof*. Digital pictures should be harder to steal than paper prints even if they are viewed or sold on the internet.

Cons: If dust can find a way into the camera it will. When I used only one body I was changing lenses several times per shoot and found the sensor was quickly splattered in muck. This may not show if you are taking photos against a multi-coloured background, but put a bird in front of a white background or take some plain skies and you'll see it clearly and horribly. There are labs that clean sensors for £15 or so – but from Cambridge this means sending the camera to London and waiting a week. This was the main reason for buying a second body and both have had a zoom permanently mounted since that time, although

Armenia found a way of letting some dust into one of them.

Converting to digital has also meant that I needed to buy a 250GB hard drive (although these may now come as standard with a new computer), a DVD writer, lots of CDs and DVDs for storage, a photo-quality A3 printer and loads of ink cartridges. That lot cost almost as much as a digital body but I've not compared it against the price of film, paper, chemicals and storage files and boxes.

Palimpsest

Włodek has been editing a book that includes contributions from Bob Bewley and myself in which one or both of us used the word *palimpsest*. This word is apparently new in Poland, where the book is to be published, and Włodek set about (or set Lidka about) finding the earliest reference to it in an archaeological context. After six months or so of searching and questioning they had the answer and were satisfied although to me it seemed a rather pointless pursuit, perhaps typical of theoretical archaeologists. Does it matter who first used a word if it can be explained in the context of its present usage?

This issue

Is thinnish. I'm grateful to Włodek for being daft enough to say yes when I asked him for a piece about Keele. His comments are important and may help future users although the most important factor seems to be to allow sufficient time to get to know the archive and find what you need. And then to have the persistence to search in dark corners. Sarah Newsome and Cain Hegarty have produced a piece on their NMP work along the Suffolk coast. Both are relatively new to photo interpretation and Sarah told me that all her experience has been using on-screen interpretation. I wondered if the level of detail that is now being recorded for NMP (and other projects) using this higher-magnification method would have been achieved using the old overlay and pen 'technology'. I doubt it. It also raised questions in my mind about the difference between what I call 1:10000 and 1:2500 levels of interpretation. With on-screen interpretation it is easy to include too much detail at the smaller scale that perhaps can only be seen by users if they enlarge the result

they enlarge the result beyond the 1:10000 original scale. Just as Ordnance Survey and other mapping organisations have guidance for what is shown at different scales so we ought perhaps to draw up our own guides for archaeological mapping.

Our Secretary, chatty little Cinzia, has become fully converted to aerial photographic things in the four years she has been here. A year or so ago she made the first translation to Italian of the *Bloody Book* that Chris Musson and I had written which was then sent to her mother to correct any poor Italian. That sequence introduced mama to aerial survey and Cinzia's

piece in this issue tells the first results arising from mama's new expertise. If only it were that easy to get archaeologists to see the light...

And if this issue isn't ready in time for AARG it is entirely my fault. I took it in bits to Armenia intending to compile the issue and email it to the printers but work and play meant that I barely gave it a thought. Any of you who took books to read in your spare time when you were young and digging will know how easy it is to forget any such good intentions.



Armenia 2004. Part of the area surveyed on the ground with students showing a defended hilltop settlement (easy to see) and kurgans (not easy to see). The broad band curving across the picture is a stock drove that is in daily use. Photo: Karen Martirosyan, 15 August 2004.

Chairman's Piece

Toby Driver

Digital photography

Digital aerial photography is rapidly becoming a necessity rather than a possibility. In recent months in Britain, standard supplies of black and white film, paper and other processing materials have become difficult to source. Our main stockist of Kodak Tri-X 220 roll film ceased to stock the 'Pro-packs' of 5 some months ago and they must now be ordered singly (although Pro-packs are still available from other stockists). A recent attempt to service my relatively new Rolleiflex camera also met with some problems with tried and trusted workshops having shut, and replacement Nicad batteries having to be sourced from Europe (I didn't bother in the end). While wet film will no doubt last some time into the future, the commercial pressure for a digital transition is now tangible.

On 24th May 2004, the Royal Commission in Wales had its first full flight using digital photography, but it was not the pinnacle of technology and equipment which would have been desirable. Flying with a 3 year old Fuji camera which the photography department at RCAHMW acquired to do 'public relations' photography for the in-house magazine and website, the quality of the resultant images was not nearly high enough to match even the grain in the 35mm slide film we use. However, the sheer ease of firing over 100 shots on a lightweight camera, not to mention the immediacy of the images once downloaded at the office, has convinced me of the logic of digital media for future work, given the right camera. Indeed, all the pilots I work with, who also do a considerable amount of commercial aerial photography often see me changing the roll film on my lap and tell me with some sympathy that it's 'all digital' now.

Numerous private aerial photographers have been working with digital cameras for some years now, and it is virtually standard in the commercial arena. Given the right equipment it is now easy to surpass the grain and even the metering technology found on most traditional medium-format cameras. By the end of this year, or early next, we will have decided which camera and system to put our trust in as we move to dispense with wet black and white photography. But there are still unresolved questions about interfacing with the demands of a national, public archive. It is easy to build up thousands of images on a server or library of compact discs but enabling the National Monuments Record enquiry team to access those images on demand from the public is a little more difficult, and methods still have to be agreed on the best way for the public to 'see' these pictures, whether in their hands or on a screen.

Plough-levelled archaeology

Issues relating to aerial archaeology in its agri-environmental guise are firmly on the agenda of the 10th meeting of the European Association of Archaeologists in Lyon in September (see <http://www.e-a-a.org/>) in a session organised by Steve Trow and Jon Humble. I first met Steve Trow from English Heritage this spring at the meeting of the European Archaeological Council in Strasbourg, when I was talking on behalf of AARG about priorities for European aerial archaeology. There were many common issues. The agri-environmental work of English Heritage, which has a very strong focus on plough-levelled sites, is far advanced. The high-profile UK launch last year of the 'Ripping up History' policy document was discussed in the

in the previous AARGnews, and new projects are planned to measure the rate of destruction of plough-levelled sites. The EAA session 'Ploughing on into the 21st century – seeking to sustain archaeology in arable landscapes' (Block III) will address many of the issues close to the hearts of European aerial archaeologists. Although I am unable to attend myself I hope that some AARG members will be there and that conclusions reached will resonate among European heritage managers and those forming agricultural and countryside policy.

Personally I would still like to see more work done, or the best methods investigated, for enabling local communities to learn more about cropmark discoveries in their areas. Cropmarks represent the 'invisible resource' and lecturing to local societies in Wales it still seems there is a long way to go before cropmark discoveries enter the local consciousness as real archaeological sites. The most impressive interpretation to a local community of a cropmark site I have seen was the Puch Neolithic henge in Austria, which delegates to the 2001 joint Archaeological Prospection/AARG meeting were taken to see (images still available at: <http://www.univie.ac.at/archeo2001/fieldtrip1.html>). School children and others could stand on the site of a buried henge, marked out in the field using different crops, and 'reconstruct' the appearance of an enclosing palisade. This experiment is not unique to Europe, but I'm not sure where else it has been attempted in Britain aside from the rather dreadful 'Woodhenge' model of concrete posts (an aerial discovery subsequently excavated and then marked out). If we are really going to communicate the sheer number of plough-levelled defended enclosures, farmsteads and forts which are scattered through the landscape then I think we need to explore similar marking-out schemes involving local communities, publish more regional maps (like Cathy Stoertz's Yorkshire Wolds mapping) and of course, give more small lectures in draughty village halls.

Conferences and societies

As I write this there is just over a month to go until AARG 2004 in Munich, and for this our first independent conference in Europe we have a strong and diverse programme. The committee aims to put the abstracts on the AARG website, but I am aware that not all members will have regular access to the web (let alone digital cameras as above) and it would certainly be worthwhile to publish these abstracts in the spring edition of AARGnews.

Away from AARG matter the newly formed International Society for Archaeological Prospection now has a website (<http://www.archprospection.org>) and committee established, with the first newsletter (from June 2004) available to download free as a sample. Many of the ISAP crowd are also AARG members or have worked with us on conferences and other initiatives in previous years, so the links are strong. With membership only £7.00 (E10.00) I would urge members to join this group which has many shared interests. There are also some forthcoming remote sensing conferences which will be of considerable interest to aerial archaeologists and landscape researchers. By far the most tempting is the International Conference on Remote Sensing Archaeology, 18th-21st October, in Beijing, China. While certain to be a tremendous conference the travel budget at the Royal Commission here in Wales is unlikely to stretch that far. Perhaps anyone attending could report for the next AARGnews?



Chairman's Photo

Tintern Abbey, Monmouthshire. Wales isn't producing any really stunning cropmarks at the moment (although discoveries are plentiful the sites are morphologically quite simple), so I am including a 'pretty' shot which was nonetheless taken on the 2nd June 2004 for analytical purposes (scheduled monument monitoring rather than archaeological interpretation). See more air photos, maps, plans and finds by accessing <http://www.gtj.org.uk/> and searching for 'tintern abbey'.

Dusty treasure: thoughts on a visit to The Aerial Reconnaissance Archives at Keele University (UK)

Włodek Rączkowski

1. Introduction

“*You must go to Keele*” was a recurring suggestion ever since I started seriously working on aerial photographs in Poland. The Archives in Keele emerged as something of a “mythical” place, the destination of pilgrimages by aerial archaeologists from all over Europe. On the other hand, it was odd that few of the archaeologists encouraging me to visit Keele were actually there and could offer reliable information about the contents of the Archives. Perhaps that was why the lecture delivered by Chris Going in Leszno in 2000 (Going 2002a) attracted so much interest. It was probably one of the first comprehensive surveys of the contents of the Keele Archives presented to aerial archaeologists.

However, it was not this lecture that was the cause of my visit to Keele. In 2002, I accidentally came across a German 1:25,000 photomap produced in 1940. Seeing became believing: the quality of this photomap and its value as a historical resource for studies of landscape changes had an intoxicating effect on me and led me to a search for other such maps with the result that I was able to find about 180 photomaps in the archive of the Institute of Physical Geography and Environmental Planning of the Adam Mickiewicz University in Poznań (Rączkowski, Żuk 2003). These were maps of *Wielkopolska* [Greater Poland] and Central Poland, just East of *Wielkopolska*. The immediate question was: were such photomaps ever made for the whole of Poland within its 1939 borders? And were they perhaps also produced for the so-called *Regained Territories*, i.e., Lower Silesia and Pomerania, as well as Warmia and Mazuria (territories that were part of Germany before World War II)? If they did exist, where could they be found? The answer was *in Keele*, of course.

2. The Aerial Reconnaissance Archives at Keele University

My main aim in going to Keele¹ was to identify aerial photographs and photomaps of Poland that were produced by the *Luftwaffe* between 1930s and 1945. I was particularly interested in their coverage. It was not easy to get to Keele, and it was even harder to find the information I was looking for.

The problem is that the *Luftwaffe* collection of aerial photographs and photomaps, produced as a strategic and tactical reconnaissance (and called GX), is not adequately catalogued so that searches for material concerning a particular region are often reduced to “archive digging”. Browsing through thousands of prints and negatives of photomaps and mosaics takes a great deal of time. I spent almost three months in Keele and managed to identify over 1300 photomaps and 1100 mosaics, but I am not certain that I found all Poland-related material. I did not have enough time to look at the thousands of photographs of single objects, the so called *Target Materials* (TM). Still, I managed to achieve a great deal thanks to the kindness and help of Marilyn, Ying, Allan, Ian and Peter of the Keele Archives staff to whom I offer my grateful thanks.

By browsing through the entire set of available photomaps and mosaics, I gained an overview of the contents of the Keele Archives (GX). There is almost everything one can image: photomaps and mosaics of Germany, Netherlands, Belgium, France, Denmark (almost 100% coverage!), Norway, Finland, Estonia, Latvia, Lithuania, Czech Republic, Slovakia, Romania, Hungary, Austria, Slovenia, Croatia, Serbia and Montenegro, Macedonia, Albania, Greece and Turkey. There is a huge collection relating to Byelorussia, Ukraine and Russia (including the Kaliningrad District) as well as on the Caucasus area. The

¹My trip and research at Keele University was made possible the grant from The Foundation for Polish Science.

scale of photomaps is usually 1:25,000 and their cartographic and geographic coordinates are given. The scale of mosaics runs from 1:1,600 (*sic*) to 1:40,000. Unfortunately, the mosaics do not have any coordinates, which often presents problems for the location of objects and places.

On looking through the piles of prints and negatives, I came to realize how poor the condition of the collection was. Many prints are torn. Negatives are covered with dust, scratched, torn or dissolving into layers. Some catalogued materials have disappeared. With only a rough idea about archiving photos and negatives, one quickly discovers that their treatment has been a far cry from modern archiving practice. They are not properly stored and there is serious danger of disintegration (e.g. Wilson 1997). Attempts to use the indices, compiled in the 1940s and 1950s within the framework of the TURBAN project, revealed that the negatives are often misplaced or assigned to wrong countries (a common mistake is to file mosaics of Poland as belonging to the Soviet Union and vice versa). It was not until I got to Keele that I realized the full implications of the title of Chris Going's paper: *A Neglected Asset*. The situation at the Keele Archives is certainly the outcome of their history. In 1945, German reconnaissance materials were taken over by the Allies who used them in the 1950s and 1960s (e.g. Paine 1958; Going 2002a) and only later the collection was moved to Keele. Little is being done at present to improve its state, which is probably the main reason why the Keele Archives are often referred to, but few have actually worked there.

The informative potential of these photomaps and mosaics is simply enormous and it is essential to make the collection more widely accessible. This applies not only to its value in archeological research, but also to its potential for other users, e.g., conservationists (working on the dynamics of urban and rural design, changes in arable fields, location of cemeteries, farms, churches, etc.) and people doing research into natural environment, urban planners, and so on (see Going 2002b). It is hard to find words to express my feelings whilst browsing through the contents of the Archives. Each photograph, each photomap and frame tempts one to examine different fascinating aspects of the past. One's emotions are

comparable (if not stronger) to the emotions experienced in the course of archeological excavation.

3. Not only GX

I worked for nearly three months on the *Luftwaffe* photographic materials (GX) at Keele. However, during and after World War II, strategic and tactical aerial reconnaissance was also carried out by the RAF and the US Air Force (known as JARIC). That material is also held in Keele and consists of millions of photographs. Photographs from the 1950s, 1960s and early 1970s are being transferred to Keele and so that the total number considerably increases. These photographs record many important events in European history and demonstrate the dynamic changes that have taken place in both the European and world landscapes over several decades. They record objects and landscapes that no longer exist, and may well constitute the only documentation for examining the past.

4. What next?

I have no doubt that this fabulous archive material must be both properly conserved and made widely accessible. It clearly follows from the above discussion that the Keele Archives cannot be described at present as "user friendly". It is very hard and time consuming to locate photographs of particular interest.

The Aerial Reconnaissance Archives have tried to improve access to its resources via a website (www.evidenceincamera.co.uk), which is certainly a good idea. However, until a good searchable catalogue of all documents is produced, access via the website is *de facto* illusory and depends upon decisions made by the Archives staff. This situation may be good enough for the general public interested in aerial photographs, but the Archives as they are at present cannot serve scientific research.

The question now is: what should the future of the Keele Archives be? On the one hand, interest in the Archives' potential should continue to grow in Europe. On the other hand, this potential cannot be properly exploited at present, despite good will and great determination of the Archives staff. In my opinion, not much can be done without an open

international discussion and engagement of many people and institutions. International initiatives (with Keele University's approval) should concentrate on:

1. conservation of existing resources,
2. production of a modern catalogue of photographs, photomaps, mosaics, etc. by exploiting modern information technologies (e.g. GIS),
3. development of facilities for rapid access by researchers from different countries,
4. promotion of the Keele Archives' potential.

5. Conclusions

Time is the natural enemy of the contents of the Keele Archives, so that appropriate actions must be taken as soon as possible. It is hard to say who should initiate the necessary changes. Perhaps it should be NAPLIB or AARG. The Culture 2000 programme "European Landscapes: Past, Present and Future" may become a suitable discussion forum. At the same time, we must remember that not only archeologists and historians, but also earth scientists, planners and even commercial companies could be interested in the project. I think that the project should also be of interest to European government agencies that supervise the protection and management of their respective cultural heritage. Indeed, let us not forget that the contents of the Aerial Reconnaissance Archives belong to the *European* cultural heritage.

Translated by Hanna Mausch

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References:

- Going C. 2002a. A Neglected Asset. German aerial photography of the Second World War period, in: B. Bewley, W. Rączkowski (eds), *Aerial Archaeology. Developing Future Practice*, Amsterdam: IOS Press, p. 23-30.
- Going C. 2002b. Spoils of war – air photography in captivity, *GI News* 2 (5-April/May), p. 28-34.
- Paine D. A. 1958. *The Birth of the GX Library*, Brampton (typescript at Keele University).
- Rączkowski W., Żuk L. 2003. *Digging Archives: landscapes of the Wielkopolska region from German photomaps* (paper presented at AARG Annual Meeting at Winchester in 2003).
- Wilson D. 1997. *The Care and Storage of Photographs. Recommendations for good practice*, London, Cambridge: NAPLIB.

Cropmarks

(defn: snippets of information that require reading and understanding to make sense)

More from Iran

Some very interesting air photos of Fars, including a number of archaeological sites, are on-line courtesy of *The Iranian* at: <http://www.iranian.com/PhotoDay/2004/July/fl.html>

They form an interesting contrast to the Erich Schmidt air photos taken in 1935-1937:

http://oi.uchicago.edu/OI/MUS/PA/IRAN/PAAI/PAAI_Surveys.html

[Posted on the ANE newsgroup, copied to me by Jane McIntosh (not an AARG member).]

And from Rene Pelegrin in Belgium

Please have a look at our new website:

<http://www.arts.kuleuven.ac.be/wea/Luchtfotografie/indexe.htm>

<http://www.arts.kuleuven.ac.be/akm/archeologie/onderzoek/aarg.htm>

International Society for Archaeological Prospection

[Armin Schmidt sent the following to several AARG members]

The International Society for Archaeological Prospection (ISAP) was founded in September 2003 during the 5th International Conference on Archaeological Prospection in Cracow, Poland.

Our first newsletter is freely available from the Society's web site <http://www.archprospection.org/> and it provides information about ongoing projects and instrument developments.

The membership fee for 2004 is 7 British Pounds or 10 Euros. Credit card payments can be made with the PayPal system using the links on the web site.

The aims of the Society are 'to advance the education of the public in archaeology (including the man-made landscape and the built-environment) through the promotion of high standards of research, application and communication in the field of archaeological prospection and related studies. The Society's scope shall be international, both in activities and membership.'

Through your membership you will:

- + support the advancement of archaeological prospection,
- + be eligible to a greatly reduced subscription rate for the journal *Archaeological Prospection*: only 75 GBP per year instead of 330 GBP (print copy only),
- + have access to the future issues of the regular newsletter,
- + participate in an email discussion forum and
- + receive up-to-date information about conferences and events.

More closed skies

The US government has recently restricted sale of satellite images of certain places to certain customers. While this may be valid for security reasons it adds further to archaeologists' *closed skies* lists.

Full story at DEBKAFile Exclusive Military Report www.debka.com/ search under 'satellite'

Yann Arthus-Bertrand

The Fuji web site includes 40 aerial photos (added in 2001) <http://home.fujifilm.com/efa/>

[From Dave Cowley]

Stories from the seaside: The results of coastal NMP in Suffolk

Sarah Newsome and Cain Hegarty

Summary

An archaeological survey of the Suffolk coast using aerial photographs was carried out between April 2001 and March 2004. It was part of an integrated survey of the Suffolk coast which also involved aerial reconnaissance and field survey. This article provides an overview of the project results and a discussion of how the results differed from those expected at the start of the project. It highlights the complexity of using aerial photographs for archaeological survey in the coastal zone and also the importance of presenting the results of National Mapping Programme (NMP) survey in interesting and informative ways.

Introduction

In 1995 Davy Strachan published an article in this newsletter entitled, "Problems and potentials of coastal reconnaissance in Essex" in which he summarised the types of archaeological features that are potentially visible within the coastal zone. He also highlighted the success of coastal aerial reconnaissance in Essex, stating that "similar coastal landscapes, such as south Suffolk.....will surely contain similar remains" (Strachan, 1995, 34). Following the success of the coastal NMP survey in Essex expectations at the start of the Suffolk Coastal NMP survey were high, even though potential differences between the two counties had been acknowledged. Hopes were particularly high regarding the potential for the discovery of wooden structures in the inter-tidal zone. Results of the Suffolk Coastal NMP project suggest, however, that air photo survey in the coastal zone is a complex process that needs careful consideration and can yield unpredictable results.

The National Mapping Programme (NMP) aims to interpret, map and record all archaeological features, dating from the

Neolithic period to the Second World War, visible on aerial photographs, to a consistent standard for the whole of England. The archaeological features are transcribed and synthesized in order to produce a digital map of the archaeological landscape as visible from the air, at 1:10000 scale (see Bewley (2001) for an overview of NMP methodology). To date approximately 31% of the country has been surveyed by the programme.

The impetus for the Suffolk Coastal NMP project, which commenced in 2001, came from the publication of *England's Coastal Heritage*, a survey by English Heritage and the Royal Commission on the Historical Monuments of England which highlighted the need for a better understanding of the coastal archaeological resource and a need to integrate this into coastal management plans (Fulford *et al* 1997). Consequently the Norfolk/Suffolk Rapid Coastal Zone Assessment Survey (RCZAS) was set up, of which the Suffolk Coastal NMP project is one element. For the Suffolk coast, the other elements of the RCZAS project consisted of a programme of aerial reconnaissance carried out by Damian Grady at English Heritage, a field survey of the inter-tidal zone carried out by the Suffolk County Council Archaeological Service and documentary research carried out by Ivan Ringwood at the University of East Anglia. Similar surveys are also being undertaken on the Norfolk coast as part of the RCZAS project.

The NMP project was undertaken by staff contracted to Suffolk County Council and English Heritage. All readily available photographs were consulted including both oblique and vertical collections held in the National Monuments Record and Cambridge University collections. Transcription of archaeological features was undertaken following NMP methodology but, unusually, using MapInfo GIS software rather than CAD.

Mapped features were linked to records held in a copy of the Suffolk Sites and Monuments Record archaeological database, which uses the ExeGIS HBSMR software. All maps, database records and reports will be available through the National Monuments Record in Swindon and the Suffolk Sites and Monuments Record.

An overview of the survey results

The Suffolk coast is low-lying and comprises a variety of environments, including soft eroding cliffs, accreting shingle spits, embanked areas of reclaimed land, salt-marsh and mud flats. The soils in the coastal zone are generally sandy and free-draining in nature. The project area consists of a one kilometre strip along the coast and wider strips, up to six kilometres, covering the major river estuaries (Figure 1). In all cases the strips encompass the inter-tidal zone, the area of coast between the high and low tide marks. Current land use on the Suffolk coast is mainly agricultural and grazing, interspersed with a number of small seaside towns and a large container port at Felixstowe. Both the topographic nature of the coast and the past and current land uses have influenced the nature of the archaeology and the results of the NMP project.

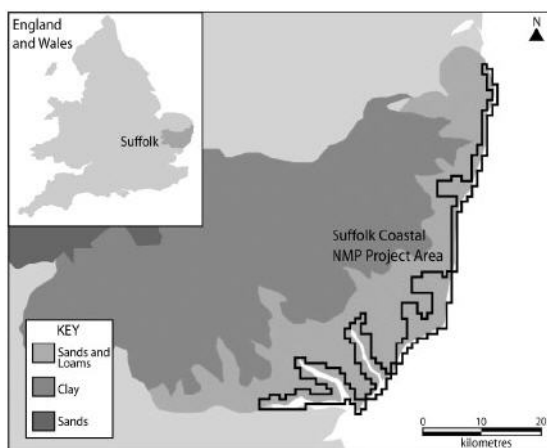


Figure 1. A simplified diagram showing the soils of Suffolk and the extent of the Suffolk Coastal NMP project area.

The NMP survey has led to a substantial enhancement of the archaeological record for the Suffolk coastal zone. The dominant aspect of the project results was the system of coastal anti-invasion defences dating to the Second

World War which at one time stretched along almost the entire length of the county's coast. Contemporary wartime photographs show the full extent of the defences and highlights the fragmentary survival of these types of sites today. In contrast, virtually no features of any date were seen in the inter-tidal zone on the coast itself. In the areas of drained and reclaimed salt-marsh a variety of post-medieval features were encountered including relict banks, remnants of earlier reclamation attempts, and a possible water meadow at Benacre Broad. The estuarine inter-tidal zone proved more fruitful than the coastal inter-tidal zone, though it was largely dominated by post-medieval and modern wooden structures relating to fishing and transport, such as oyster pits and jetties. On the higher ground, above the estuaries, are fragments of potentially extensive prehistoric landscapes, consisting of ditched field systems, enclosures and funerary monuments that are visible as cropmarks.

The expectation, based on comparisons with the Essex NMP project, that the Suffolk Coastal NMP survey would lead to numerous new discoveries of previously inaccessible sites in the inter-tidal zone appears to have been unfounded. Inter-tidal sites of possible medieval or earlier dates, and therefore of greater archaeological significance, were particularly rare. In fact, higher quantities of new sites were found inland on the higher, dry ground, away from the inter-tidal zone. This focus of new sites on the higher ground is, in part, a bias resulting from the fact that the NMP survey was the first to systematically interpret, map and record the Second World War defences on the Suffolk coast.

The benefits of the NMP methodology

Even though the results of the NMP survey differed from expectations, the NMP methodology proved valuable in a number of ways and the resulting enhancement of the Suffolk Sites and Monuments Record archaeological database cannot be underestimated. The systematic examination of all readily accessible oblique and vertical photographs led to the discovery of a number of sites that previously had not been identified. These included a small Roman villa in Sutton

parish which was photographed in 1989 but had not been recognised and subsequently recorded in the national or county archaeological databases. Also, a series of wooden fish traps of probable medieval or later date visible in the Deben estuary near Waldringfield, were only visible on one set of vertical photographs taken in 1945, emphasizing the value of examining the historic vertical as well as the specialist oblique collections.

The value of the historic RAF and USAAF collections in recording the relatively short-lived coastal anti-invasion defences from the Second World War has also been highlighted by the project. These photographs are particularly important as they show the defensive system in incredible detail, including the temporary structures such as barbed wire and emergency batteries that were systematically removed at the end of the war. Photographs taken at intervals throughout the 1940s also show developments in response to major wartime events, such as the build-up of troops and construction of embarkation hards at Landguard Fort, Felixstowe, in the run-up to the D-Day landings.

This remarkable level of detail visible on the RAF photography also highlighted how the NMP methodology needs to develop to deal effectively with the Second World War defences. A conflict exists between recording all the details of defences from photographs that are unlikely to be systematically examined again and digesting the information so that it is accessible and easy to use. We need to assess what sort of data is useful and what level of detail is appropriate whilst still making available the huge volume of information that we have amassed and interpreted whilst carrying out the project.

The successes of the aerial reconnaissance programme

The programme of aerial reconnaissance that ran alongside the NMP survey was successful in adding new detail to sites visible as cropmarks in the coastal zone, despite a long history of reconnaissance in this part of the county. Arguably the most important

discoveries were of eight previously unrecorded, potentially Iron Age or Roman salt making sites, or 'red hills', visible as areas of red earth in ploughed fields on land reclaimed in the post-medieval period. Five of these 'red hills' have been visited by the Suffolk County Council field survey team and have been confirmed as containing the diagnostic briquetage pottery found on Iron Age or Roman salt-making sites. The discovery of these sites has begun to change perceptions of the late Iron Age and Roman salt industry in Suffolk, suggesting that it was on a larger scale than previously thought.

In the inter-tidal zone however, the programme of aerial reconnaissance was less productive, as only a few new sites were discovered, despite reconnaissance specifically timed to coincide with optimum conditions for photography in this environment. One of the few archaeologically significant structures mapped in the inter-tidal zone by the NMP survey, a large wooden, possibly Anglo-Saxon, fish trap located in Holbrook Bay in the River Stour, was recorded, however, through the combined efforts of the English Heritage reconnaissance team and Suffolk County Council field survey team (Figure 2). This feature had been photographed by Davy Strachan of Essex County Council in 1995 (Strachan, 1997, 9) but the position of the structure more than 500m

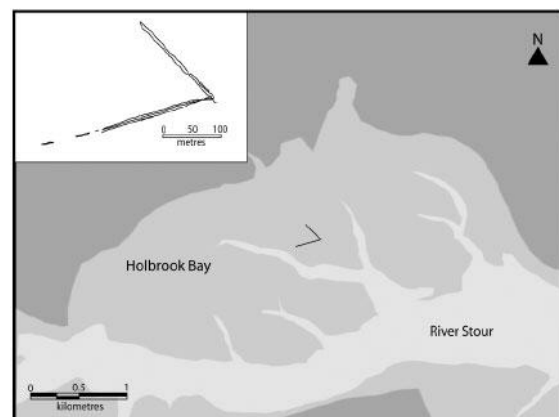


Figure 2. The location of the possible Anglo-Saxon fish trap in the inter-tidal zone of Holbrook Bay in the Stour estuary.

from the shore meant that transcription was impossible from those photographs. In April 2003 the field survey team arranged large

markers around the fish trap and surveyed the location of each one, so that the fish trap could be photographed by English Heritage and then accurately transcribed by the NMP team.

The field survey only focused on the inter-tidal areas of the coastal zone but the results have generally complemented the NMP survey with the field team discovering and recording features that were unlikely to be seen on aerial photographs, such as fragments of wattle, possibly of Anglo-Saxon date, in the Deben estuary near Sutton Hoo. Though only 10% of all features recorded in the inter-tidal zone were recorded by both the NMP survey and the field survey, both surveys noted a lack of significant medieval or earlier sites within the inter-tidal zone and this must be examined in more detail.

Factors affecting the survey results

The combined survey produced valuable results but, significantly, sites in the Suffolk inter-tidal zone remain few and far between despite the examination of both the recent and historic photographs, an inter-tidal field survey and a programme of targeted aerial reconnaissance. Results from the inter-tidal zone of the Norfolk NMP project appear to be following a similar pattern (Heppell & Massey, forthcoming). This could be the result of a number of factors, relating both to the project methodology and to the physical characteristics of the Suffolk coast.

Strachan (1995, 34) noted the importance of repeated reconnaissance in the coastal zone, particularly to record sites newly exposed due to the dynamic nature of the coastal environment. Though coastal reconnaissance should definitely continue in the Suffolk inter-tidal zone, doubts have been expressed as to whether the estuaries of Suffolk will ever yield the rewards of the Essex estuaries such as the Blackwater (Wallis 1994). Though patterns and rates of salt-marsh erosion may change, revealing new sites, the lack of significant inter-tidal features over 60 years of aerial photography appears to support this suggestion.

One factor that has affected the success of aerial reconnaissance in the Suffolk coastal zone is our understanding of the position of the historic inter-tidal zone in relation to the modern coastline. The levels of erosion and reclamation on certain stretches of the Suffolk coast mean that the historic inter-tidal zone has either been drained and is 'trapped' behind relatively modern seabanks or has been lost to the sea. This could mean that archaeological sites such as the Iron Age and or Roman salt production sites are potentially located a significant distance inland and that reconnaissance of the modern inter-tidal zone in those areas of reclamation will only discover relatively modern features.

The methodologies for the NMP survey and the wider RCZAS survey may also have hampered our understanding of the patterns of prehistoric archaeology that have emerged. As with the reconnaissance programme, it is clear that a project area based on the modern coastline is not necessarily appropriate as some parts of the project area only comprise swathes of drained and reclaimed land, as opposed to areas that are likely to have been subject to settlement or other semi-permanent activities in prehistory. Additionally, in any mapping project a one or two kilometre wide strip of landscape revealed only through small windows of cropmarks is inadequate to characterise the nature of historic settlement and land use. In the Deben and Orwell estuaries the field systems and settlement complexes seen as cropmarks on the higher ground cannot provide a context for the inter-tidal 'landscape' due to the relative low density of features recorded in the inter-tidal zone. This suggests that a much larger area of the coastal hinterland needs to be mapped before we can analyse changes in settlement and land use relating specifically to the coast.

The lack of significant features found by the integrated survey in the inter-tidal zone does suggest a genuine lack of archaeological features in these areas. Though the modern position of the historic inter-tidal zone has undoubtedly played a part in this pattern, large parts of the Stour, Deben and Orwell estuaries have not changed position dramatically. However, only the northern, Suffolk, side of the

Stour has yielded significant results, whilst the inter-tidal zones of Orwell and Deben estuaries remain relatively blank. It is possible that the topographic nature of these two fairly steep estuaries, with a narrow inter-tidal range, may have affected the survival or visibility of archaeological features in the inter-tidal zone or may have influenced how these estuaries were exploited in the past. The wider estuary of the Stour however, with its extensive mud flats, may have proved more attractive for a range of historic coastal activities as the fish trap in Holbrook Bay suggests. This argument for a geographical explanation of the lack of inter-tidal archaeology on the Suffolk coast is reinforced when one notes that the topographic nature of the Stour is more typical of the Essex estuaries and atypical for Suffolk.

Taking it further - is it what you find or the way you write about it?

It has been observed that whilst the National Mapping Programme consistently produces valuable data on the character and morphology of archaeological sites and landscapes, the 'stories' are sometimes obscured (Rog Palmer, pers. comm.). As the amazing density and level of detail relating to the Second World War defences emerged during the project, it became apparent that it was necessary to give a wider audience access to some of the project results and that it was vital to ensure that any future publication was much more than a gazetteer of military sites. In Autumn 2003 an article appeared in *Landscapes* (Newsome, 2003) which combined the results of the air photographic survey with first-hand accounts of soldiers and civilian affected by Suffolk's coastal defences, demonstrating that the approach taken to publication can have a significant affect on how results of NMP projects are perceived. If we make the effort to place people within their landscapes we can bring in a new and more interesting aspect to our two dimensional, map-based, view.

One aspect of the project which has a number of potential stories to tell is that of the prehistoric landscapes which are partially visible as cropmarks of ditched enclosures, rectilinear fields and trackways on the higher free-draining ground above the estuaries.

Interspersed within these landscapes are the plough-levelled remains of possible prehistoric funerary monuments, visible as cropmarks of ring ditches. The interpretation and mapping of these landscapes highlights two themes: firstly the undoubted importance of the estuaries and the sea to the people living on the Suffolk coast in the later prehistoric and Romano-British periods; secondly the remarkable continuity of use visible for certain elements of these landscapes. In all cases it is important to consider the position of the historic rather than modern coastline in relation to these prehistoric and Romano-British landscapes.

Living so close to the sea in a landscape dissected by major estuaries, water would have been extremely important to the people living in Suffolk's coastal zone, not only in terms of subsistence or transport, but also in how they defined themselves and understood their place in the world. The plough-levelled Bronze Age round barrow cemetery at Buckanay Farm in Alderton parish illustrates one aspect of the relationship between the prehistoric people of the Suffolk coast and the sea. The group of ring ditches is located on a slight knoll, below the 5m contour, in an area of drained land that would probably have been salt-marsh in the prehistoric period. This watery location suggests that the area of inter-tidal salt-marsh was perhaps viewed as being in some way special, that the sea had ritual, as well as practical, importance. Another circular ditched enclosure, with a short funnel entrance, possibly dating to the Iron Age, highlights the importance of access to the rivers, perhaps for salt-marsh grazing or stock movement. The entrance appears to be of no great significance until one examines the landscape setting of the site (Figure 3). The funnel entrance points down a shallow valley leading to the River Orwell suggesting this valley was an important route-way for people and animals.

In these coastal prehistoric landscapes, a remarkable level of continuity of land use can be seen, potentially stretching over at least a thousand years.

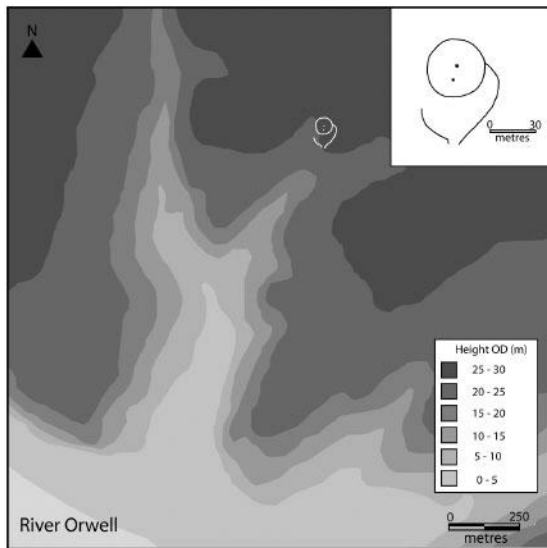


Figure 3. The location of the enclosure with a funnel-shaped entrance, Trimley St Martin, in relation to the River Orwell.

On the clay soils of central Suffolk it has been suggested that extensive co-axial pre-Roman field systems can be seen fossilised in the existing modern field pattern (Williamson, 1987). Though the NMP project area focuses on the free-draining and more extensively settled and exploited area of sandy soils known as the Sandlings, some level of continuity can still be seen in the landscape. At Martlesham, a trackway leading to a settlement of Roman, if not earlier, origin has been incorporated into the line of a post medieval field boundary and on Levington Heath to the north-east of Felixstowe, a prehistoric trackway has been incorporated into the 18th century field boundaries. The trackway also appears to mark the line of parish boundary as recorded on 19th century Ordnance Survey maps, suggesting that it was a significant route-way, which retained its importance for hundreds of years.

These are just a tiny sample of the stories that the NMP project has enabled us to tell about the landscapes of prehistoric Suffolk. This demonstrates that the ability to tell interesting stories is not restricted to our recent past. These landscapes will be explored in more detail in the project report and possible future publications.

Conclusion

The Suffolk Coastal NMP project has shown that ‘successful’ survey of the inter-tidal zone is dependant on an understanding of the position of the historic coastline and the archaeological and topographic nature of the estuaries. For the coastal zone in general, we need to approach survey in this environment with a better understanding of both these issues. The article on the Second World War landscapes of the Suffolk coast (Newsome, 2003) and the brief examination of the prehistoric cropmark evidence also demonstrates that putting people back into historic landscapes can make our results more accessible and helps us to understand how people perceive their landscape and their place within it. Each aspect of the coastal survey project, the reconnaissance, NMP survey and field survey, all recorded new sites and complementary aspects of archaeological evidence for the Suffolk coast that had not been found during the other types of survey. This suggests that an integrated approach to archaeological survey is the most effective way of understanding such complex and dynamic landscapes.

Bibliography

- Bewley, R. (2001) Understanding England’s Historic Landscapes: An Aerial Perspective. *Landscapes* 2(1), 74 – 84
- Fulford, M., Champion, T. & Long, A. (1997) *England’s Coastal Heritage: A survey for English Heritage and the RCHME*. English Heritage, London
- Heppell, E. & Massey, S. (forthcoming) *Rapid Coastal Zone Assessment Survey and NMP: characterising the resource*. (East Anglian Archaeology Occasional Paper)
- Newsome, S. (2003) The Coastal Landscapes of Suffolk during the Second World War. *Landscapes* 4(3), 42 - 58
- Strachan, D. (1995) Problems and potentials of coastal reconnaissance in Essex. *AARGnews* 10, 28-35

Strachan, D. (1997) *C14 Dating of some inter-tidal fish-weirs in Essex: dates and discussion*. Blackwater Estuary Management Plan (BEMP) Area Archaeological Project: Report No 1. Royal Commission on the Historical Monuments of England / Essex County Council

Wallis, S. (1994) Aerial Survey in 1993. *Essex Archaeology and History* 25, 233 - 234

Williamson, T. (1987) Early Co-axial Field Systems on the East Anglian Boulder Clays. *Proceedings of the Prehistoric Society* 53, 419-431

All maps, records and reports mentioned above are available from the Suffolk Sites and Monuments Record, Suffolk County Council Archaeological Service, Shire Hall, Bury St. Edmunds, Suffolk, IP33 2AR.
(01284) 352445

Photographs, maps, records and reports are also available through the National Monuments Record, English Heritage, Kemble Drive, Swindon, SN2 2JR.
(01793) 414600

The rescue of the Po Valley and discovery of a local Indiana Jones

Cinzia Bacilieri

Once upon the time in Italy, I was one of the million university students attempting the first steps into the fascinating world of archaeology. Many years have gone since then and I can now see how far those few initial steps took me.

I still remember all the time spent dreaming about a future career at the end of my studies as a desire impossible to come true. In a country where archaeology is an elite world, opportunity for an archaeological career was indeed not more than wishful thinking. That is why I came to England through a European Community grant and thanks to Rog Palmer's courage in accepting to look after a chatty Italian for few months. Initially I was sure I would only stay in England for no more than five months and then try to go back chasing the 'impossible Italian job'. Astonished by the different British approach to archaeology and thrilled by the opportunities that finally were opening in front of me, I ended up staying a bit longer than the planned five months.

In the past four years of my British life, I have been lucky enough not only to meet and learn from some of the most experienced aerial archaeologists, but also to work close to them in various projects. Everything that has happened to me in England is without doubt far beyond what that young Italian student could have ever dared to dream.

But it is exactly when you are happily beginning to settle down, and adopting elements of the foreign culture, the homesickness appears forcing you to look back at what was left behind.

One of the projects I have been involved with in England is the Culture 2000, which has so far taken me back to Italy twice, translating and helping for both the aerial archaeology summer schools. Thanks to those experiences I have discovered how much the panorama of Italian archaeology is slowly changing. Surprisingly some universities – unfortunately still not the majority – seem not afraid to experiment with new methods of research, incorporating disciplines like aerial archaeology and remote sensing with the most traditional methods. The

discovery of a discipline finally in evolution together with the dying of the formalities in the over-conservative Italian academic society had a strong impact on me. My commitment to Aerial Archaeology acquired a brand new meaning, much stronger than before, providing me finally with the right inspiration to my work. I could aim to make the most of my experience and, maybe one day, be able to give a proper contribution to Italian aerial archaeology.

My contribution has already begun by making public what the Italian academy has tried to deny or hide from the eyes of the world.

Being an immigrant means digesting the whole pack of rules and culture of the new society while keeping the heritage of the original one. Since I came to England I have learned how different a society could be and how these differences have made me a better person, more open-minded than before.

Just because of my origin, more than once it has been colourfully described to me the picturesque British preconception of the so-called typical Italian mama. I am not interested here to complain about misconception of middle-aged Italian women as, indeed, my mother IS actually fitting perfectly the stereotype of the typical Italian mama. Together with this, I have learned that probably it is true what people believe about Italians: that there is no hope to escape their own origins and family. Also because of what recently happen with my mother, I have indeed learned that, in order to avoid surprise, it is always necessary to dig one field thoroughly before looking in another.

Well, the story begun with the fact that, to keep herself happy in retirement, my mother has been involved in a local dialect poetry group for many years. The group was tasked by the county council to create a complete Italian – Ferrarese dictionary². By chance one of my

² Ferrarese is the local dialect of Ferrara. As Italian is a latin based language, dialects are what is left of the transitional phases of change between original latin and what is considered to be modern Italian.

mother's colleagues in the group was an ex inspector of Sovrintendenza di Voghiera, a little town in the middle of the Po valley, Dr Ottorino Bacilieri. For this reason, many meetings for the above project have been held in the beautiful Voghiera city hall. At the first meeting, my mother could not avoid noticing the aerial photograph hung on the wall. Then, she started the typical Italian-mama talk about the daughter archaeologist followed by a parade of knowledge of photo interpretation about cropmarks shown in the picture³.

And this is how I became aware of the unusual aerial activity of the Po valley. The homeland I tried to escape for many years, a dull and boring part of the country I was more than happy to leave behind.

The Voghiera aerial photo was part of the Nereo Alfieri's collection. Prof Nereo Alfieri is surely one of the pioneers of Italian archaeology, whose discoveries and full career have never been recognised with due honours. By extremely fortunate coincidence, one of my mother's old pals from high school is Nereo Alfieri's daughter, Edera Alfieri. So my mother invited Edera to one of her famous parties (if somebody might wonder what lies beneath the mysterious tendency which transform skinny young girls into the stereotype of chubby Italian mama when turned 40ish... this could provide clues) thereby creating a network to gain first hand information on Alfieri's activities and aerial photography in Emilia Romagna (Photo 1).

Nereo Alfieri has been one of the most prolific Italian field archaeologists, accredited pioneer of Ancient geography, medieval archaeology

They are unique for every town influenced by pre roman local languages and the development of latin itself within local isolated communities. Each dialect is completely different from Italian standard for vocabulary and sound pattern although following the same syntax and grammar rules.

³My mother helped me with the translation of the forthcoming publication *In Volo nel Passato* (Chris Musson and Rog Palmer), during which she mastered some of the basic principles of aerial archaeology. This left her feeling more than confident - maybe too much...? - in providing forensic explanation of cropmark features seen in the photo.

and topography. His innovative approach to



Photo 1. Ladies that Lunch. My mother networking with the aim of helping Italian aerial archaeology

archaeological investigation clashed with traditional practices in the 70s and remained little known or acknowledged. Alfieri's importance as pioneer of aerial archaeology in Italy and his use of aerial surveys as investigation tools have never been considered of much interest. Most importantly, his researches since the 50's focused not only on individual sites but aimed to discover relationships between sites and the whole landscape. In a country where the concept of landscape archaeology is still nowadays not common, the ideas of Alfieri were indeed more than innovative.

In the early 50's Alfieri discovered and directed excavations at the extraordinary Etruscan port of Spina and later contributed to the creation of related museum. Thanks to Alfieri's excavations the latter museum of Spina (now Museo Archeologico Nazionale di Ferrara) holds indeed one of the most important ceramic collections for the studies of Greek ceramic⁴.

During the excavation the sites of Valle Pega and Trebba in Spina were so incredibly rich of material that Alfieri was forced to ask for help from the guardia di Finanza, military corps, in order to prevent robberies and protect the

⁴Prof. J.D. Beazley, a noted authority in Greek ceramic studies, was part of the excavations and prepared a catalogue of Greek pottery. The Museum of Spina holds the unique primary record of a complete collection of red figures ceramic for the period 480-400 B.C.

excavation from so-called *tombaroli*⁵. With friends in the army, in proper Italian style Alfieri managed to obtain permission for reconnaissance flights above the area of the valli.

With an extensive use of aerial survey with oblique, vertical and infra red photographs Alfieri gained knowledge of the whole landscape structure of the Po valley, becoming then able then to understand the relationship between the port of Spina and inland settlements, so providing a topographic and geological context. His knowledge and expertise in aerial photography led him to look subsequently at the coastal area and locate in 1961 the ancient port of Augustus at Classe, Ravenna just south of Spina.

More important Alfieri has left behind a tradition of aerial reconnaissance, showing aerial survey as a powerful tool in the archaeological research. Although the law of 1939 was against private flyers it has always been possible for public bodies to fly. Following Alfieri's steps, fellow colleagues from Ente Bonifica and the local Sovrintendenza offices have carried out aerial photography for monitoring landscape changes for the past 30 years. Among them Dr Ottorino Bacilieri, honorary inspector of the Sovrintendenza dei beni culturali dell'Emilia Romagna and president of a local archaeological association, has been using aerial reconnaissance for recording the conservation status of properties and archaeological features of the Po Valley. Together with the owner of the plane Dr Andrea Lunghi, vice president of the same association, Dr Bacilieri has been undertaking reconnaissance flights above the Po Valley for various projects: among them, extraordinary recording the formal gardens of Belriguardo, renaissance property build in 1435 by marquis Niccolò III Este. The formal garden paths where located in a 1589 map of the property but now are visible only as cropmarks (Photo 2-3).

⁵Thieves specialised in antiquities. Archaeological excavations are normally targeted by these thieves, looking for pottery or any sort of antique materials which might have value.



Photo. 2 Villa di Belriguardo, Po Valley 1998. What's left of the traditional Italian gardens seen as cropmarks during an extremely hot summer. © Ottorino Bacilieri

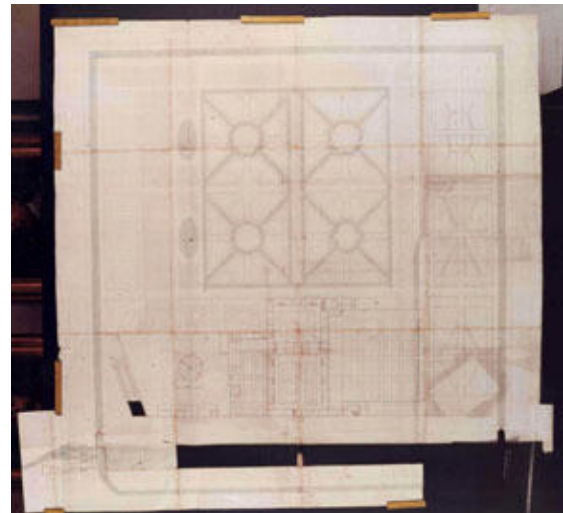


Photo 3. 1589 map of Villa di Belriguardo with the original paths of the formal garden, located in 1998 as cropmarks.

It is thanks to Alfieri's legacy in some of his students, who pursued careers into humanities if not archaeology, interest in aerial photography has been carried forward in A levels courses in Ferrara (Photo 4). Workshop in general archaeology and aerial archaeology referred to Spina are constantly organized for students of the local lyceum⁶ thanks to Prof Cinzia Solera, with the aim to rescue Alfieri's memory. Also National curricula has been unusually enriched with A levels courses in photogrammetry, remote sensing and interpretation of images in various technical

⁶High School for Classic Studies.

high school in Ferrara (before the far more traditional approach of archaeology could come from universities!).



Photo 4. A-levels students of Institute Aleotti during a topographic survey

In the past few months I have discovered the Po valley in a completely new light. It is indeed a rich and fertile soil, not only for its archaeology but also for all the interest in aerial photography and related activities!

Sometimes, leaving one's own country is just what necessary to open up your eyes and realize that maybe one of greatest pioneers of aerial photography in Italy was living next door...

Thanks

I would like here say thank you to all of the people and students interested in helping my search for Alfieri's photo archive and all the time dedicated so far.

My great thanks to Alfieri who made possible the opportunity to relate myself with pride to my homeland.

Bibliography

- O.Bacilieri. I giardini rinascimentali di Belriguardo.in *Ferrariae Decus* 1999
- O. Bacilieri. *Storia archeologica di Voghenza e del suo territorio*, 1994
- P.L. Dall'Aglio. *Terras...situnque Earum Quaerit – Studi in memoria di Nereo Alfieri*, 1999
- N. Alfieri. Il porto di Augusto a Ravenna. *Aerofotografia e topografia in Studi Storici, topografici ed archeologici sul Portus Augusti, 197-201*, 1961
- N. Alfieri. *Topografia antica e aerofotografia a Spina in Colloque Int. d' Archeologie Aerienne, 155-160*, 1964
- N. Alfieri. *La scoperta dell'abitato di Spina: le fasi della ricerca*, 1956
- N.Alfieri. *Contributo alle ricerche sull'antico delta padano in Atti del XV Congresso Geografico Italiano, 855-860*, 1950
- N.Alfieri. *Urbanistica e paesaggio in relazione a Spina in Ferrara. Spazi e Orizzonti, 51-54*, 1979

⁷Corso Sperimentale – Progetto 5 'Il geometra del Territorio e dell'Ambiente' Institute Aleotti, Ferrara.

Books of interest?

W.S Hanson and Ioana A Oltean. 'The identification of Roman buildings from the air: recent discoveries in Western Transylvania'. *Archaeological Prospection* **10** (2003), 101-117.

More from this productive pair who discuss in some detail four sites at which are Roman forts, vici and other structures. These are illustrated with plans combining the evidence of many photographs and a selection of abysmally-reproduced photographs. Of technical/methodological interest is a discussion on the mechanics of why most of the sites they find are visible as negative crop marks or parch marks (ie walls) while there are very few ditches or pits visible as positive crop marks. Alluvial deposits seem likely to be the reason.

Ioana A Oltean. 'Rural settlement in Roman Dacia: some considerations'. In W S Hanson and I P Hayes (ed) *Roman Dacia: the making of a provincial society*. Portsmouth, Rhode Island 2004, 143-164. [sorry, no ISBN or price].

I've not finished reading this yet but it presents some of the meat from the work that Ioana and Bill Hanson have been doing in Romania and looks at some of the archaeological results discussing these in relation to the traditionally held views. Those of you who know Ioana will be aware that when she wants to shout she does so and there are parts of this paper in which some of the traditional views receive a well-justified bashing. I imagine the paper is more-or-less extracted from her recent PhD although it is easier to read than one expects from such tomes.

This paper, and others from the Hanson-Oltean partnership show how much can be achieved in a few seasons of aerial survey with a local (or ex-local) archaeologist who can read the relevant literature but is not downtrodden by the need to conform and can bring fresh ideas into discussions. This perhaps shows the way in which we should approach work in any 'new' country – lend our expertise but abscond with a local archaeologist who is eager to bash away at dusty old professors.

Martin J F Fowler. 'Archaeology through the keyhole: the serendipity effect of aerial reconnaissance revisited'. *Interdisciplinary Science Reviews* **29:2** (2004), 118-134.

Satellite uses, especially CORONA, are discussed along with information of camera abilities (resolution and cover). Published archaeological uses are listed along with mission numbers and references which may help future users assess the quality of different missions, cameras and dates. The paper also notes and illustrates of crop-marked evidence in Hampshire, centuriation in Croatia and shows the potential of the imagery for Cold War studies in Europe. As is usual from the author we have a critical analysis of the archaeological potential of declassified imagery plus good documentation of examples and many references that we otherwise may not see.

From Toby Driver:

The Summer 2004 *Archaeology and Architecture* book catalogue of the Castle Bookshop (see address below) had a handful of aerial books which might be of interest to AARG members. All are suitable for improving an existing collection or starting from scratch. Of course, there is no guarantee that the books are still available, but the relevant titles included;

Bewley R H (ed), *Lincolnshire's Archaeology from the Air* (1998) - £14.50

Buttler W et. al. *Luftbild und Vorgeschichte*, (Berlin 1938), with 3D glasses, and contribution by O G S Crawford. - £38.50 (sounds interesting this one!)

Kennedy D (ed), *Into the Sun* (1989) - £14.50.

Riley, D N, *Air Photography and Archaeology* (1987) - £24.50

Riley, D N, *Early Landscape from the Air* (1980). - £18.50.

Wilson, D R (ed). *Aerial Reconnaissance for Archaeology* (1975) - £14.50.

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Tel: + (0) 1686 668484.

Email: Castlebooks@dial.pipex.com Web: <http://www.archaeologybooks.co.uk>

[<http://www.oxbowbooks.com/> also had copies of the Kennedy book in February this year.]

Glanced at, not yet read, but of possible interest...

Archaeological Prospection **10:2** (2003) includes two papers with aerial content:

Ian Barnes 'Aerial remote-sensing techniques used in the management of archaeological monuments on the British Army's Salisbury Plain Training Area, Wiltshire, UK'.

An assessment of CASI and LIDAR images for identifying and monitoring archaeological earthworks.

Antonia Kershaw 'Hadrian's Wall National Mapping Programme – a World Heritage Site from the air'

A note about what NMP intends to do – map earthworks and crop marks [but not, apparently, soil marks] within a 10km corridor.

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